

IBM IMS Recovery Solution Pack for z/OS
2.1

IMS Recovery Expert User's Guide



Note:

Before using this information and the product it supports, read the information in [“Notices” on page 439.](#)

15th Edition (October 2024)

This edition applies to Version 2.1 of IBM IMS Recovery Solution Pack for z/OS: IMS Recovery Expert (program number 5655-S98) and to all subsequent releases and modifications until otherwise indicated in new editions.

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Contents

About this information.....	ix
Chapter 1. IMS Recovery Expert overview.....	1
What's new in IMS Recovery Expert.....	1
IMS Recovery Expert features and benefits.....	8
IMS Recovery Expert ISPF interface.....	11
IMS recovery utilities.....	11
Copy blades.....	12
Backup and recovery solutions.....	13
Software and hardware requirements.....	14
APF authorization requirements.....	14
Service updates and support information.....	14
Product documentation and updates.....	15
Accessibility features.....	16
Chapter 2. Planning for System Level Backup and recovery.....	17
System Level Backup usage considerations.....	17
Backup frequency and space utilization.....	19
Analyzing data set isolation.....	20
Migrated data set considerations.....	21
Planning for a local site full IMS System Level Backup with forward recovery.....	22
Planning for the creation of an IMS System Level Backup.....	23
Planning for an IMS system and application recovery.....	24
Planning a tape-based IMS disaster restart methodology.....	26
IMS Recovery Expert and storage system integration.....	27
Copy blade selection considerations.....	29
IBM FlashCopy blade.....	29
EMC TimeFinder copy blade.....	29
HDS ShadowImage copy blade.....	31
IBM DFSMSdss copy blade.....	32
Chapter 3. Configuring IMS Recovery Expert.....	33
Defining the repository and configuring the ISPF CLIST.....	33
Adding TSO commands to the Command Limiting table.....	34
Setting backup defaults and defining IMS systems and data sharing groups.....	35
(Optional) Setting default values for creating and building backup profiles.....	35
Providing IMS system information.....	36
(Optional) Including/excluding data sets in System Level Backup.....	38
Defining groups for data sharing environments.....	39
Defining Db2 Recovery Expert for z/OS CLIST information.....	41
(Optional) Configuring the PARMLIB member.....	42
Enabling IMS Recovery Expert in online and batch IMS environments.....	57
Configuring IMS Tools Generic exit.....	57
Making the IMS Recovery Expert load library available.....	58
Defining IMS Recovery Expert to IMS Tools Knowledge Base.....	58
Defining RECONID members to IMS Tools Knowledge Base.....	58
Setting up for recovery.....	58
Setting defaults for recovery utilities.....	59
Identifying GENJCL libraries and skeletal members.....	60
Specifying IDCAMS DELETE/DEFINE control statements.....	76

Building the SLB Dynamic API Environment.....	76
Using SLBs in the recovery process.....	76
Setting up the environment to support SLB image copies.....	77
(Optional) Analyzing IMS data set placement for System Level Backup validation.....	83
Chapter 4. Using the IMS Recovery Expert ISPF Interface.....	87
Header fields.....	87
Getting help.....	88
Column display functionality.....	88
Accessing the CSETUP primary option menu.....	88
Fixing a column.....	89
Repositioning columns.....	91
Resizing columns.....	92
Sorting.....	94
Fast path SORT command.....	95
Resetting CSET customizations.....	96
Removing CSET customizations.....	96
Column scrolling.....	97
Column numbering.....	97
Ruler display.....	97
Expanding columns.....	98
CSET restrictions.....	98
Gathering maintenance level information with the DISPLAY MEPL command.....	98
Chapter 5. Collecting and analyzing data with the System Setup facility.....	101
Configuring an IMS system for data set isolation.....	101
Configuration summary for the system setup facility.....	101
Analyzing IMS systems.....	102
Selecting an IMS system for analysis.....	102
Reviewing system setup information.....	104
Separating the MVS user catalogs.....	106
Viewing existing MVS user catalogs.....	106
Viewing the aliases for a user catalog.....	106
Displaying the data sets currently cataloged by the MVS catalog.....	107
Viewing the data sets allocated on a volume.....	108
Managing aliases in the MVS user catalogs.....	110
Viewing the data sets for an alias.....	110
Optimizing volumes used by the IMS system.....	111
Chapter 6. Creating and maintaining System Level Backup profiles.....	113
Profile setup.....	113
Accessing the backup profile list.....	114
Creating IBM FlashCopy and EMC TimeFinder/Clone backup profiles.....	116
Creating an EMC BCV backup profile.....	122
Specifying source and target volumes for an EMC BCV backup profile.....	125
Creating an IBM DFSMSdss backup profile.....	127
Specifying source and target volumes for a DFSMSdss backup profile.....	129
Performing System Level Backups on Hitachi storage systems.....	131
About offload options.....	132
Setting offload options for IBM FlashCopy, EMC SNAP, EMC BCV, and DFSMSdss backups.....	132
Setting data set options.....	135
Encrypting data.....	139
Specifying target pool.....	141
Message Area messages.....	142
Managing profiles.....	144
Updating a profile.....	144
Viewing a profile.....	144

Renaming a profile.....	144
Deleting a profile.....	145
Considerations when using copy blades.....	146
Chapter 7. Creating a System Level Backup.....	149
Building and submitting backup jobs.....	149
Sample build JCL for the profile setup process.....	150
Sample build JCL for a backup.....	151
Adding keywords to a System Level Backup job.....	153
Sample build JCL for the offload process.....	154
Reviewing output from an IBM FlashCopy backup.....	155
Reviewing output from an EMC BCV backup.....	157
Reviewing output from an EMC SNAP backup.....	158
Reviewing output from a DFSMSdss backup.....	162
Reviewing output from offloading a backup.....	164
Chapter 8. Recovery using application operations.....	167
Upgrading application profiles.....	168
Creating object profiles.....	168
Adding databases.....	169
Adding indexes.....	170
Adding groups.....	171
Creating utility profiles.....	172
Setting SLB parameters.....	174
Setting recovery utility options.....	175
Setting index rebuild options.....	176
Setting change accumulation options.....	178
Setting post recovery image copy options.....	178
Setting spawned job options.....	179
Creating job profiles.....	180
Using profiles.....	181
Using a profile to build a recovery job.....	182
Using a profile to create Recovery Point.....	189
Using a profile for Quiet Time Analysis.....	189
Using a profile to perform a health check.....	191
Managing a profile.....	192
On-demand operations.....	194
Building a recovery job.....	194
Creating a Recovery Point job.....	198
Building a Quiet Time Analysis job.....	200
Building a Health Check job.....	202
Chapter 9. Recovering Db2 and IMS applications.....	205
Connecting IMS Recovery Expert and Db2 Recovery Expert	205
Managing the coordinated recovery process.....	206
Creating coordinated recovery profiles.....	209
Associating a Db2 object and an IMS job profile to the coordinated recovery profile.....	210
Updating a coordinated recovery profile.....	211
Viewing a coordinated recovery profile.....	212
Renaming a coordinated recovery profile.....	213
Deleting a coordinated recovery profile.....	214
Performing quiet time analysis for a coordinated recovery profile.....	215
Building the quiet time analysis job.....	216
Building the coordinated recovery jobs.....	216
Selecting the recovery point.....	217
Generating the Db2 object recovery plans.....	218
Selecting the Db2 object recovery plan.....	218

Submitting the recovery plan job.....	220
Building the coordinated recovery job for IMS objects.....	221
Chapter 10. Performing a Combined System Level Backup.....	223
Planning for Combined SLB.....	223
Configuring Combined SLB.....	224
Creating shared repositories.....	225
Creating Combined SLB groups.....	226
Creating System Level Backup profiles for Combined SLB groups.....	229
Using System Restore and Offload with Combined SLB.....	232
Using job profiles with Combined SLB.....	233
Creating disaster recovery profiles for Combined SLB groups.....	234
Performing IMS system analysis and configuration.....	235
Using coordinated application profiles with Combined SLB.....	235
Chapter 11. Restoring an IMS system.....	237
Before you restore the system.....	237
Viewing a list of backups.....	237
Viewing the summary report from the backup.....	239
Offloading a backup.....	239
Performing an SLB health check.....	240
Deleting backups.....	241
Restoring a system: Data only.....	241
Building restore jobs - data only.....	241
Restoring a system: Data and logs.....	244
Building restore jobs - data and logs.....	244
Selecting a recovery timestamp.....	246
Restarting a failed restore job	248
Reviewing restore reports.....	248
Restore job report.....	248
Chapter 12. Creating image copies from System Level Backups.....	251
Selecting or creating the job profile.....	251
Setting image copy options.....	253
Specifying data set naming conventions.....	254
Using the substring function.....	256
Validating the DSN name with an alphanumeric character or symbol.....	257
Viewing a sample string.....	257
Chapter 13. Recovering an IMS system using the IMS Recovery Expert disaster recovery feature.....	259
Preparing for disaster recovery at the local site.....	259
Preparing for disaster recovery at the remote site.....	260
(Optional) Using system recovery profiles to recover groups of databases.....	261
Creating system recovery profiles.....	263
Setting system recovery options.....	266
DR preparation job history display.....	272
Creating disaster recovery profiles.....	273
Updating Archive Log options.....	277
Updating Change Accumulation options.....	280
Updating Image Copy options.....	282
Updating DR Recovery options.....	283
Customizing RECON data set names.....	283
Specifying IDCAMS Delete/Define options.....	284
Updating Archive OLDS at DR site options.....	286
Building disaster recovery jobs.....	286
Contents of the disaster recovery PDS.....	287

Running the disaster recovery preparation JCL.....	290
Recovering your system at the remote site.....	291
Application recovery restart.....	292
Recovering both IMS and Db2 subsystems.....	292
Creating IMS and Db2 disaster recovery profiles.....	293
Recovering both IMS and Db2 subsystems at the local site.....	293
Recovering both IMS and Db2 subsystems at the remote site.....	294
Chapter 14. Running a Health Check.....	295
Chapter 15. Messages.....	299
Chapter 16. How to look up message explanations.....	425
Chapter 17. Gathering diagnostic information.....	427
Chapter 18. References.....	429
Recovery job statistics report.....	429
The ACB repository.....	431
Using the ACB repository.....	432
The BSYACBRU utility.....	433
User Image Copy.....	435
Recovery using User Image Copy.....	435
Eligible User Image Copy.....	436
Recovery procedure.....	436
Notices.....	439
Index.....	443

About this information

IBM IMS Recovery Solution Pack for z/OS® IMS Recovery Expert (also referred to as IMS Recovery Expert) is a storage-aware backup and recovery solution that integrates storage processor fast-replication facilities with IMS backup and recovery operations.

IMS Recovery Expert allows instantaneous backups, reduces recovery time, and simplifies disaster recovery procedures while using less CPU, I/O, and storage resources.

IMS Recovery Expert provides full integration with other tools in the IMS Recovery Solutions Pack such as IMS Database Recovery Facility, IMS Database Recovery Facility / Extended Functions, IMS High Performance Change Accumulation, IMS High Performance Image Copy, and IMS Index Builder; allowing the performance of recovery using standard IMS Recovery assets such as image copies, change accumulations, and archived logs. IMS Recovery Expert provides the intelligence to determine the best and most efficient method for performing recovery, and automatically drives the necessary recovery-related processes.

These topics provide instructions for planning, configuring, and using IMS Recovery Expert.

These topics are designed to help database administrators, system programmers, application programmers, and system operators perform these tasks:

- Plan for a System Level Backup and recovery with IMS Recovery Expert
- Configure IMS Recovery Expert
- Perform a System Level Backup with IMS Recovery Expert
- Diagnose and recover from IMS Recovery Expert problems
- Configure other tools in the IMS Recovery Solutions Pack for integration with IMS Recovery Expert
- Use IMS Recovery Expert with other Db2® or IMS products

Always refer to the IMS Tools Product Documentation web page for complete product documentation resources:

<https://www.ibm.com/support/pages/node/712955>

The IMS Tools Product Documentation web page includes:

- Links to [IBM Documentation](#) for the user guides ("HTML")
- PDF versions of the user guides ("PDF")
- Program Directories for IMS Tools products
- Technical notes from IBM Software Support, referred to as "Tech notes"
- White papers that describe product business scenarios and solutions

Chapter 1. IMS Recovery Expert overview

IBM IMS Recovery Solution Pack for z/OS IMS Recovery Expert (also referred to as IMS Recovery Expert) helps you to avoid accidental data loss or corruption by providing the fastest, least costly method of backup and recovery.

IMS Recovery Expert provides a fast and easy-to-use implementation of an IMS System Level Backup and recovery methodology. It reduces backup windows by leveraging storage-based fast-replication such that backups of multi-terabyte IMS environments can be performed in seconds or less. It simplifies backup and recovery methodologies by allowing full-system, application, and database-level recoveries to be performed from a common System Level Backup. Consistent backups can be created using "full" or "data-only" System Level Backup options. It provides IMS System Level Backup and recovery support even for complex applications, when data must be backed up, restored, and recovered as a unit. System Level Backups can be taken while the IMS system remains active. In addition, when creating System Level Backups, IMS Recovery Expert invokes storage-based fast-replication facilities through appropriate storage processor APIs. This reduces host CPU and I/O resource utilization and enabling legacy data copy methods to be used while the IMS system is down.

IMS Recovery Expert has integrated, intelligent recovery and disaster recovery managers that analyze recovery assets and establish optimal recovery procedures to minimize recovery time and recovery point objectives. Recovery jobs are tailored specifically to available backup and hardware resources.

- The Intelligent Recovery Manager supplies the ability to perform local recoveries efficiently using all available recovery resources. Restore operations that invoke fast-replication facilities through appropriate storage processor APIs and parallel recovery can significantly reduce recovery time and complexity.
- The Intelligent Disaster Recovery Manager uses local site procedures to prepare for offsite disaster recovery or disaster restart in advance. The information that is acquired allows Intelligent Disaster Recovery Manager to intelligently perform remote site restoration operations and appropriate recovery or restart procedures.

Topics:

- [“What's new in IMS Recovery Expert” on page 1](#)
- [“IMS Recovery Expert features and benefits” on page 8](#)
- [“IMS Recovery Expert ISPF interface” on page 11](#)
- [“IMS recovery utilities” on page 11](#)
- [“Copy blades” on page 12](#)
- [“Backup and recovery solutions” on page 13](#)
- [“Software and hardware requirements” on page 14](#)
- [“Service updates and support information” on page 14](#)
- [“Product documentation and updates” on page 15](#)
- [“Accessibility features” on page 16](#)

What's new in IMS Recovery Expert

This topic summarizes the technical changes for this edition.

New and changed information is indicated by a vertical bar (|) to the left of a change. Editorial changes that have no technical significance are not noted.

Revision markers follow these general conventions:

- Only technical changes are marked; style and grammatical changes are not marked.

- If part of an element, such as a paragraph, syntax diagram, list item, task step, or figure is changed, the entire element is marked with revision markers, even though only part of the element might have changed.
- If a topic is changed by more than 50%, the entire topic is marked with revision markers (so it might seem to be a new topic, even though it is not).

Revision markers do not necessarily indicate all the changes made to the information because deleted text and graphics cannot be marked with revision markers.

SC19-4368-14

Description	Related APARs
<p>This enhancement provides a new function to enable database recovery using User Image Copy. A new option is added to the Recovery Resources field on the Recovery Options panel. New and updated topics include:</p> <ul style="list-style-type: none"> • “Identifying GENJCL libraries and skeletal members” on page 60 • “Creating utility profiles” on page 172 • “Using a profile to build a recovery job” on page 182 • “User Image Copy” on page 435 • New messages “BSYR965E” on page 383, “BSYR966E” on page 383, and “BSYR967E” on page 383 	PH54197

SC19-4368-13

Description	Related APARs
<p>Documentation change on whether you need to restart the IMS control region after applying the PTF. See “Making the IMS Recovery Expert load library available” on page 58 for more information.</p>	N/A

SC19-4368-12

Description	Related APARs
<p>Description of IMS user exits, BSYPPUE0 and BSYFLGX0, has been added. Updated topics include:</p> <ul style="list-style-type: none"> • “Configuring IMS Tools Generic exit” on page 57 • “Creating IBM FlashCopy and EMC TimeFinder/Clone backup profiles” on page 116 	N/A

SC19-4368-11

Description	Related APARs
<p>With a new parameter, FORCE_STARTDB, IMS Recovery Expert can issue the START DB command even if the DBR command was not issued at the beginning of the database recovery process. New and updated topics include:</p> <ul style="list-style-type: none"> • “IMS recovery process parameters” on page 50 • New message “BSYI937I” on page 325 	PH58283

SC19-4368-10

Description	Related APARs
Usability improvement on the "Parameters for IMS Subsystem ssid" panel. New and updated topics include: <ul style="list-style-type: none">• “Providing IMS system information” on page 36• New message “BSYI220E” on page 324• Modified messages “BSY0113E” on page 301, “BSY0115E” on page 301, and “BSY0117E” on page 301.	PH48227

SC19-4368-09

Description	Related APARs
Requirement to define resource definition data set when dynamic resource definition is enabled for the IMS online system has been added. New and updated topics include: <ul style="list-style-type: none">• “Providing IMS system information” on page 36• New message “BSYI330E” on page 324	PH43753

SC19-4368-08

Description	Related APARs
This enhancement provides a new Recover IMS catalog first option that enables you to specify whether you want to recover IMS catalog database prior to other databases at the DR site. New and updated topics include: <ul style="list-style-type: none">• “Creating disaster recovery profiles” on page 273• “Contents of the disaster recovery PDS” on page 287• “Recovering your system at the remote site” on page 291• New message “BSYR964E” on page 383	PH42119

SC19-4368-07

Description	Related APARs
This enhancement provides a new Disable old backup in DR PDS option that enables you to specify whether you want to disable the previously built backup image of RECON and the IMS Recovery Expert repository in the DR PDS when the DR preparation job is executed. New and updated topics include: <ul style="list-style-type: none">• “Creating disaster recovery profiles” on page 273• “Creating IMS and Db2 disaster recovery profiles” on page 293• Message “BSYR960E” on page 382	PH25092

Description	Related APARs
<p>This enhancement provides a new Key label replication option that enables you to specify whether you want the existing key label information to be set on the KEYLABEL parameter of the DEFINE CLUSTER command. New and updated topics include:</p> <ul style="list-style-type: none"> • Chapter 12, “Creating image copies from System Level Backups,” on page 251 • “Specifying IDCAMS Delete/Define options” on page 284 • Message “BSYR961E” on page 382 	PH31570
<p>This enhancement provides a new Archive OLDS at DR site option that enables you to specify whether you want to execute OLDS archiving during the recovery process at the DR site. Also, using another new Delete all SUBSYS in RECON option, you can specify whether to delete all subsystem (SUBSYS) records in the DR RECON. New and updated topics include:</p> <ul style="list-style-type: none"> • “Creating disaster recovery profiles” on page 273 • “Updating Archive OLDS at DR site options” on page 286 • Messages “BSYR962E” on page 383 and “BSYR963E” on page 383 	PH38350

SC19-4368-06

Application operations redesign

To improve performance and usability, the Application Operations menu and functionality have been redesigned. Application profiles are now segmented into:

- Object profiles
- Utility profiles
- Job profiles

Coordination application profile functionality has not be altered. Users may also now run on-demand operations to build the following jobs without needing a pre-defined profile to work from:

- Recovery jobs
- Create Recovery Point jobs
- Quiet Time Analysis jobs
- Health Check jobs

New options for controlling spawned job jobname and jobcard

Using the new **Update Spawned Job Options** option, you can now override the default methods for jobname and jobcard generation.

New recovery option for System Profile Recovery

Using the new recovery type option INITONLY, you can set the System Recovery Profile so that the objects in the profile are initialized instead of recovered. This option is only valid for a DR System Recovery Profile.

SC19-4368-05

ACB repository

The new ACB repository is a VSAM KSDS that contains ACBs as loaded and/or updated from the active ACB library (ACBLIB). Use of the ACB repository improves the performance of IMS Recovery Expert functions that access the ACB libraries of large systems.

New PARMLIB member to create unique default recovery options

Using the new member BSY#SSID, you can now create unique, default recovery options for each IMS subsystem or IMS group.

New parameter to control default recovery options

Using the new BSY#PARM parameter IMS_GENJCL_DFLT_MBR, you can control the default recovery options

New recovery options for System Recovery Profiles

New recovery options for System Recovery Profiles allow you to specify the type of recovery that can be performed at the disaster recovery site. The three types of recovery that can be performed are PITR, LASTPITCA, and LASTIC.

New parameters for recovery type options PITR, LASTPITCA, and LASTIC

New parameters for the recovery type options PITR, LASTPITCA, and LASTIC include DR_LASTPITCA_AGE, DR_LASTPITCA_RANGE, DR_LASTIC_AGE, and DR_LASTIC_RANGE.

SC19-4368-04

New parameter to control history information

The new BSY#PARM parameter DR_HISTORY_RETENTION controls the creation and retention of history information associated with each time the Disaster Recovery preparation job is executed.

New IDCAMS delete/define cards created upon job execution

The Disaster Recovery Profile now enables the DR preparation job to create new IDCAMS delete/define cards each time the job executes. The cards can be placed in members in the DR PDS, or a new PDS can be created each time.

New option to skip marking all DBDS as recovery needed

The Disaster Recovery Profile can now skip the process to mark all DBDS as recovery needed when the DR preparation job executes. This process might not be required for your DR environment, and skipping it reduces execution time for the DR preparation job.

New option to skip writing conditioned RECON to DR site

You can now skip writing the conditioned RECON data sets to the DR PDS when you have other methods of sending the conditioned RECON to the DR site.

SC19-4368-03

Run IBM IMS Database Recovery Facility/Extended Functions Health

You can now choose to run the Health Check feature from the following places:

- Run HCHECK against an application profile.
- Run HCHECK against a system level backup.
- In the Disaster Recovery Profile, you can set HCHECK to be run against the conditioned RECON data sets when the disaster recovery preparation job runs.

Dynamic API enables IBM IMS Database Recovery Facility (DRF) and IBM IMS Database Recovery Facility/Extended Functions (DRF/XF) to use System Level Backups (SLBs)

A new dynamic API enables a DRF or DRF/XF job to be aware of any SLB that you have taken which contains data that meets your criteria better than data in the RECON data sets. For example, if you are recovering a database to the current time, and the image copy in the RECON is older than the last SLB, then the API will allow DRF to use the SLB as the image copy, thus reducing the number of logs needed to complete the recovery.

A new Recovery Sensor evaluates information in the RECON data sets to look for problems that can affect recovery

The Recovery Sensor is a batch job that can either be scheduled by the Autonomics Director, or in any job scheduler, and is control card driven. To look for potential problems related to recovery, the Recovery Sensor obtains information from the RECON data sets that matches the criteria you specify. This information is stored in the IMS Tools Knowledge Base (ITKB). You can then create recovery policies to evaluate this information and notify you when problems are detected.

SC19-4368-02

Checkpoint restart capability for local recovery

Checkpoint restart capability is now available when performing local recoveries. To enable this capability, you must:

- Add the new RECOV_CHKPT_RESTART = YES parameter to your BSY#PARM parameter member
- Tailor and execute the SBSYSAMP(BSYCHKPT) member to allocate the new checkpoint restart repository
- Edit your BSYV220 invocation CLIST and:
 - add RBRCHKPT(dsn) on the PROC statement to specify the checkpoint data set
 - add “ISPEXEC VPUT (RBRCHKPT) ASIS” after the PROC statement

For more information, see [“Managing application recovery checkpoint restart”](#) on page 193.

Enhanced application recovery processing

Enhancements have been made in application recovery processing for both local and DR site application recovery, which allows more flexibility in defining and executing the utilities required to complete application recovery. With these changes, there are several areas which must be addressed in order to perform application recovery.

BSY#PARM member changes

The following BSY#PARM parameters are obsolete and must be removed from your BSY#PARM member:

- GENJCL_DRF_RECOV_MEM
- GENJCL_IMS_RECOV_MEM
- GENJCL_HPCA_CA_MEM
- GENJCL_IMS_CA_MEM
- GENJCL_HPIC_PR_MEM
- GENJCL_IMS_PR_MEM
- GENJCL_IMS_FPSI_MEM
- GENJCL_IMS_HALDB_MEM
- GENJCL_IMS_IX_MEM
- IMS_HALDB_UTIL
- IMS_POINTER_CHECK
- IMS_STANDARD_UTILITIES
- IMS_USE_FOR_ILDS_RBLD
- IMS_USE_FOR_PI_RBLD
- IMS_VERIFY
- IMS_VERIFY_LEVEL
- DR_VERIFY
- DR_VERIFY_LEVEL

The following BSY#PARM parameters have been renamed and must be changed in your BSY#PARM member:

Old name	New name
GENJCL_USER_FPSI_MEM	GENJCL_USER_FPIX_MEM
GENJCL_USER_HALDB_MEM	GENJCL_USER_HBIX_MEM
GENJCL_USER_IX_MEM	GENJCL_USER_FFIX_MEM

Old name	New name
GENJCL_USER_PR_MEM	GENJCL_USER_IC_MEM
IMS_POST_RECOV_UTIL	IMS_IC_UTIL

The following new parameters have been added to BSY#PARM and must be specified:

```

USE_FFIX_FOR_HALDB_RBLD      N -\* Specify "Y" to use the      *\
                             -\* FFIX GENJCL member for      *\
                             -\* processing HALDB PINDEX/     *\
                             -\* IDLS rebuild or "N" if       *\
                             -\* that is not desired          *\
INDEX_RBLD_WHEN_RECOV      Y -\* Specify "Y" to have any    *\
                             -\* index needing recovery to   *\
                             -\* be rebuilt instead of       *\
                             -\* recovered or "N" if this     *\
                             -\* is not desired.              *\
HALDB_RBLD_ON_RECOV_TO_CURRENT Y -\* Specify "Y" to have any *\
                             -\* HALDB ILDS/PINDEX rebuilt  *\
                             -\* when the HALDB is            *\
                             -\* recovered to current or     *\
                             -\* "N" if this is not          *\
                             -\* desired.                      *\
ACTION_ON_WARNING          C -\* Specify the action to be *\
                             -\* taken if warnings occur     *\
                             -\* during recovery, "W" to      *\
                             -\* issue a WTOR to pause        *\
                             -\* processing, "C" to          *\
                             -\* continue, or "A" to          *\
                             -\* abort.                        *\

```

For more information on the BSY#PARM changes, see [“\(Optional\) Configuring the PARMLIB member”](#) on page 42.

GENJCL member changes

To provide more capability and flexibility for generating the jobs required to perform recovery, index rebuild, change accumulation, and image copy, the structure of the GENJCL members has changed. New members that support the IMS base utilities, IBM IMS Tools utilities, and user utilities have been supplied using the new format. You must modify your existing GENJCL skeletons that are used for application recovery when driven by IMS Recovery Expert. For more information, see [“Creating GENJCL skeletal members”](#) on page 60.

Recovery options changes

To provide more flexible processing options when performing the functions associated with application recovery under IMS Recovery Expert, the recovery options have been modified in the following places:

- System Recovery Profile recovery options
- Application Profile recovery options
- System Level Backup restore recovery options

Before you can perform any application recovery processing, you must edit and upgrade the recovery options for any of these areas you currently have set up. If you do not, then when you try to perform application recovery, you will receive an error that the recovery options need to be upgraded and jobs will not process until that is done.

SC19-4368-01

Combined SLB

You can now create a combined SLB for IMS and Db2. For more information, see [Chapter 10, “Performing a Combined System Level Backup,”](#) on page 223.

SC19-4368-00

Storage group discovery

When creating a backup profile and specifying the Source/Target Mapping, you can now specify a new option for SMS storage group discovery for source volumes. With this option, you specify the SMS storage group names which contain the IMS source volumes and all of the volumes in that storage group will be included in the backup. For more information, see [“Creating System Level Backup profiles for Combined SLB groups” on page 229.](#)

Redesigned ISPF interface

The ISPF interface has been redesigned for this version of the product.

IMS Recovery Expert features and benefits

IMS Recovery Expert offers several unique and significant features that you can use to significantly improve your IMS backup and recovery methodology.

ISPF interface

IMS Recovery Expert provides an easy-to-use ISPF interface to manage all of its main functions. Through the ISPF interface, users can easily create System Level Backup, object, utility, job, and disaster recovery profiles that contain all the information necessary to run backup, restore, and disaster recovery jobs.

IMS System Level Backup and recovery

IMS Recovery Expert provides the ability to backup an entire IMS system (full image or data only) or a partial IMS system at the volume level through the use of System Level Backup profiles. These profiles designate the IMS system, the user options and the resources that will be used to perform the backup. When run, IMS Recovery Expert will validate that all IMS data is included in the backup by performing dynamic discovery of all the data sets and their associated volumes. This will ensure that the entire IMS system is backed up. The System Level Backup can be taken while the IMS system is active or down. When the system is active, the backup can be taken by using fast-replication storage devices. When the system is down, the backup can be taken using DFSMSdss or FDR to copy each IMS volume. IMS Recovery Expert also provides the ability to "offload" or copy the System Level Backup to tape. A System Level Backup can be used at the local site to restore an entire IMS system. At the remote site, it can be used to restore the IMS system for disaster recovery purposes. In addition, IMS Recovery Expert can restore individual IMS databases from a System Level Backup.

Using the Combined System Level Backup function, with a single process you can back up and recover multiple IMS subsystems, multiple Db2 subsystems, or a combination of both, to a single, consistent point in time. For more information about using the Combined System Level Backup feature, see [Chapter 10, “Performing a Combined System Level Backup,” on page 223.](#)

IMS System Level Backup configuration and management

IMS Recovery Expert includes a System Setup feature that can be used to discover an IMS system and recommend layout and configuration changes so that the IMS system can be set up appropriately to accommodate a System Level Backup and recovery methodology.

Backup validation

IMS Recovery Expert provides extensive backup validation to ensure that the System Level Backup contains all IMS files and catalog structures required for a successful recovery.

Tape offload support

IMS Recovery Expert provides tape offload support to automate copying a System Level Backup or partial System Level Backup from disk to tape. Backups created on disk can be copied to tape using DFSMSdss or FDR so the backup disk volume pool can be reused. IMS Recovery Expert allows you to encrypt the

data when offloading to tape or disk. Data encryption can be specified for either DFSMSdss or FDR offloads. IMS Recovery Expert provides a report of backups and offloaded tapes for offsite support. A subsequent IMS system restore operation will restore the backup from disk or tape depending on System Level Backup availability and recovery scope. IMS Recovery Expert will use the most appropriate backup for application-level recovery and will restore the databases from disk, tape, or a previous image copy depending on which backup provides the most expedient recovery process.

IMS application-level recovery

Application-level recovery allows IMS Recovery Expert users to recover IMS databases or groups of related databases that represent applications from a System Level Backup or image copies. From the ISPF interface, users create profiles that include all the IMS databases that represent an application. When an application needs to be recovered, IMS Recovery Expert will analyze all the available backup resources to generate the most appropriate recovery JCL to recover all the databases in the profile. IMS Recovery Expert can also invoke additional recovery utilities after restoring the databases to bring them to a more current point-in-time.

In addition, application-level recovery leverages storage-based data set fast-replication facilities. The use of storage-based data set fast-replication allows database recovery to be performed in parallel to the database restore process. This significantly reduces the overall recovery time. Application or database recoveries that traditionally have taken many hours can be performed in minutes or seconds using IMS Recovery Expert.

Tape-based disaster restart

IMS Recovery Expert provides disaster recovery support by transforming traditional IMS disaster recovery procedures into a tape-based disaster restart methodology. System Level Backups can be tagged for offsite transport to a disaster recovery site during the offload process. The tape-based disaster restart methodology loads the System Level Backup tapes and restarts IMS at the disaster recovery site. The IMS restart process transforms the System Level Backup into a transactionally-consistent IMS system that is ready to accept work. Using IMS Recovery Expert to implement an IMS tape-based disaster restart methodology simplifies disaster recovery procedures and reduces recovery time objectives.

Automation and management of disaster recovery

Using IMS Recovery Expert to automate and manage traditional disaster recovery processes simplifies disaster recovery procedures, reduces recovery time, and makes the recovery process less error-prone. Users create disaster recovery profiles which contain the recovery assets that will be sent to the recovery site. These assets can include System Level Backups, archive logs, change accumulation files, and image copies. The IMS Recovery Expert Intelligent Disaster Recovery Manager runs at some set interval at the local site, performing the following functions:

- Analyzes, prepares, and identifies any new assets to be sent to the recovery site.
- Copies and then conditions IMS recovery data sets (RECONS) with the recovery assets to be used at the remote site.
- Creates JCL that can be run at the disaster recovery site to recover the IMS system.
- Produces a detailed report showing all tapes that need to be transported to the disaster recovery site.

To recover the IMS system at the remote site, a user simply submits the predefined jobs created at the local site by the Intelligent Disaster Recovery Manager.

System restore interface

IMS Recovery Expert provides an ISPF interface to display all the System Level Backups that have been performed. IMS systems can be restored by selecting a System Level Backup and specifying restore and recovery options. IMS Recovery Expert will then build JCL that can be executed to restore and recover the entire IMS system from the System Level Backup and other recovery resources created since the System Level Backup.

Copy blades

IMS Recovery Expert copy blades provide storage processor integration and extensibility to support heterogeneous storage platforms and fast-replication features. IMS Recovery Expert supports IBM, EMC and HDS storage systems and fast-replication facilities using integrated copy blades. IMS Recovery Expert copy blades include:

- IBM FlashCopy copy blade which provides support for IBM native FlashCopy.
- EMC TimeFinder copy blade which provides support for TimeFinder/Mirror, TimeFinder/Clone, TimeFinder/Snap Virtual Device.
- HDS ShadowImage copy blade which provides HDS ShadowImage support.
- DFSMSdss copy blade which allows backups to be performed using DFSMSdss. DFSMSdss can optionally be used to invoke FlashCopy or SnapShot fast-replication methods.

Metadata Repository

IMS Recovery Expert provides a comprehensive metadata repository to record backup information such as backup time, backup type, log byte addresses, and volumes used for the backup. Reports can be generated to monitor information such as backup methods and operations, storage volume usage, System Level Backup volume usage, and archived backups.

Multi-purpose System Level Backup

IMS Recovery Expert generated System Level Backups can be used for multiple purposes saving storage and processing resources. An IMS System Level Backup can be used for IMS system recovery, application recovery, database recovery, and for disaster restart or recovery. With this ability, significant CPU, I/O, and storage resources that would otherwise be required to make multiple backups for different purposes are saved.

IMS recovery performed efficiently

IMS Recovery Expert reduces recovery time by running restore and recovery operations in parallel. Storage-based fast-replication facilities are used to restore backups quickly while invoking IMS recovery processes, to reduce overall recovery time and minimize IMS and application downtime. IMS systems are restored using volume-based fast-replication, and IMS applications and databases are restored using data set-based fast-replication facilities.

IMS Version Support

IMS Recovery Expert supports IMS 15 in either data-sharing or non data-sharing modes of operation.

IMS Recovery Expert and other IMS tools

Many IMS tools provide database management features that are not available in IMS itself or provide enhancements to capabilities built into IMS.

IMS Recovery Expert is only one of several IMS tools that provide enhancements to the process of managing backup and recovery operations for your databases in the event of a system outage or application failure.

For example, IMS Database Recovery Facility simplifies your database recovery process by eliminating the need to run a separate recovery job for each database data set that requires recovery.

In addition, IMS Database Recovery Facility provides the capability to automatically invoke the following IMS tools and utilities during the recovery process:

- IMS High Performance Image Copy to create image copies
- IMS Index Builder to rebuild primary and secondary index data sets
- IMS High Performance Pointer Checker to validate database consistency

IMS Recovery Expert provides full integration with the IMS Database Recovery Facility to be able to drive recovery and the integrated utilities as needed to complete IMS database recovery.

The following IMS tools can further assist with database recovery:

- IMS Application Recovery Tool for IMS and Db2 Databases
- IMS Fast Recovery for z/OS

IMS Recovery Expert ISPF interface

IMS Recovery Expert provides an easy-to-use ISPF interface to manage all of its main functions.

ISPF interface navigation

The IMS Recovery Expert main menu panel (BSY\$MAIN) provides quick access to backup and recovery functions.

```
BSY$MAIN V2R2 ----- IMS Recovery Expert for z/OS -----
Option ==>

                                     2021/06/30 13:08:47
                                     User: PDMONA - BSY

-----

  0. Administration
  1. System Operations
  2. Application Operations
  X. Exit
```

Figure 1. **IMS Recovery Expert** main menu panel

A functional description of each menu option is as follows:

Administration

Specify this option (0) to perform the administration functions that allow you to set system defaults and create subsystems, groups, and system profiles.

System Operations

Specify this option (1) to perform system related functions that allow you to create System Level Backup profiles, disaster recovery profiles, and System Level Backups.

Application Operations

Specify this option (2) to perform application related functions that allow you to create application profiles and groups, and process coordinated application profiles.

Exit

This option is used to exit IMS Recovery Expert.

IMS recovery utilities

IMS Recovery Expert provides integration with other tools in the IMS Recovery Solutions Pack to provide a complete solution for IMS backup and recovery.

See [“Setting up for recovery” on page 58](#) for a discussion on how to configure IMS Recovery Expert to invoke the utilities in the IMS Recovery Solutions Pack.

Copy blades

IMS Recovery Expert was developed to integrate with and leverage the benefits of storage-based fast-replication technologies. A copy blade is the term used to group storage-based fast-replication technologies that storage vendors offer.

Copy blades provide facilities to invoke various data movement and fast-replication facilities. Copy blades provide fast-replication integration and separate the database backup and recovery processes from the underlying storage devices.

IMS Recovery Expert allows you to take advantage of the specific fast-replication products and features you might have. IMS Recovery Expert supports many of the fast-replication products natively, taking full advantage of the storage processor capabilities and fast-replication facilities that are available. The following is a list of the copy blades that IMS Recovery Expert supports.

IBM FlashCopy

Used to invoke IBM FlashCopy operations to copy data. This blade is also used to invoke FlashCopy emulation products for EMC and HDS storage systems. For more information, see [“IBM FlashCopy blade”](#) on page 29.

EMC TimeFinder

Used to invoke EMC TimeFinder operations to copy data. For more information, see [“EMC TimeFinder copy blade”](#) on page 29.

HDS ShadowImage

Used to invoke HDS ShadowImage operations to copy data. For more information, see [“HDS ShadowImage copy blade”](#) on page 31.

IBM DFSMSdss

Used to invoke IBM DFSMSdss to perform storage-based fast-replication and slow copy processes. For more information, see [“IBM DFSMSdss copy blade”](#) on page 32.

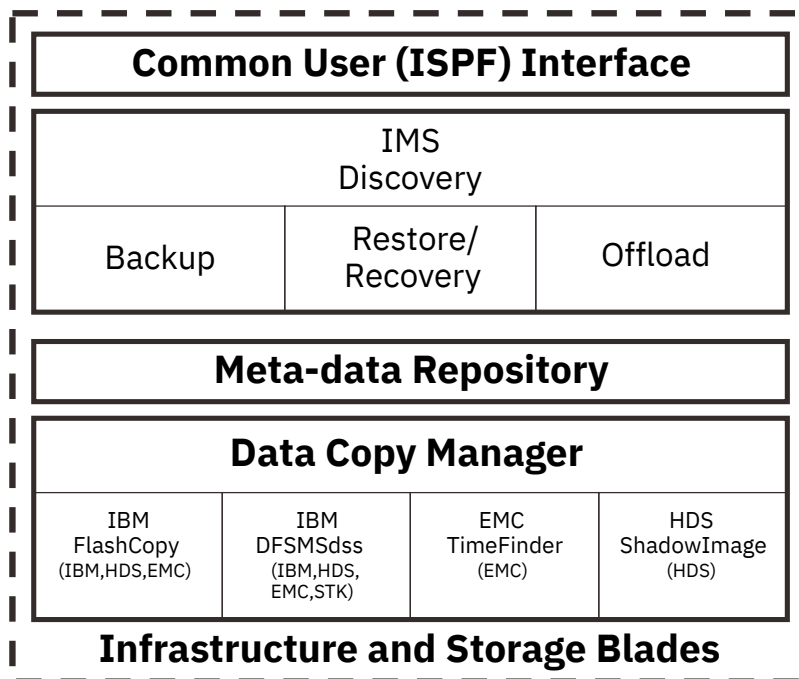


Figure 2. IMS Recovery Expert infrastructure and copy blades

For more information about copy blades, see [“IMS Recovery Expert and storage system integration”](#) on page 27.

Backup and recovery solutions

IBM solutions help IT organizations maximize their investment in Db2 and IMS databases while staying on top of some of today's toughest IT challenges. Backup and recovery solutions can protect your data and lessen the negative impact that data loss can have on your business.

The IMS Recovery Expert System Level Backup and recovery methodology is one where the entire IMS system is backed up as a unit. The backup can be used to recover the IMS system as a unit, or it can be used to recover individual applications, or databases. All data relationships are implicitly maintained during the recovery process, guaranteeing that data integrity is preserved for an IMS application. The IMS Recovery Expert System Level Backup and recovery methodology is much faster to perform than using traditional IMS image copy approaches. In addition, the same IMS Recovery Expert System Level Backup and recovery procedures can be used for local site recovery as well as for offsite disaster recovery purposes.

Using the Combined System Level Backup function, with a single process you can back up and recover multiple IMS subsystems, multiple Db2 subsystems, or a combination of both, to a single, consistent point in time. For more information about using the Combined System Level Backup feature, see [Chapter 10, "Performing a Combined System Level Backup,"](#) on page 223.

IMS Recovery Expert System Level Backup solution leverages modern storage processor capabilities and fast-replication products to perform backup and restore operations on behalf of the IMS system. Supported fast-replication products include: IBM FlashCopy, EMC TimeFinder/Mirror, EMC TimeFinder/Clone, EMC TimeFinder/Snap, and Hitachi ShadowImage. The advantages of using the IMS Recovery Expert System Level Backup methodology which uses storage-based fast-replication include:

- Full IMS System Level Backups can be completed in seconds or less.
- There is very little or no impact to applications while the backup is performed.
- Point-in-time restartable backup copies of an entire IMS system are created.
- No host CPU and I/O resources are used to create the backup.
- Incremental fast-copy facilities can be used to reduce backup storage requirements and to reduce the storage processor resources used in the copy process.
- System Level Backups can be used for multiple purposes: local site system recovery; local site application and database recovery; as a source for creating a backup used for offsite disaster recovery; and as a source for performing IMS system cloning operations.
- System Level Backups can be archived using an independent tape copy process to reduce disk storage utilization while preserving the backups created in multiple backup cycles.

The advantages of using the IMS Recovery Expert System Level Backup to perform an IMS system recovery operation include:

- The entire IMS system can be restored from disk instantaneously when storage-based fast-replication is used to restore the data.
- Parallel recovery can be performed. That is, IMS recovery functions can be performed in parallel with the data restoration process, thus reducing overall IMS system recovery time.
- The IMS system is recovered as a unit so that all data relationships are preserved during the restore and recovery processes. This ensures that the application's data integrity is preserved.

The advantages of using the IMS Recovery Expert System Level Backup for offsite disaster recovery include:

- An IMS System Level Backup can be easily copied to tape and transported to a disaster recovery site.
- Traditional IMS disaster recovery procedures are streamlined by using a tape-based disaster restart methodology. A disaster restart methodology is one where tapes containing a System Level Backup are loaded at a disaster recovery site and IMS is restarted. Disaster recovery procedures are implicitly performed during the normal IMS restart operation. Traditional IMS disaster recovery procedures are not used. The normal IMS restart process using a System Level Backup transforms the System Level Backup data-state into a transactionally-consistent data-state. The IMS system is ready to accept

new application work after the restart process is complete. A IMS Recovery Expert disaster restart methodology is a fast and effective way to resume application processing at a disaster recovery site, and minimize recovery time objectives and application downtime.

Software and hardware requirements

The following list includes the software and hardware requirements for IMS Recovery Expert.

Hardware requirements

IMS Recovery Expert (formerly IBM IMS Recovery Expert for z/OS 2.2) operates on any hardware configuration that supports the required versions of IMS.

For fast-replication backups and restores, if using IBM storage, FlashCopy V2 or a functionally equivalent product for FlashCopy, is required.

Software requirements

The following is installation and mandatory operational requirement:

- z/OS 2.3 or later

Note: Product is SMP/E installable

- IMS 15.1 or later

The following is a list of conditional operational requirements:

- z/OS 2.3 (5650-ZOS) or later, DFSMSdss, and FlashCopy V2 for restoring IMS objects from FlashCopy backups on DASD
- z/OS 2.3 (5650-ZOS) or later, DFSMSdss, and IBM Encryption Facility for z/OS 1.2 (5655-P97) for performing encryption during offloads
- z/OS 2.3 (5650-ZOS) or later, IBM Cryptographic Services Facility (ICSF) required by DFSMSdss for performing encryption during offloads
- IBM IMS Tools Base for z/OS* 1.7 (5655-V93) or later for creating detailed and summary reports with every backup and restore

Note: IBM IMS Tools Base for z/OS, a no-charge product, is a mandatory installation requisite for IMS Recovery Solution Pack for z/OS.

Refer to the *Program Directory for IBM IMS Recovery Expert for z/OS* and *Program Directory for IBM IMS Recovery Solution Pack for z/OS* for more information about the required and optional software that can run with IMS Recovery Expert. Verify that your hardware and software meet or exceed the minimum requirements. If your hardware and software do not meet the minimum requirements, you might be unable to install or run the product.

APF authorization requirements

The IMS Recovery Expert SBSYLOAD library requires explicit APF authorization, even if it is displayed in the system link list with the LINKAUTH=LNLST option.

Although SMS-managed load libraries can be assigned APF authorization, most installation sites prefer to have all authorized libraries reside on specific non-SMS system volumes.

Service updates and support information

Service updates and support information for this product, including software fix packs, PTFs, frequently asked questions (FAQs), technical notes, troubleshooting information, and downloads, are available from the web.

To find service updates and support information, see the following website:

Product documentation and updates

IMS Tools information is available at multiple places on the web. You can receive updates to IMS Tools information automatically by registering with the IBM My Notifications service.

Information on the web

Always refer to the IMS Tools Product Documentation web page for complete product documentation resources:

<https://www.ibm.com/support/pages/node/712955>

The IMS Tools Product Documentation web page includes:

- Links to [IBM Documentation](#) for the user guides ("HTML")
- PDF versions of the user guides ("PDF")
- Program Directories for IMS Tools products
- Technical notes from IBM Software Support, referred to as "Tech notes"
- White papers that describe product business scenarios and solutions

IBM Redbooks® publications that cover IMS Tools are available from the following web page:

<http://www.redbooks.ibm.com>

The IBM Information Management System website shows how IT organizations can maximize their investment in IMS databases while staying ahead of today's top data management challenges:

<https://www.ibm.com/software/data/ims>

Receiving documentation updates automatically

To automatically receive emails that notify you when new technote documents are released, when existing product documentation is updated, and when new product documentation is available, you can register with the IBM My Notifications service. You can customize the service so that you receive information about only those IBM products that you specify.

To register with the My Notifications service:

1. Go to <https://www.ibm.com/support/mynotifications>
2. Enter your IBM ID and password, or create one by clicking **register now**.
3. When the My Notifications page is displayed, click **Subscribe** to select those products that you want to receive information updates about. The IMS Tools option is located under **Software > Information Management**.
4. Click **Continue** to specify the types of updates that you want to receive.
5. Click **Submit** to save your profile.

How to send your comments

Your feedback is important in helping us provide the most accurate and highest quality information. If you have any comments about this or any other IMS Tools information, see [How to provide feedback in IBM Documentation](#).

When you provide feedback, include as much information as you can about the content you are commenting on, where we can find it, and what your suggestions for improvement might be.

Accessibility features

Accessibility features help a user who has a physical disability, such as restricted mobility or limited vision, to use a software product successfully.

The major accessibility features in this product enable users to perform the following activities:

- Use assistive technologies such as screen readers and screen magnifier software. Consult the assistive technology documentation for specific information when using it to access z/OS interfaces.
- Customize display attributes such as color, contrast, and font size.
- Operate specific or equivalent features by using only the keyboard. Refer to the following publications for information about accessing ISPF interfaces:
 - *z/OS ISPF User's Guide, Volume 1*
 - *z/OS TSO/E Primer*
 - *z/OS TSO/E User's Guide*

These guides describe how to use the ISPF interface, including the use of keyboard shortcuts or function keys (PF keys), include the default settings for the PF keys, and explain how to modify their functions.

Chapter 2. Planning for System Level Backup and recovery

Before configuring IMS Recovery Expert, it is important to consider and understand how the System Level Backups (SLB) will be used in your environment's recovery situations. Understanding the types of recoveries that can be performed from a System Level Backup helps you select a specific type of backup and recovery methodology.

Topics:

- [“System Level Backup usage considerations” on page 17](#)
- [“Backup frequency and space utilization” on page 19](#)
- [“Analyzing data set isolation” on page 20](#)
- [“Migrated data set considerations” on page 21](#)
- [“Planning for a local site full IMS System Level Backup with forward recovery” on page 22](#)
- [“Planning for the creation of an IMS System Level Backup” on page 23](#)
- [“Planning for an IMS system and application recovery” on page 24](#)
- [“Planning a tape-based IMS disaster restart methodology” on page 26](#)
- [“IMS Recovery Expert and storage system integration” on page 27](#)
- [“Copy blade selection considerations” on page 29](#)

System Level Backup usage considerations

Before configuring IMS Recovery Expert, it is important to consider and understand how the System Level Backups (SLB) will be used in recovery situations.

Your first consideration when planning for System Level Backup and recovery is to decide what you want to recover. For example, you can recover an entire IMS environment, you can recover just an application or database, or you can recover at a remote site. You may decide you need to do only a partial backup of an IMS system, or a data only backup. Once you determine what you want to recover, you will create a backup profile that will be tailored to your specific recovery needs.

System Level Backup (SLB) used for local system recovery

Local system recovery is the process of restoring an entire IMS environment (Full). This includes database data, logs, RECONS, and system data sets, to the point in time of a System Level Backup. Local system recovery can also include running forward recovery processes to apply changes that occurred after the System Level Backup was created. It is also possible to restore only the volumes that contain database data from a System Level Backup, and then run forward recovery processes to bring the databases to a more current state.

When IMS Recovery Expert restores an entire IMS environment, it is important to understand that it does the restore at a volume level. When a volume is restored, it will restore all data sets that were on the volume at the time of the System Level Backup, and it will overlay changes or new data sets that were created on the volumes since the System Level Backup. Because of this, if local system level recovery is a viable recovery scenario, it is important to analyze data set isolation (see [“Analyzing data set isolation” on page 20](#)) before creating any backups. This ensures that a volume level restore will yield the wanted results.

Things to check for are:

- Are there non-IMS data sets on the volumes being backed up and restored? If so, is it wanted that they are restored to the same point in time as the System Level Backup?

- If forward recovery is wanted after restoring the database data only, then the volumes where any archive logs, RECONs, or IMS system data sets reside must be segregated from the volumes that contain database data.
- If forward recovery is wanted after restoring an entire IMS environment to the time of a System Level Backup, then the RECONs and archive logs should not be on volumes contained in the System Level Backup.
- The MVS™ user catalogs where the data sets being backed up are cataloged must reside on the volumes being backed up. If database data and log segregation is required for the chosen recovery option, then the segregation also applies to the MVS user catalogs where the database data and log data sets are cataloged.

System Level Backup (SLB) used for application or database level recovery

Once a System Level Backup is created and the option to **Enable DB Restore** is enabled in the backup profile, then IMS Recovery Expert can be used to restore an entire application (group of databases and indexes) or individual databases or indexes from the System Level Backup. When IMS Recovery Expert restores at the application or database level, it does so at a data set level. After restoring the database data sets from a System Level Backup, IMS Recovery Expert can then run any forward recovery processes using the existing RECONs and archive logs.

If application or database level recovery is the only level of recovery that is needed, then data segregation is not important and IMS System Analysis and Configuration is not needed.

It is important to make sure **Enable DB Restore** is set to **Y** before creating the System Level Backup.

System Level Backup (SLB) used for remote disaster restart or disaster recovery

A System Level Backup can be created and shipped to a remote site for use in a disaster restart operation or disaster recovery operation.

Disaster restart is the process of restoring a System Level Backup at the remote site and then doing an emergency restart of IMS. IMS and the databases will be restored to the point in time when the System Level Backup was created. IMS will back out any uncommitted changes. In essence, this is the same as recovering from a power outage.

Disaster recovery operations start with the process of restoring a System Level Backup at the remote site. Then, the forward recovery processes can also be run to apply changes that occurred after the System Level Backup was created.

In either scenario, it is not important that IMS recovery structures (RECONs and logs) be segregated from the database data sets. However, it is important to verify the following by doing the IMS System Analysis and Configuration:

- Non-IMS data sets might reside on the volumes included in the System Level Backup. Since the processes at the remote site will restore these volumes, ensure that you want these data sets to be restored to the point in time the System Level Backup was created.
- The MVS user catalogs where the data sets for the IMS environment are cataloged must be on the volumes that are included in the System Level Backup.

See [“Analyzing data set isolation” on page 20](#) for more information.

Partial System Level Backup (PSLB) for database or application recovery

IMS Recovery Expert provides the capability to create a partial System Level Backup, or PSLB. A PSLB is a backup that does not include all of the volumes where an IMS system resides. A PSLB can be used for large databases or applications having unique backup requirements. Using a partial System Level Backup versus a full System Level Backup will also reduce disk utilization and allow for additional backup generations.

A PSLB can be used for database or application recovery only. A PSLB cannot be used for system recovery. Using a PSLB for database or application recovery, the data is restored at the data set level so log and

database data isolation is not required. The wanted application database data should be grouped on volumes as a best practice.

Combined System Level Backup (CSLB)

The Combined System Level Backup feature can be used to include multiple IMS subsystems in a single backup. These IMS subsystems do not have to be in the same data sharing group. This backup can then be used for local system recovery, local application recovery, or disaster recovery. The Combined System Level Backup feature can also include Db2 subsystems when IMS Recovery Expert is paired with Db2 Recovery Expert. For more information about using the Combined System Level Backup feature, see Chapter 10, “Performing a Combined System Level Backup,” on page 223.

Backup frequency and space utilization

When you determine what the System Level Backup will be used for, there are several other things to consider when you configure IMS Recovery Expert to create the System Level Backups.

System Level Backup type

IMS Recovery Expert allows for the following types of backups:

Full

The System Level Backup will contain the database data, the archive logs, and the IMS system data sets. A Full backup can be used for system restore, application or database recovery, and disaster restart or recovery.

Data only

The backup contains only the database data for the IMS environment. A data only backup is used to restore all of the database data and run forward recovery processes. A data only backup is done at the volume level. A data only backup is also used for application or database recovery, which is performed at the data set level.

Partial

The backup will contain only data for an application or group of databases. A partial backup is used for application or database recovery only. Restoring the data sets is done at the data set level.

Optimal backup frequency and retention

With the recovery objectives in mind, consider how frequently the System Level Backups need to be created. Using fast-replication, the CPU and I/O costs to create a backup are minimal. The impact to online IMS availability is also insignificant, so the traditional approach of first determining the time when a backup can be created might not be necessary. When you are using IMS Recovery Expert, determine the ideal recovery time for your business, and set the backup frequency (hourly, daily, weekly, and so on) accordingly.

Using fast-replication, IMS Recovery Expert creates a System Level Backup on disk. Having a System Level Backup on disk can greatly reduce recovery time. IMS Recovery Expert can maintain up to 99 generations of a System Level Backup on disk. IMS Recovery Expert can also automate the offloading of a System Level Backup to tape and use a tape-based System Level Backup for recovery if needed. Again, consider the most ideal recovery time for your business when you determine the number of generations to maintain on disk, tape, or both.

If disk space is a premium for creating and maintaining System Level Backups, then the System Level Backups can be configured to immediately offload them to tape. Then, the disk volumes can be used to create System Level Backups for other IMS systems.

The following scenarios show possible implementations of IMS Recovery Expert:

- To maintain a set of SNAP or FlashCopy backups for the previous week, you can configure a profile with a SNAP or FlashCopy backup type and seven generations of full backups. This job is scheduled to run daily.

- To maintain a set of BCV backups for the previous week, you can configure a profile with a BCV backup type and eight generations of full backups. Eight generations are required to maintain one week of backups, since one target volume is always mirroring the current set of volumes. This leaves seven backups available for system restoration. This job is scheduled to run daily.
- A separate profile can be created to run once a week. This profile would create backups that can be used to restore the system to a point farther back than one week ago. Depending on space considerations, you could set the number of generations as low or high as needed.

Fast-replication considerations

- To reduce background copy time and resources, consider incremental fast-replication options.
- To save space, consider using space efficient fast-replication methods like EMC VDEVs.

Analyzing data set isolation

If the intended usage of a System Level Backup requires data set isolation, then the physical location of the data sets and the user catalogs for these data sets must be examined.

If the use for the System Level Backup does not require data set isolation, such as Application or Database Recovery only, then you can skip this section.

The requirement to have data isolated for some restore operations is because IMS Recovery Expert invokes a volume level restore for certain operations. When a volume is restored, all of the data sets will be restored as they existed at the time the SLB was created. Considerations must be made for non-IMS data sets that might reside on the volumes being restored. Also, the user catalogs must reflect the data sets on the volumes being restored.

IMS Recovery Expert provides an IMS System Analysis and Configuration function that will help you in analyzing the data set placement for all of the data sets in an IMS environment (see “(Optional) Analyzing IMS data set placement for System Level Backup validation” on page 83). The IMS System Analysis and Configuration function will also report on what type of restores and recoveries are allowed with the current configuration.

The following table summarizes data set isolation requirements based on a System Level Backup's usage:

System Level Backup usage	Data set isolation requirements	Considerations
Local site full system restore with forward recovery	<ol style="list-style-type: none"> 1. User catalogs for all IMS data sets need to be included in the System Level Backup. 2. Log and RECON data sets and their associated user catalogs need to be isolated from database data sets and their associated user catalogs. 	<ol style="list-style-type: none"> 1. Non-IMS data sets may be restored. 2. User catalogs should not contain non-IMS data sets if the data sets are not on volumes being backed up.
Local site full system restore with no forward recovery	User catalogs for all IMS data sets need to be included in the System Level Backup.	<ol style="list-style-type: none"> 1. Non-IMS data sets may be restored. 2. User catalogs should not contain non-IMS data sets.
Application or database recovery	User catalogs for the application or database data sets need to be included in the System Level Backup.	Only SCOPE=Data is needed.

System Level Backup usage	Data set isolation requirements	Considerations
Disaster, or remote site recovery	User catalogs for all IMS data sets need to be included in the System Level Backup.	<ol style="list-style-type: none"> 1. Non-IMS data sets may be restored. 2. Partial System Level Backup cannot be used.

The most stringent data set isolation requirements are required when you are using a System Level Backup to do a local site full system restore with forward recovery. To ensure complete and accurate system restoration, follow these recommendations for the IMS system setup:

- The user catalog(s) for the IMS log and RECON data sets should be separate from the user catalog(s) for IMS databases and indexes, and should not reside on the same volume(s) as any other IMS databases or IMS database catalog(s).
- The IMS RECON, active log, and archive log data sets should reside on separate volumes from the IMS database data.

These requirements ensure that your IMS database and log data are contained on separate sets of volumes. When you restore the volumes, the user catalogs will be restored and will reflect the data and log locations as they were at the time of the backup as shown in [“Planning for a local site full IMS System Level Backup with forward recovery”](#) on page 22.

Migrated data set considerations

Data sets that are migrated at the time a System Level Backup is created are not included in the System Level Backup unless they are recalled first.

When the Disaster Recovery profile indicates that the image copy DR method is being used, and IMS database data sets are migrated when the DR preparation job runs, these migrated data sets are ignored and no IDCAMS delete/define commands are created for them.

When performing a System Level Backup, IMS Recovery Expert has two configurable parameters, RECALL_MIGRATED_DATA and RECALL_MIGRATED_WAIT, which control how IMS Recovery Expert will act when it detects that a data set that should be included in the System Level Backup is migrated at backup execution time. For additional information, see [“\(Optional\) Configuring the PARMLIB member”](#) on page 42.

By default, IMS Recovery Expert will not create a System Level Backup if it detects migrated IMS data sets at backup execution time. IMS Recovery Expert can be configured to try to recall the migrated data sets before executing the System Level Backup. IMS Recovery Expert can also be configured to ignore the migrated data sets and continue with creating the System Level Backup. It is strongly advised that IMS Recovery Expert is not configured to ignore migrated data sets unless these data sets can be recovered by other methods when needed.

Migrated user-included data sets do not affect System Level Backup execution and are not handled by the RECALL_MIGRATED_DATA and RECALL_MIGRATED_WAIT parameters. For more information about specifying user included data sets, see [“Providing IMS system information”](#) on page 36. Migrated user included data sets will be shown through a subsystem analysis (see [Chapter 5, “Collecting and analyzing data with the System Setup facility,”](#) on page 101), but these data sets should not be allowed to be migrated if they need to be included in the System Level Backup.

When performing DR preparation for the image copy DR method, IMS Recovery Expert has two configurable parameters: DE_RECALL_MIGRATED_DATA and DR_RECALL_MIGRATED_WAIT. These parameters control what IMS Recovery Expert does when it detects that a database data set is migrated at DR preparation time. For additional information, see [“\(Optional\) Configuring the PARMLIB member”](#) on page 42.

Planning for a local site full IMS System Level Backup with forward recovery

You need to set up a local site full IMS System Level Backup with forward recovery.

About this task

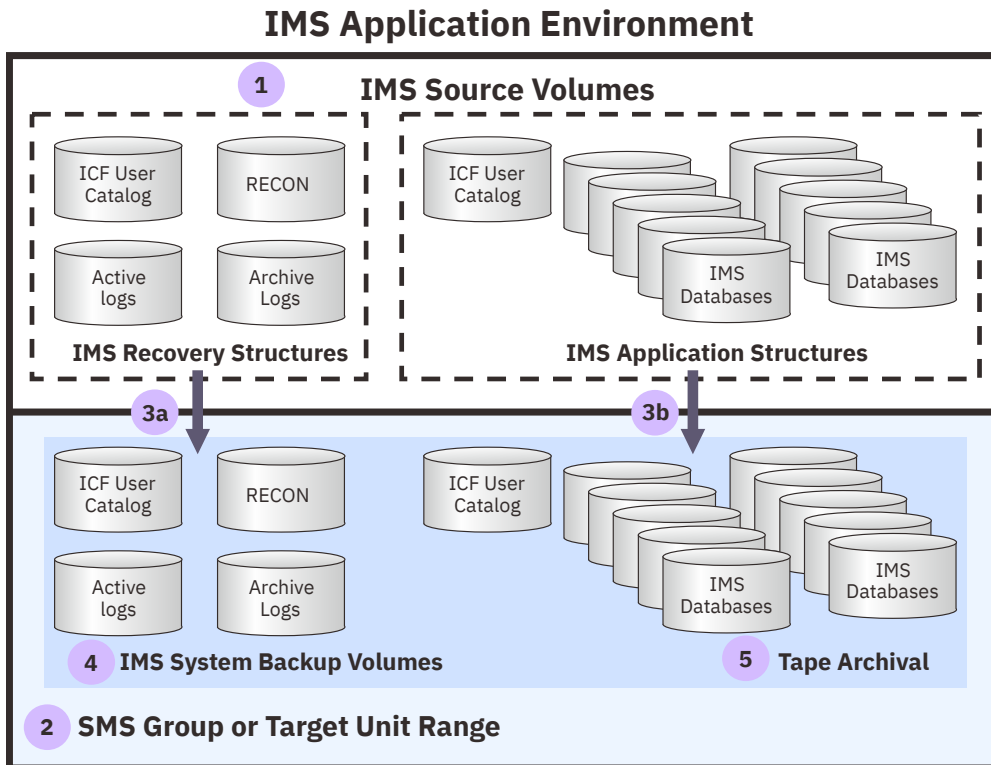


Figure 3. IMS system configuration for a local site full IMS System Level Backup with forward recovery

The following steps describe implementing a local site full System Level Backup with forward recovery:

Procedure

1. The IMS system is discovered and analyzed so that the correct System Level Backup methodology can be chosen for the intended recovery needs.
2. A System Level Backup Profile is created. During the profile creation process, DASD volumes used for the System Level Backup are selected. The target backup volumes can be selected from a range of target units or an SMS Storage Group.
3. A System Level Backup is created using the information provided in the backup profile to drive a storage-based fast replication process. Backups that use the “full” option will back up all volumes of the IMS system (3a, 3b), while backups that use the “data only” option will back up the data volumes only (3b).
4. The backup is recorded in the IMS Recovery Expert metadata repository. Recorded information includes: backup type, time, target volumes used, and data set name mappings for use in application-level recoveries.
5. Online disk volumes can be archived to tape automatically after each System Level Backup or on demand using the System Restore and Offload ISPF menus.

Planning for the creation of an IMS System Level Backup

IMS Recovery Expert performs the process of creating an IBM System Level Backup using information specified in System Level Backup profiles and using DASD volume relationships specified in the volume mapping section of the System Level Backup profile.

About this task

Figure 4 on page 23 outlines the process of creating a System Level Backup.

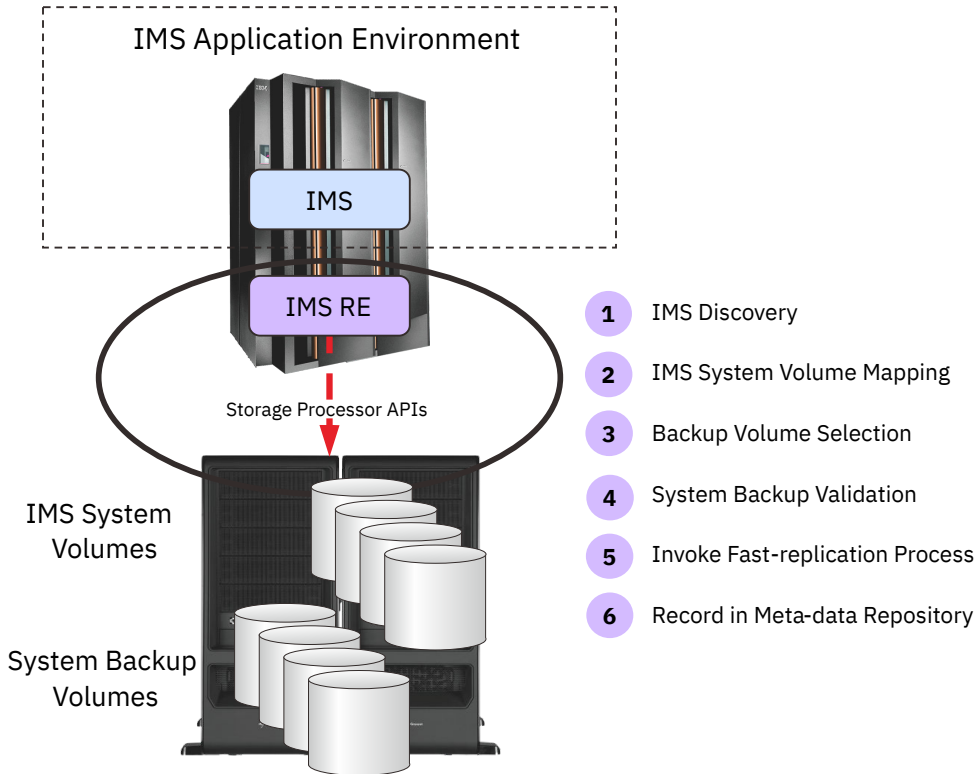


Figure 4. Creating an IMS full System Level Backup

The following steps describe how to perform a System Level Backup:

Procedure

1. The IMS system is discovered and analyzed. Source volumes are identified, and data set and catalog placement is analyzed to determine if the IMS layout can accommodate the System Level Backup methodology for the intended recovery needs.
2. All source IMS volumes are identified and analyzed to determine if non-IMS data resides on the volumes. Warning messages are issued when non-IMS data is included in an IMS System Level Backup.
3. Source IMS volumes are mapped to target volumes that will contain the System Level Backup. The source to target volume mapping is done during the backup profile creation process.
4. IMS Recovery Expert performs System Level Backup validation checks before each backup to ensure that the backup is complete and can be used for a successful restore operation.
5. IMS Recovery Expert invokes an appropriate storage-based fast-replication process. The backup is performed in the storage processor without using host CPU and I/O resources. The System Level Backup is completed from an IMS system and application perspective when the storage-based fast-replication command is issued. Typically, full IMS System Level Backups complete in seconds or less. Data consistency functions are employed to ensure that the backup data state can be used

for recovery purposes. Data consistency is ensured by suspending IMS logging activity or using the appropriate storage processor consistency functions.

6. When the backup is complete, information about the backup is recorded in the IMS Recovery Expert metadata repository. The metadata information includes an inventory of where each IMS database data set resides on the backup volumes. This information is used to restore individual data sets when performing an IMS application or database recovery operation.

Planning for an IMS system and application recovery

IMS Recovery Expert automates IMS system or application-level recovery from a System Level Backup. System recovery is performed using the System Restore and Offload panels. Application or database recovery is performed using the Application Profiles panel. Both menu options are available from the main ISPF panel.

About this task

System recovery can be a full or data only recovery. When a full system recovery is performed, IMS Recovery Expert will restore all data and log volumes. No IMS log apply recovery is performed on the restored volumes. See figure reference 3a and 3b in “[Planning for a local site full IMS System Level Backup with forward recovery](#)” on page 22. Performing a full systems recovery is analogous to performing a “recover to copy” when using image copies for recovery.

Figure 5 on page 24 depicts the use of a System Level Backup for recovery of applications for an IMS environment.

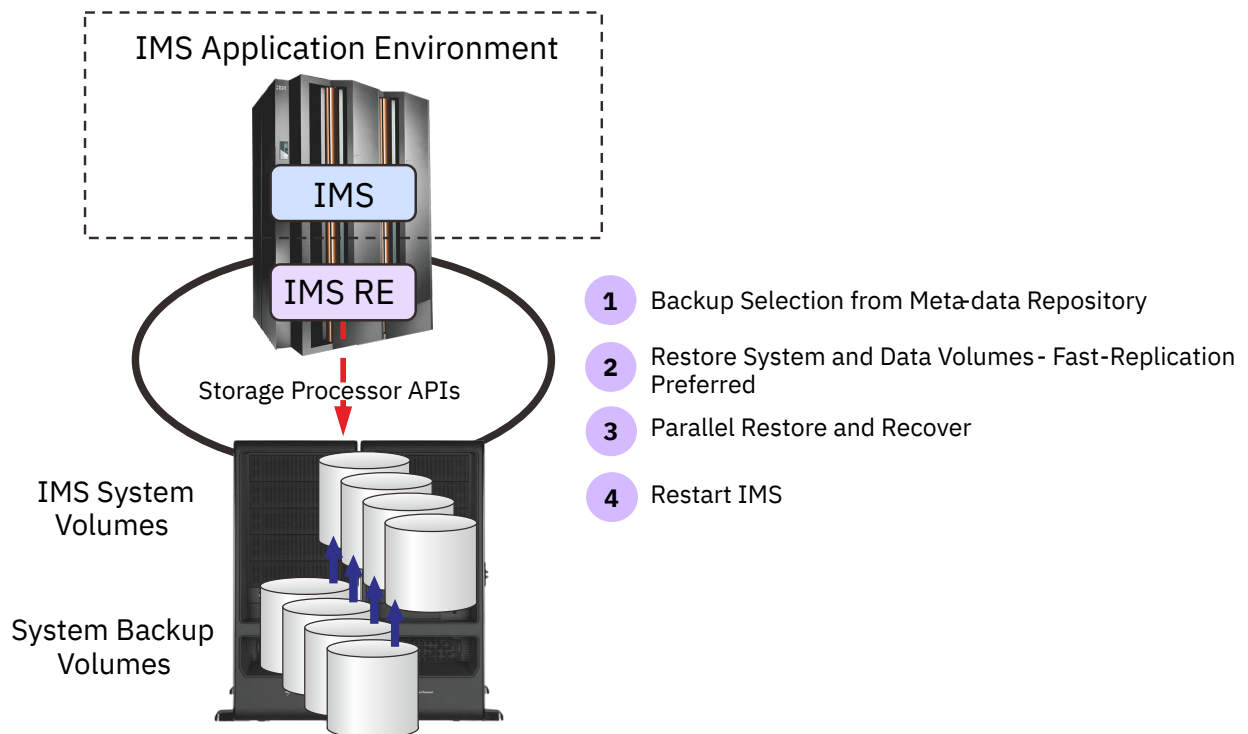


Figure 5. Using IMS Recovery Expert to recover an application environment

The following processing steps refer to Figure 5 on page 24 and describe an IMS system recovery process using a IMS Recovery Expert-generated System Level Backup:

Procedure

1. The appropriate System Level Backup metadata is selected from the metadata repository using the recovery criteria specified in the Restore System Display from the System Restore and Offload panels.

2. IMS Recovery Expert invokes an appropriate, storage-based fast-replication process to perform the system restore process. The restore operation is performed in the storage processor without using host CPU and I/O resources.
3. The IMS recovery processes begin after the volume restore process has started. Thus, the IMS recovery process is performed in parallel with the volume restore process to minimize overall IMS recovery time.

What to do next

Data-only recovery directs IMS Recovery Expert to restore only the data volumes from the System Level Backup (figure reference 3b, “Planning for a local site full IMS System Level Backup with forward recovery” on page 22). This leaves the IMS log data sets unaffected and available to use for IMS recovery processes. IMS Recovery Expert then determines and runs the recovery utilities in order to bring the databases up to the point in time specified. The recovery processes include fast data set restores and running one or more of the following utilities:

- DBRC notifications
- Change Accumulation Utility
- Recover Utility
- Rebuild Index Utility
- Post-Recovery Image Copy Utility

These processes can take place while the storage processor is restoring the data volumes in the background. The recovery process can use a point in time or recover to current to establish the end of the recovery process. Figure 6 on page 25 depicts how IMS Recovery Expert drives the various recovery processes in order to recover an application.

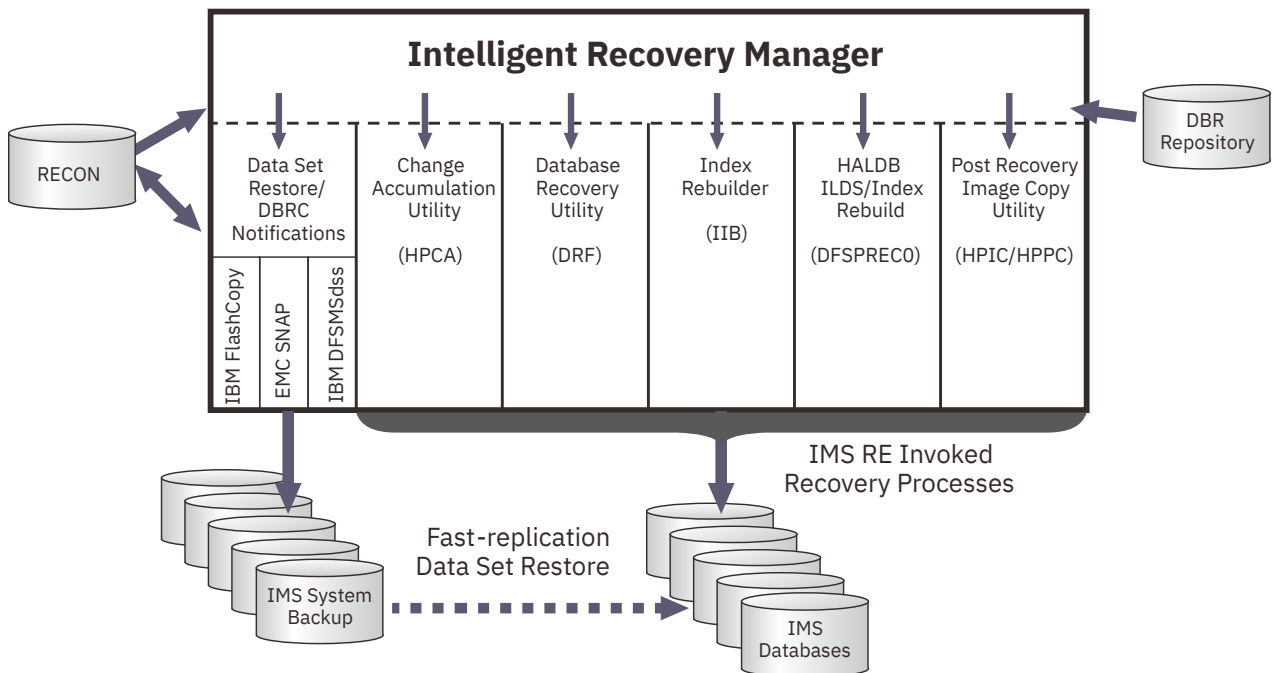


Figure 6. IMS Recovery Expert controlled application recovery

IMS application or database-level recovery is done by creating an application profile. Application profiles describe the methods and options used to recover databases or groups of related databases representing applications. Recovery profiles are created and stored in the metadata repository and can be recalled for use when an application recovery is required. The application profile specifies a recover to point as either current or a point in time. The application profile also describes which recovery resources to use by specifying whether to recover from disk, an offloaded tape, an image copy, or all available resources.

System and application recoveries can restore data and perform IMS recovery operations in parallel when recovering from a System Level Backup that resides on disk. IMS Recovery Expert will invoke an appropriate data set fast-replication process in the storage processor. While the data is flowing from the backup volume to the source IMS system to restore the data, IMS recovery processes can run in parallel with the data restoration process. The IMS Recovery Expert parallel restore and recovery process significantly reduces overall recovery time and increases application high availability.

Planning a tape-based IMS disaster restart methodology

A tape-based disaster restart methodology is one where a restartable IMS system is captured on disk and transferred to a disaster recovery site using tape as a transport mechanism.

About this task

Traditional image copy based IMS disaster recovery procedures are not used at the disaster recovery site. Instead, tapes containing a restartable IMS system are loaded onto disk and IMS is restarted at the disaster recovery site. The disaster recovery exercise is complete when the IMS restart process completes.

IMS Recovery Expert creates a restartable IMS system while creating a System Level Backup. IMS Recovery Expert coordinates suspending IMS logging activity or a storage-based consistency function with a storage-based fast-replication procedure to create a System Level Backup that is dependent-write-consistent. A dependent-write-consistent data state is identical to an IMS system that has been exposed to a power failure. When an IMS system is restarted using a System Level Backup, the dependent-write-consistent data state that is inherent in the System Level Backup is transformed to a transactionally-consistent data state by the IMS restart process. Once the restart process is complete, the IMS recovery is done.

IMS Recovery Expert has facilities to preprocess archive logs, change accumulation files, and image copies as they are copied to tape for disaster recovery purposes. The preprocess also creates a copy of the RECON data sets conditioned with the information on what archive logs, change accumulation files, and image copies will be transported to the disaster recovery site. The preprocessing creates a partitioned data set with the information needed to restore the conditioned RECONS and other files needed for recovery. The disaster recovery procedures done at the disaster site: restore the IMS system using the last offsite System Level Backup; restore the conditioned RECON data sets; restore archive logs, change accumulation files, and image copies; run IMS recovery processes; and start IMS. [Figure 7 on page 27](#) shows the steps required to transform traditional IMS disaster recovery procedures into a tape-based disaster restart solution.

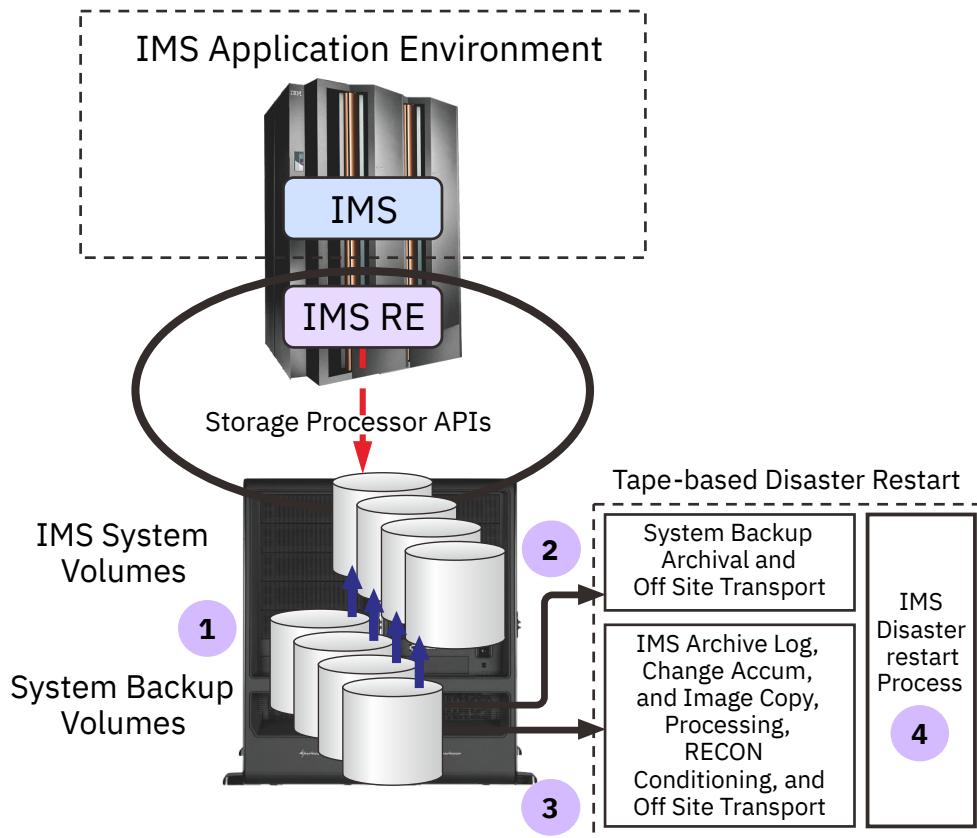


Figure 7. Using IMS Recovery Expert to implement a tape-based disaster restart methodology

The following processing steps refer to [Figure 7 on page 27](#) and are used to implement an IMS tape-based disaster restart solution:

Procedure

1. IMS Recovery Expert creates a System Level Backup that has a dependent-write-consistent data state.
2. The System Level Backup is archived to tape and one of the archive tape copies is targeted to be transported to the disaster recovery site. Tape archival options and offsite specifications are provided in the System Restore and Offload panels.
3. IMS archive logs, change accumulation files, and image copies needed for remote site recovery are identified; a copy of the RECON data sets is created and conditioned with the files to be sent to the disaster recovery site; and information is gathered and sent to the disaster recovery site to restore these files at the disaster recovery site when they are needed.
4. A disaster restart process is exercised where the last offsite System Level Backup is restored, databases are recovered, and IMS is restarted. The IMS restart process transforms the dependent-write-consistent data state created in step 1 into a transactionally-consistent data state. IMS is ready to accept new work after the restart process is complete.

IMS Recovery Expert and storage system integration

IMS Recovery Expert leverages storage system capabilities and fast-replication products to perform backup and restore operations on behalf of the IMS system. Using storage-based fast-replication to copy data allows IMS systems to be backed up instantaneously without using host CPU and I/O resources.

IMS system and database recovery operations are expedited by allowing data to be restored using storage system services while IMS recovery operations are performed in parallel. Some storage-based fast-replication products used to support a IMS Recovery Expert System Level Backup approach include: IBM FlashCopy, EMC TimeFinder and Hitachi Data Systems (HDS) ShadowImage.

IMS Recovery Expert integrates storage-based fast-replication facilities with IMS backup and recovery processes through the use of a Data Copy Manager. The Data Copy Manager is a software component used to translate logical database backup and restore requests into physical storage system fast-replication facility requests. It uses the IMS Log Suspend operation or storage-based consistency functions to create a dependent-write consistent copy of the IMS data. The Data Copy Manager invokes appropriate volume and data set fast-replication facilities to leverage the underlying storage system capabilities. These requests copy the data on behalf of the IMS systems using storage system facilities. The Data Copy Manager separates IMS logical backup and restore operations from the physical backup processes. This allows new data copy methods and features to be integrated into the IMS Recovery Expert infrastructure easily.

The IMS Recovery Expert Data Copy Manager integrates with specific storage system services and fast-replication facilities through the use of copy blades. A copy blade is a logical grouping of data copy services that can be invoked to drive specific storage hardware and software facilities using appropriate application programming interfaces. Copy blades invoke specific storage system copy services like storage-based consistency functions and drive fast-replication methods to backup and restore IMS data on behalf of the IMS system. Copy blades are used to copy data at a storage volume level and at a data set level. IMS Recovery Expert supports the following copy blades:

- IBM FlashCopy
- IBM DFSMSdss
- EMC TimeFinder
- HDS ShadowImage

Figure 8 on page 28 depicts the IMS Recovery Expert Data Copy Manager and its use of copy blades.

IMS Recovery Expert Invoked Backup and Recovery Processes

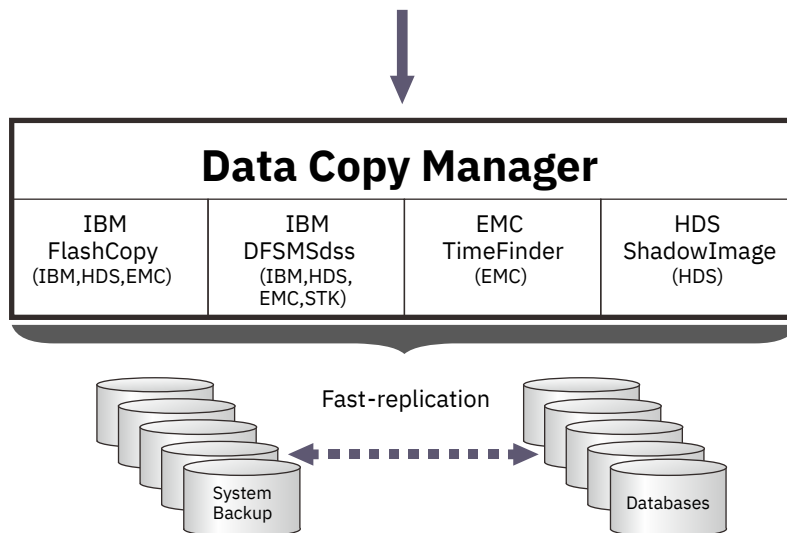


Figure 8. IMS Recovery Expert Data Copy Manager interaction with copy blades

The copy blade and copy method used to perform IMS backup and restore operations are specified in the Backup Profile Options (see [“Setting backup defaults and defining IMS systems and data sharing groups”](#) on page 35). System Level Backup defaults should be set in consultation with your storage administrator. Copy blade usage specifications can be overridden to accommodate specific IMS System Level Backup requirements when creating or updating a System Level Backup profile (see [Chapter 6, “Creating and maintaining System Level Backup profiles,”](#) on page 113).

After the copy blade, copy method, and data consistency control mechanisms are specified in the backup profile, then IMS Recovery Expert will drive appropriate data copy services and fast-replication facilities through its respective copy blade interfaces to perform IMS backup or restore operations.

Copy blade selection considerations

Before configuring IMS Recovery Expert, it is important to consult with your storage administrator to determine the type of storage processors used in your IMS environment, and the preferred fast-replication facilities to use.

Knowing the type of storage processors and available fast-replication facilities allows you to determine which copy blade, which fast-replication method, and which data consistency mechanism to use for creating an IMS System Level Backup in your environment.

IBM FlashCopy blade

The IBM FlashCopy blade provides IMS Recovery Expert interface support for IBM FlashCopy. The FlashCopy blade uses the native IBM ANTRQST macro interface to invoke FlashCopy.

This method of invoking FlashCopy is very fast. It takes a very small amount of time to issue FlashCopy commands, which create a point-in-time copy of an IMS system at the volume level. All tracks are copied in the background for each System Level Backup. The IMS Recovery Expert Log Suspend operation is used to ensure data consistency while FlashCopy commands are issued.

FlashCopy does not require the use of SMS or HSM. This reduces the complexity of the backup configuration.

FlashCopy V1 can be used to create full IMS System Level Backup and restore operations. However, FlashCopy V2 is required to perform application or database-level restore functions.

When using the FlashCopy blade, the IMS data must reside on FlashCopy capable storage subsystems, and the IMS System Level Backup profile must define identically-sized source and target volumes. In addition, the source and target volumes must both be in the same storage subsystem. Users can specify target volume ranges so there is no need to update a backup profile when IMS expands to new volumes.

FlashCopy commands issued through the FlashCopy blade interface make a backup of the IMS system volumes. The FlashCopy blade uses volume-based copy services to create an IMS System Level Backup, and it uses volume or data set copy services to restore IMS systems or application and databases respectively. Application or database recovery will be performed through DFSMSdss. DFSMSdss will use fast-replication if possible and will use host based I/O (slow copy) if the FlashCopy background copy process is not complete.

When using the FlashCopy blade, the backup target volumes are kept offline. IMS Recovery Expert will perform all the necessary commands to bring the volumes online when they are needed to copy the volumes to tape or to perform application recovery through DFSMSdss or FDR.

When IMS Recovery Expert needs to bring a backup volume online temporarily, it will relabel the backup volume, vary it online, and then read the data from the backup volume. Once the backup volume is no longer needed, IMS Recovery Expert will vary the volume offline and then relabel it to the original volume serial.

The IBM FlashCopy blade can support IBM, EMC and HDS storage processors when FlashCopy or FlashCopy emulation products are available for use. The FlashCopy blade can create System Level Backups for IMS systems that are spread across heterogeneous storage systems when all storage systems are using FlashCopy compatible fast-replication products.

EMC TimeFinder copy blade

The EMC TimeFinder copy blade is used to invoke EMC TimeFinder copy services.

The EMC TimeFinder copy blade supports the following EMC copy methods:

- TimeFinder/Mirror
- TimeFinder/Clone Mainframe Volume Snap
- TimeFinder/Snap Mainframe Data Set Snap
- TimeFinder/Snap Virtual Devices

- EMC Engenuity Consistency Assist

IMS Recovery Expert users should consult with their storage administrator to determine which EMC TimeFinder copy blade method is best for their environment. Storage administrators should be consulted on the use of EMC Consistency Assist technology in their environment.

EMC TimeFinder/Mirror copy method

IMS Recovery Expert TimeFinder/Mirror copy method uses EMC TimeFinder/Mirror to make a Business Continuity Volume (BCV) backup of an IMS system. A BCV can be established as a mirror of a standard volume and synchronized with the standard volume. Once synchronization is established, then all data written to the standard volume is also written to the BCV. When the standard and BCV pairs representing the IMS systems are synchronized and IMS Recovery Expert requests an IMS System Level Backup to be created, then the currently established BCV pairs are split from their standard volumes. The data on the BCVs becomes the IMS point-in-time System Level Backup. The IMS system must be on EMC capable TimeFinder/Mirror storage processors.

TimeFinder/Mirror does not require SMS or HSM usage. This reduces the complexity of the backup configuration.

Standard volumes and BCVs must be the same model type (for example, 3380 or 3390) and have the same number of cylinders (for example, 3390-3 or 3390-9). In addition, the source and target volumes must be in the same physical Symmetrix storage subsystem. When IMS expands to new volumes, the backup profile must be updated to add new IMS source and BCV target units. If you have questions about your Symmetrix configuration or TimeFinder/Mirror usage, contact your EMC customer service representative.

When a backup profile is created that keeps more than one generation of BCV backups, then IMS Recovery Expert immediately establishes the next set of BCVs to the standard volumes representing the IMS system when each backup is taken. The second set of BCVs will become the next generation System Level Backup. BCV copies are incremental, so only the changed tracks are copied since the last time the BCVs were used to create a backup.

TimeFinder/Mirror can use EMC Consistency Assist Technology so an IMS log suspend operation is not required during the backup process. An IMS System Level Backup is complete and usable at the time the BCVs are split. If the BCVs have not fully synchronized when the backup is requested, IMS Recovery Expert can optionally wait for the copy process to complete before continuing.

IMS system level restore operations can be performed immediately after the backup is made. The TimeFinder/Mirror copy blade invokes a TimeFinder BCV Restore operation to restore IMS data. The Restore operation copies only the changed tracks made to the source IMS volumes since the backup was made.

IMS application and database recovery use EMC Snap data set to restore IMS data instantaneously. IMS data can be restored using EMC Snap data set without clipping and bringing the volumes online.

BCV volumes containing an IMS System Level Backup must be re-labeled and brought online before they can be offloaded to tape. IMS Recovery Expert will perform this process automatically.

Usage Requirements:

- EMC Symmetrix 6 and higher running with Microcode 5x67 or higher.
- To use Engenuity Consistency Assist (ECA), Microcode 5x67 with patch 14882 or Microcode 5x68 with patch 18954 or Microcode 5x69 or higher is required. To use ECA with SNAP VOLUME technology, the EMC SNAP library must be level 5.5 or higher.

Note: IMS Recovery Expert performs a “Protected BCV restore” in order to preserve the BCV backup point when a BCV Restore operation is performed. The Protected Restore operation is not supported before Microcode 5x70. If any Symmetrix array is at a microcode level lower than 5x70, then a SNAP type restore will be performed to restore IMS data.

EMC TimeFinder/Clone copy method

IMS Recovery Expert uses EMC's TimeFinder/Clone Mainframe Volume Snap Facility (hereafter referred to as the SNAP utility) to create an IMS System Level Backup. The SNAP utility can be used to perform fast-replication for full volumes or for data sets. The IMS system must be on EMC capable TimeFinder/Clone storage processors.

TimeFinder/Clone does not require SMS or HSM usage. This reduces the complexity of the backup configuration.

To use IMS Recovery Expert, you must define source and target volumes to have identical volume size and model types. In addition, the source and target volumes must both be in the same Symmetrix storage subsystem. The target volumes can be either standard volumes or BCVs. Users can specify target ranges so there is no need to update a backup profile when IMS expands to new volumes.

TimeFinder/Clone Mainframe Volume Snap Facility can use EMC Consistency Assist Technology so an IMS log suspend operation is not required. EMC TimeFinder/Clone Mainframe Volume Snap can be performed in phases using a phased snap so performance implications to source volumes can be timed and mitigated. TimeFinder/Clone full volume snap operations are differential so only changed tracks are copied since the last backup was created.

IMS system restore operations need to wait until background copy processing is complete. Application and database restore operations use TimeFinder/Clone Mainframe Data Set Snap for instantaneous restore of IMS data sets. IMS restore operations using Data Set Snap need to wait until the System Level Backup background copy process is complete. Fast data set restore operations can be performed through Data Set Snap without re-labeling and bringing the backup volumes online.

EMC TimeFinder/Snap virtual device usage

EMC virtual devices provide for space efficient snap operations. IMS backup target volumes do not need a full backup volume for each source IMS volume. EMC Virtual devices use a "SAVE POOL" to store the original version of source data before it is changed and after the backup has been taken. This type of backup can significantly reduce the amount of backup space that is required.

Users can specify target ranges so there is no need to update a backup profile when IMS expands to new volumes. EMC Consistency Technology can be used so an IMS log suspend operation is not required. The IMS system must be on EMC capable TimeFinder/Snap storage processors with virtual device support.

TimeFinder/Snap does not require SMS or HSM usage. This reduces the complexity of the backup configuration.

The use of EMC virtual devices allows many IMS System Level Backup points to be created and saved on fast-replication disk. However, a true disk backup never exists; only the changed tracks since the last backup are stored in the save pool. Save pools must be monitored to ensure they do not fill up. The virtual device backup can be copied to tape, at which time a full backup of the IMS system is written to tape and can be used for any recovery purpose.

IMS system level restore operations are performed by snapping the virtual volumes back to their source volumes. Only the changed tracks since the backup was created are copied to restore the IMS data. Application and database restore operations copy data sets from the virtual device backup to their respective source volumes with DFSMSdss using host copy services.

HDS ShadowImage copy blade

The HDS ShadowImage copy blade supports HDS native ShadowImage volume copy processes. The copy process is very fast so IMS Log Suspend time is minimized.

ShadowImage fast-replication copies are incremental copies so only the changed tracks are copied since the last System Level Backup was created. The incremental process reduces the storage processor overhead associated with copying all the source tracks to the target device for each backup operation. The IMS Recovery Expert Log Suspend operation is used to ensure data consistency while ShadowImage commands are executed.

The HDS ShadowImage copy blade does not require the use of SMS or HSM. This reduces the complexity of the backup configuration.

The ShadowImage copy process requires that the source and target volumes be on the same storage processor. The ShadowImage copy blade supports three backup generations. The ShadowImage copy blade allows coordinated FlashCopy and ShadowImage copy methods to be used. That is, source IMS volumes located on HDS storage processors can use ShadowImage while other source volumes can use FlashCopy fast-replication facilities to perform an IMS System Level Backup operation.

IMS system recovery operations use ShadowImage to restore backup volumes. Application and database recovery operations are performed using DFSMSdss. DFSMSdss will use data set fast-replication, if available. If it is not available, or if the backup background copy process is not complete, it will use host based I/O (slow copy).

When using the ShadowImage copy blade, the target volumes are kept offline. IMS Recovery Expert will perform all the necessary commands to bring the volumes online when needed to copy the volumes to tape or to perform application recovery through DFSMSdss.

IBM DFSMSdss copy blade

The IMS Recovery Expert DFSMSdss copy blade can be used to create an IMS System Level Backup.

The DFSMSdss copy blade uses the ADRDSSU interface specifying fast-replication (preferred). The copy blade will drive fast-replication services if they are available and will use host based I/O copy methods if it is not. This copy blade interface can be used to drive data sets or volume based fast-replication facilities.

The IMS backup profile must define identical source and target volumes, as well as model types. The source and target volumes might or might not be FlashCopy capable. If the source and target volumes are all FlashCopy capable, then the IMS Recovery Expert Log Suspend operation is used to ensure data consistency while DFSMSdss commands are issued. Using DFSMSdss will require IMS logs to be suspended for a longer period of time due to the overhead of running the fast replication commands through the DFSMSdss interface. If any source or target volume is not FlashCopy capable, then IMS Recovery Expert requires the IMS system to be down to create the backup.

The DFSMSdss copy blade does not require SMS or HSM usage. This reduces the complexity of the backup configuration.

The DFSMSdss copy blade supports IBM FlashCopy on IBM storage processors and compatible FlashCopy products on EMC and HDS storage processors. It also supports SnapShot on STK or IBM Ramac storage processors. Invoking FlashCopy facilities using the ADRDSSU interface using fast-replication preferred is slower than using the IBM FlashCopy blade which uses the ANTRQST interface.

When using the DFSMSdss blade, the target volumes are kept online and therefore must all have unique volume labels. The z/OS data set placement rules must be set up so that the target units will not be used for new data sets or altered by other processes since they are kept online at all times.

Chapter 3. Configuring IMS Recovery Expert

There are various steps necessary to configure IMS Recovery Expert.

These steps include: defining the repository; configuring the ISPF CLIST; setting backup defaults; defining IMS Recovery Expert to your IMS systems and data sharing groups; setting the PARMLIB parameters that will control the various aspects of the backup and restore utilities; and enabling IMS Recovery Expert in your online and batch IMS environments.

Topics:

- [“Defining the repository and configuring the ISPF CLIST” on page 33](#)
- [“Setting backup defaults and defining IMS systems and data sharing groups” on page 35](#)
- [“\(Optional\) Configuring the PARMLIB member” on page 42](#)
- [“Enabling IMS Recovery Expert in online and batch IMS environments” on page 57](#)
- [“Defining IMS Recovery Expert to IMS Tools Knowledge Base ” on page 58](#)
- [“Defining RECONID members to IMS Tools Knowledge Base” on page 58](#)
- [“Setting up for recovery” on page 58](#)
- [“Building the SLB Dynamic API Environment” on page 76](#)
- [“\(Optional\) Analyzing IMS data set placement for System Level Backup validation” on page 83](#)

Defining the repository and configuring the ISPF CLIST

IMS Recovery Expert provides a comprehensive metadata repository to record backup information. You must define this repository and configure the ISPF CLIST. All of the jobs that are required for these tasks are included as library members. Instructions on how to update the jobs for your environment are included in the members.

Procedure

1. Update the BSYCNTL member in the SBSYSAMP library and submit the job.
This job creates the VSAM control file used by IMS Recovery Expert, which contains setup information for each IMS subsystem. Instructions are contained in the member.
2. Update the BSYREPO member in the SBSYSAMP library and submit the job. This job creates the VSAM KSDS repository files needed by the product to save control and execution information. Detailed instructions are contained in the member.
Note: In a data sharing environment, the IMS Recovery Expert repository must be on shared DASD that is seen by all members of the data sharing group.
3. If you plan to use the checkpoint restart capability for local application recovery, update the BSYCHKPT member in the SBSYSAMP library and submit the job.
This job creates the VSAM KSDS repository file that is needed to save job execution information for checkpoint restart. Detailed instructions are contained in the member.
4. Add the program BSY\$TSOC to the AUTHPGM and AUTHTSF sections of member IKJTSO00 in SYS1.PARMLIB. You can use MVS operator command **SET IKJTSO=xx** or TSO/E command **PARMLIB UPDATE (xx)** to make the change to IKJTSO00 effective dynamically. For more information on IKJTSO00, refer to the *IBM for z/OS: Initialization and Tuning Guide*.
5. Update the BSYV22 and BSYV220 members in the SBSYSAMP library. These members are used when launching the ISPF interface to IMS Recovery Expert. Detailed instructions are contained in the members.
6. Copy the following members from the SBSYSAMP library to your site's CLIST library:
 - BSYV22

- BSYV220
 - BSYTSOC
 - BSYCAPS
7. Update the BSYGDG member in the SBSYSAMP library and submit the job. This job creates the GDG bases used to hold backups of the product's VSAM repository files. Detailed instructions are contained in the member.
 8. Optional: Update the BSY#PARM member. This member contains default values used when building backup, restore, recovery, and disaster recovery preparation jobs. The default values provided in this member may be sufficient; however, you can edit the parameters as described in the topic “(Optional) Configuring the PARMLIB member” on page 42.
 9. The target load library SBSYLOAD must be APF authorized. Include the highlvl.SBSYLOAD library as part of your system APF authorized list.

User access to certain functions can be regulated by security settings. The following table describes the profiles needed to control the IMS Recovery Expert functions for either a RACF® or ACF2 environment:

<i>Table 2. RACF profiles for authorization</i>			
Function	Description of Authority	Profile	Access Type Required
Access	Grants a user the authority to use IMS Recovery Expert	BSY.ACCESS. <i>ssid</i> where <i>ssid</i> is a four-character IMS subsystem name, group name, or *.	READ

<i>Table 3. ACF2 definitions for authorization</i>		
\$KEY	TYPE	ACCESS
BSY	FAC	ACCESS.* UID userid ALLOW

A user cannot run a IMS Recovery Expert backup or restore utility if they are not granted READ access to the corresponding profile, or if the profile does not exist. If the specific Facility Class Profile does not exist, then the most granular generic Facility Class Profile will be applied in its place. For example, if BSY.ACCESS.*ssid* does not exist for an IMS Recovery Expert subsystem or group, but a generic Facility Class Profile name BSY.ACCESS.* exists, then the generic profile is used. Only authorization IDs with READ access to the profile is cleared by security checking.

10. Run the BSYV22 CLIST to access the ISPF interface.

Adding TSO commands to the Command Limiting table

If your site uses ACF2 to restrict TSO command use, you might need to add the TSO command(s) that IMS Recovery Expert uses to the ACF2 Command Limiting table.

Procedure

1. Determine if you must add TSO commands to the ACF2 Command Limiting table (if your site uses ACF2).
2. Add the following TSO command used by IMS Recovery Expert to the ACF2 Command Limiting table:
 - BSY\$MAIN

Setting backup defaults and defining IMS systems and data sharing groups

Using the IMS Recovery Expert ISPF interface, you can configure default parameters and specify information about each IMS system that you plan to back up and restore.

Procedure

1. Issue the BSYV22 CLIST to access the ISPF interface.
2. Specify 0 (Administration) on the IMS Recovery Expert main menu panel (BSY\$MAIN) and press Enter.

```
BSY$PNL0 V2R2 ----- Administration Menu ----- 2021/06/30 13:53:39
Option ==>

                                         2021/06/30 13:53:39
                                         User: PDMONA - BSY

-----
1. Set System Backup Profile Defaults
2. Register IMS Systems
3. Define IMS Groups
4. Db2 Recovery Expert for z/OS Connection
5. Define System Recovery Profiles
6. Define Combined SLB Groups
```

Figure 9. **Administration Menu** panel (BSY\$PNL0)

3. Specify one of the following options on the Option line:
 - Specify 1 to specify defaults when creating a new backup profile or building a backup job.
 - Specify 2 to configure each IMS system on which you will be using IMS Recovery Expert.
 - Specify 3 to define IMS data sharing groups.
 - Specify 4 to define Db2 Recovery Expert for z/OS clist information.
 - Specify 5 to define system recovery profiles. For more information about System Recovery Profiles, see [Chapter 13, “Recovering an IMS system using the IMS Recovery Expert disaster recovery feature,”](#) on page 259 and [“\(Optional\) Using system recovery profiles to recover groups of databases”](#) on page 261.
 - Specify 6 to define Combined SLB groups. This option only appears if the Combined SLB feature has been activated. For more information about the Combined System Level Backup feature, see [Chapter 10, “Performing a Combined System Level Backup,”](#) on page 223.

(Optional) Setting default values for creating and building backup profiles

The values on the **System Backup Profile Defaults** panel are used as defaults when creating a new backup profile or building a backup job. These values are specific to the USERID that creates them; each user can set their own default values.

Procedure

1. Specify 1 on the **Administration Menu** panel (BSY\$PLN0) and press Enter.

```

BSY$PNL1 V2R2 ----- System Backup Profile Defaults ----- 2021/06/30 13:56:47
Option ==>

Backup Profile Default Values
Backup Scope           ==> F           (Full/Data)
Backup Generations     ==> 01         (01 - 99)
Offline Generations    ==> 00         (00 - 99)
Backup Method          ==> F           (Bcv/Snap/Flash/DFSMSdss(L))
Issue Log Suspend      ==> N           (Yes/No)
Validate Volumes       ==> Y           (Yes/No)
Backup Repository      ==> Y           (Yes/No)
Work File Unit Device  ==> SYSALLDA (SYSDA, DISK, etc.)

```

Figure 10. **System Backup Profile Defaults** panel (BSY\$PNL1)

- Specify the following values on the **System Backup Profile Defaults** panel (BSY\$PNL1):

Backup Scope

Specify whether the backup type defaults to full (backup both data and logs) or data only (no logs).

Backup Generations

Specify the default number of backup generations. Valid values are from 1 - 99 for SNAP, FlashCopy, or DFSMSdss backups, and 1 - 8 for BCV backups. IMS Recovery Expert will determine the appropriate number of backup generations when the profile is created.

Offline Generations

Specify the default number of offline generations you want to keep in addition to backup generations. Valid values are from 0 - 99.

Backup Method

Specify the default type of target volume for the backup. Valid values are B for BCV, S for SNAP, F for FlashCopy, or L for DFSMSdss.

Issue Log Suspend

Specify Y or N as the default value for this field. This field determines if IMS Recovery Expert attempts to suspend the IMS log of any active IMS systems when creating a System Level Backup.

Validate Volumes

Specify Y or N as the default value for this field. This field determines whether the volumes in the profile are validated against current IMS volumes when a System Level Backup is going to be created.

Backup Repository

Specify Y or N as the default for whether the IMS Recovery Expert repository is backed up as part of the backup job.

Work File Unit Device

Specify the default work file unit device that will be used when generating utility JCL. Valid values are any tape or dasd esoteric unit.

- Press Enter.

Providing IMS system information

The **Register IMS Systems** panel allows you to specify information for configuring each IMS system for which you plan to use IMS Recovery Expert.

- Specify 2 on the **Administration Menu** panel (BSY\$PLN0) and press Enter.

```

BSY$PNL2 V2R2 ----- Register IMS Systems ----- 2021/06/30 13:57:02
Option ==>

Control File Information
Current User Ind      ==> BSY      (From Startup Clist)
IMS Control Dataset  ==> RSQA.BSY.CSLB.CONTROL
(Pre-allocated)

Enter IMS System Info:
IMS Subsystem ID      ==>          (1-4 Char Subsystem ID )
                          ( ? For Subsystem list)

Valid command selection values are
1. IMS System Information
2. Included/Exclude Datasets in System Backup

```

Figure 11. **Register IMS Systems** panel (BSY\$PNL2)

Note: If your IMS systems are members of a data sharing group, you must specify information for each member of the data sharing group individually on the IMS Recovery Expert setup panels.

2. On the **Register IMS Systems** panel (BSY\$PNL2), review and specify information in the following sections.

Specify information in the following fields under the Control file information section:

Current User Ind

Displays a user indicator that is specified in the CLIST used to start IMS Recovery Expert. This field is read only.

IMS Control Data set

Displays the name of the control data set that holds setup information. This field is read only.

For each subsystem, specify the subsystem ID in the **IMS Subsystem ID** field. Then, specify the commands to complete the IMS System Information. Optionally, you can then identify IMS data sets to be excluded from the System Level Backup, or additional non-IMS system data sets to be included in the backup.

Note: If your IMS subsystems are members of a data sharing group, you must enter information for each member of the data sharing group individually on the IMS Recovery Expert setup panels.

3. Specify the subsystem you want to configure in the **IMS Subsystem ID** field. Either specify a 1-4 character subsystem ID or specify ? to choose from a subsystem list.

```

BSY$SYSL V2R2      Select a Subsystem ID      Scroll ==> PAGE
Option ==>          Row 1 of 11

Line Command: S - Select subsystem

Cmd  System Active  Level Group  z/OS
    IAA3   Yes    1010  IAA   RS25
    IAA4   No
    IAA5   No      EMC
    IAA6   No      EMC
    IAA7   No      RS47
    IAA8   No      RS47
    IAX3   No      TEST
    IBAD   No
    IBA2   No
    IMZ1   No
    I9A2   No
***** Bottom of Data *****

```

Figure 12. **Select a Subsystem ID** panel (BSY\$SYSL)

4. Specify 1 on the **Option** line and press Enter.

```

BSY$PN2A V2R2 ---- Parameters for IMS Subsystem IAA3 ---- 2021/03/17 13:49:23
Option ==>

Enter or Update Specific IMS Parameters :

IMS Started Task Name ==> IAACR3
IMS PROC/JOB DSN ==> IMS.COMMON.PROCLIB
Description ==> IMS V15 DB/DC DATA SHARING
IMS Task user parms ==>

IRLM Started Task Name ==> IAARLA3
Resource Manager STC ==> IAARM3
Common Queue Server STC ==>

```

Figure 13. **Parameters for IMS Subsystem ssid panel (BSY\$PN2A)**

5. On the **Parameters for IMS Subsystem ssid** panel (BSY\$PN2A), specify the following information:

IMS Started Task Name

Enter the member name of the procedure to start the IMS control region.

IMS PROC/JOB DSN

Enter the data set name where the IMS Started Task procedure JCL (PROC or JOB) is located. If the data set name is not specified, JES PROCLIB concatenation will be searched for the procedure.

Description

Enter a user description of this IMS system.

IMS Task user parms

Enter any additional parameters that are specified on the **START** command to start the IMS subsystem. Leave this field blank if no additional parameters are specified.

IRLM Started Task Name

If IRLM is used by the IMS subsystem, specify the name of the procedure used to start the IRLM address space.

Resource Manager STC

If RM (Resource Manager) is used by the IMS subsystem, specify the name of the procedure used to start the RM address space.

Common Queue Server STC

If Shared Queues are used by the IMS subsystem, specify the name of the procedure used to start the CQS address space.

6. Press PF3 to exit this panel.

Restrictions:

- All databases handled by IMS Recovery Expert must be registered in RECON data sets, IMS online system definition, and ACB library (or IMS directory in IMS-managed ACBs environment).
- IMS catalog partition definition data set is not supported. IMS catalog must be registered in RECON data sets.
- If dynamic resource definition is enabled for the IMS online system, resource definition data set (RDDS) must be defined by the RDDSDSN parameter in the DYNAMIC_RESOURCES section of the IMS PROCLIB DFSDFxxx member and automatic exporting to RDDS must be enabled.

(Optional) Including/excluding data sets in System Level Backup

Specify additional data sets to be included or excluded from the System Level Backup.

About this task

IMS Recovery Expert can discover IMS system and database data sets used in an online environment from the information entered in the IMS System Information. If there are data sets that are not used by an online environment, such as DBDLIB or PSBLIB, then these data sets can explicitly be included in a System Level Backup.

Procedure

1. Specify the subsystem you want to configure in the **IM Subsystem ID** field.
2. Specify 2 on the **Option** line and press Enter.

```
BSY$BINU  2.2  ----- Update Datasets ----- 2021/03/17 13:51:43
Option  ==>                                     Scroll ==> PAGE

Line Commands: A - Add  D - Delete

-----
Subsystem: IAA3                                     User: PDMONA
----- Row 1 of 13 -----
  Include/
Cmd  Exclude  DS Name
Exc  Excl     IMS.DRFAIX.OLD*
Exc  Excl     IMS.TOOLS.LOADLIB
Exc  Excl     IMS.V1510.**
Exc  Excl     NSMS.**
Exc  Excl     PDBATB.CA.**
Exc  Excl     PDBISC.**
Exc  Excl     RIS.**
Exc  Excl     RSQA.BSY220.**
Exc  Excl     RSQA.GCL110.**
Exc  Excl     RSQA.RIS120.**
Exc  Excl     RSQA.ZCR110.**
Exc  Excl     SIR.**
```

Figure 14. **Update Datasets** panel (BSY\$BINU)

The **Update Datasets** panel (BSY\$BINU) displays the following fields:

Subsystem

The subsystem you specified on the **Register IMS Systems** panel in the **IMS Subsystem ID** field.

Cmd

The column in which to enter a line command. Specify A on the **Cmd** line preceding a data set to add a data set mask. Specify D on the **Cmd** line preceding a data set to delete a data set mask.

Include/Exclude

Indicates if the data sets are to be included or excluded.

DS Name

The data set name or data set mask.



CAUTION: If using a data set mask, be sure not to specify a mask that will exclude an important IMS system or data base data set, or that will include additional data sets that are not wanted.

3. Specify A on the **Cmd** line preceding a data set to add a data set mask, or specify D on the **Cmd** line preceding a data set to delete a data set mask.
4. Press PF3 to exit this panel.

Defining groups for data sharing environments

IMS systems that belong to a data sharing environment must be defined to an IMS Group.

After you have defined all of the IMS systems, the **IMS Group Display** panel allows you to: define a group with the IMS systems in a data sharing environment; view IMS Recovery Expert group names that have been created; and add a new IMS Recovery Expert group, delete or rename a IMS Recovery Expert group, or update system associations.

Restrictions:

- All IMS systems belonging to an IMS group must belong to the same IMSplex.
- All IMS systems belonging to an IMS group must share the same RECON data sets.
- All databases handled by IMS Recovery Expert must be registered in RECON data sets and defined to all IMS systems of an IMS group.

- All IMS systems belonging to an IMS group must have the same settings for the following keywords in the DFSDFxxx member of IMS PROCLIB:
 - CATALOG= keyword: IMS catalog database enablement
 - ALIAS= keyword: IMS catalog database alias name
 - ACBMGMT= keyword: IMS-managed ACBs environment enablement

Procedure

1. Specify 3 on the **Administration Menu** panel (BSY\$PLN0) and press Enter.

```

BSY$PLX0 V2R2  ----- IMS Group Display ----- 2021/06/30 13:57:20
Option  ===>                                     Scroll  ===>

Line Commands: A - Add  D - Delete  U - Update  R - Rename
-----
Row 1 of 6

Cmd  Group  SSID #
    EMC    02
    GRP    01
    IAA    02
    IDA    02
    RS47   02
    TST2   01
***** Bottom of Data *****

```

Figure 15. **IMS Group Display** panel (BSY\$PLX0)

The **IMS Group Display** panel (BSY\$PLX0) displays the following fields:

Cmd

The column in which to specify a line command. On the line preceding the group you want to work with, specify A to add a new IMS Recovery Expert group, D to delete a IMS Recovery Expert group, U to update system associations, or R to rename a IMS Recovery Expert group.

- If you specify A to add a new group, the **Enter New BSY Group name** panel is displayed. On this panel, you can specify the new group name.

```

Enter New BSY Group name
_ BSY$PLX2
_
_ Enter new BSY Group name

```

Figure 16. **Enter New BSY Group name** panel (BSY\$PLX2)

- If you specify D to delete a group, the **Delete Group Confirmation** panel is displayed. On this panel, you can confirm or cancel the deletion.

```

BSY$PLXC V2R2 ----- Delete Group Confirmation ----- 2021/03/24 13:51
Option ==> Scroll ==> 0003

*****
** WARNING - DELETING THE SELECTED GROUP WILL CAUSE SOME PROFILES **
** TO GET DELETED. IF YOU STILL WANT TO DELETE THE GROUP **
** TYPE CONFIRM. TO CANCEL THE DELETE, TYPE CANCEL. **
*****
----- Row 1 of 74 +

Type      Creator  Name
Application CSMESH   WWW
Backup     PDMONA   TEST1
Application CSTSUK   TEST0316
DR         CSMESHA  TEST
Application PDBISC   SSK
DR         PDBISC   RS47

```

Figure 17. **Delete Group Confirmation** panel (BSY\$PLXC)

- If you specify R to rename or U to update a group, the **Update SSIDs in a Group** panel is displayed. On this panel, you can update the SSIDs in a group.

```

Update SSIDs in a Group
BSY$PLX1 V2R2

Option ==> Scroll ==> PAGE

Line Commands: A - Add D - Delete

----- Row 1 of 2

BSY Group: EMC

Cmd  SSID
     IAA5
     IAA6
***** Bottom of Data *****

```

Figure 18. **Update SSIDs in a Group** panel (BSY\$PLX1)

Group

The IMS Recovery Expert group name. This is a user defined group name that must be unique in a IMS Recovery Expert environment. Also, a group name cannot be the same as an IMS SSID. Before a valid backup can be created, all IMS systems that participate in a data sharing environment must be added to the group.

SSID

The number of IMS systems associated with the group.

2. Press Enter after specifying A, D, U, or R in the **Cmd** field, or press PF3 to exit this panel.

Defining Db2 Recovery Expert for z/OS CLIST information

The default CLIST information used by IMS Recovery Expert to connect to Db2 Recovery Expert for z/OS is specified during customization, but you can specify CLIST connection information for a different version of Db2 Recovery Expert to connect with during your current session.

Procedure

1. Specify 4 on the **Administration Menu** panel (BSY\$PLN0) and press Enter.

```

BSY$PNL5 V2R2 ----- Db2 CLIST Information ----- 2021/02/20 11:25:34
Option ==>

Enter or Update Db2 Recovery Expert for z/OS clist information :

CLIST library name    ==>
CLIST member name    ==>

```

Figure 19. **Db2 CLIST Information** panel (BSY\$PNL5)

2. On the **Db2 CLIST Information** panel (BSY\$PNL5), specify the following values:

CLIST library name

Specify the library name in which the CLIST member for Db2 Recovery Expert for z/OS to which you want to connect resides.

CLIST member name

Specify the member name of the Db2 Recovery Expert for z/OS CLIST.

3. Press Enter, or press PF3 to exit this panel.

What to do next

Return to the **Administration Menu** panel (BSY\$PNL0) to define system recovery profiles or Combined SLB groups.

- For more information about System Recovery Profiles, see [Chapter 13, “Recovering an IMS system using the IMS Recovery Expert disaster recovery feature,” on page 259](#) and [“\(Optional\) Using system recovery profiles to recover groups of databases” on page 261](#).
- For more information about the Combined System Level Backup feature, see [Chapter 10, “Performing a Combined System Level Backup,” on page 223](#).

(Optional) Configuring the PARMLIB member

The PARMLIB member supplied with IMS Recovery Expert provides settings that control various aspects of the product execution.

Most of the default settings in the BSY#PARM member are suitable for most installations. If you do require a parameter change, refer to the tables in this section for information on the parameters, their settings, and the potential ramifications of changing the defaults. The PARMLIB member can be found in the SBSYSAMP(BSY#PARM) data set.

General Parameters

The following table provides information about general parameters.

<i>Table 4. General parameters</i>		
Parameter	Description	Notes
PARMLIB_VERSION	This value identifies the PARMLIB member version to IMS Recovery Expert. This value defaults to the current version and should not be changed.	Do not change this parameter.
GENERATED_JOB_REGION	The job card REGION, in megabytes. Default: 6	
ROUTE_ALL_ON_CONSOLE_CMDS	Valid values are Y(es) or N(o). Y prefixes all console commands with RO*ALL. If set to N, the prefix is not added. Default: Y	Only change this to N if your z/OS system is not part of a sysplex.

<i>Table 4. General parameters (continued)</i>		
Parameter	Description	Notes
DASD_ALLOCATION_UNIT	The allocation unit to be used for dynamic allocations. Default: SYSDA	
TEMP_DSN_ALIAS	The data set high level alias to be used for creating temporary data sets. The default is the TSO user ID of the job submitter. You can also enter a literal for this parameter. Default: JOBUSER	
ITKBSRVR	Name of the IMS Tools Knowledge Base server, or XCF group, name. If specified, all reports will be written to the ITKB server. Default: None	
BYPASS_VARY	Valid values are Y(es) or N(o). Controls whether devices will be varied offline to relabel the volume serial with ICKDSF. If Y is specified as the value for BYPASS_VARY, the devices will not be varied offline to relabel. Default: N	After creating a System Level Backup where the target volumes are in an SMS storage group, the volume serials need to be relabeled. Specifying Y for BYPASS_VARY can reduce the VARY commands that need to be issued.
FCTOPPRCP	If a target volume is a primary device in a PPRC relationship, the following options are available: <ul style="list-style-type: none"> • N - Do not allow the PPRC primary device to become a FlashCopy target. • Y - The target volume and its paired volume can go into a duplex pending state. • P - It is preferable that the target volume and its paired volume do not go into a duplex-pending state. • R - It is required that the target volume and its paired volume do not go into a duplex-pending state. Default: N	

Backup profiles setup utility parameters

The following table provides information about backup profile setup utility parameters.

<i>Table 5. Parameters that affect the backup profile setup utility</i>		
Parameter	Description	Notes
ABEND_ON_ERRORS	Valid values are Y(es) or N(o). Y indicates the utility will issue a z/OS abend code if errors are issued will be the value specified for USER_ABEND_RETURN_CODE. Default: N	

Table 5. Parameters that affect the backup profile setup utility (continued)

Parameter	Description	Notes
USER_ABEND_RETURN_CODE	Valid values are 01-99. This parameter allows you to provide a user abend code if the ABEND_ON_ERRORS parameter is set to Y. If the ABEND_ON_ERRORS parameter is set to N, the program error return code is provided. Default: 08	
RELEASE_HELD_VOLUMES	Valid values are Y(es) or N(o). When set to Y, any held volumes encountered during the profile setup process are released. If set to N, if the profile setup process encounters any held volumes, IMS Recovery Expert marks the volume(s) unusable and produces an error. Default: Y	Do not set RELEASE_HELD_VOLUMES to N and PLACE_BKUP_VOLS_ON_HOLD to Y. This will cause IMS Recovery Expert to produce an error when it encounters volumes placed on hold by the profile setup process.
PLACE_BKUP_VOLS_ON_HOLD	Valid values are Y(es) or N(o). When set to Y, the profile setup process will place all future target volumes on hold. Default: Y	Do not set RELEASE_HELD_VOLUMES to N and PLACE_BKUP_VOLS_ON_HOLD to Y. This will cause IMS Recovery Expert to produce an error when it encounters volumes placed on hold by the profile setup process.
CLEAN_OLD_CONSIST_WINDOWS	Valid values are Y(es) or N(o). Y will clear any non-active ECA consistency windows. N will produce an error and end the profile setup process. Default: N	
CLEAN_OLD_SNAP_SESSIONS	Valid values are Y(es) or N(o). If set to Y, inactive SNAP sessions that reside on this volume that are from other source volumes are cleaned (removed) before the profile setup process. If set to N, inactive SNAP sessions are not removed and the profile setup process will end with an error. Default: N	
SYNC_ALL_BCV_GENERATIONS	Valid values are Y(es) or N(o). If set to Y, IMS Recovery Expert establishes all generations of target BCVs to their source volumes on the very first setup run of a profile. Default: N	This only affects the first time the profile setup process is run on the profile.
MAKE_READY_NOTREADY_DEVICES	Valid values are Y(es) or N(o). If set to Y, profile setup makes not-ready devices ready. N causes the utility to produce an error if not-ready devices are found. Default: Y	Do not set MAKE_READY_NOTREADY_DEVICES to N and MAKE_BKUP_VOLS_NOTREADY to Y. This will cause IMS Recovery Expert to produce an error when it encounters volumes made not ready by the profile setup process.

<i>Table 5. Parameters that affect the backup profile setup utility (continued)</i>		
Parameter	Description	Notes
MAKE_BKUP_VOLS_NOTREADY	Valid values are Y(es) or N(o). If set to Y, backup volumes are made not ready during profile setup. Default: Y	Do not set MAKE_READY_NOTREADY_DEVICES to N and MAKE_BKUP_VOLS_NOTREADY to Y. This will cause IMS Recovery Expert to produce an error when it encounters volumes made not ready by the profile setup process.

Backup utility parameters

The following table provides information about backup utility parameters.

<i>Table 6. Parameters that affect the backup utility</i>		
Parameter	Description	Notes
ABEND_ON_ERRORS	Valid values are Y(es) or N(o). Y indicates the utility will issue a z/OS abend code if errors are encountered. The abend code issued will be the value specified for USER_ABEND_RETURN_CODE. Default: N	
USER_ABEND_RETURN_CODE	Valid values are 01-99. This parameter allows you to provide a user abend code if the ABEND_ON_ERRORS parameter is set to Y. If the ABEND_ON_ERRORS parameter is set to N, the program error return code is provided. Default: 08	
WAIT_FOR_VOLUME_SYNC	Valid values are P(rompt), Y(es) or N(o). This parameter controls what the utility will do if any target BCVs have not synchronized to their source volumes at the time of backup. When set to P, the utility issues a WTOR. When set to Y, the utility automatically waits for the BCVs to synchronize. When set to N, the utility issues an error return code if the previous generation of BCVs has not yet fully synchronized. Default: Y	
PLACE_BKUP_VOLS_ON_HOLD	Valid values are Y(es) or N(o). If set to Y, the backup utility places the backup volumes on hold. Default: Y	
RELEASE_HELD_VOLUMES	Valid values are Y(es) or N(o). If set to Y, the next generation of target volumes will be released if they are held. If set to N, the backup utility will end with an error if the next generation of target volumes is held. Default: Y	

Table 6. Parameters that affect the backup utility (continued)

Parameter	Description	Notes
CLEAN_OLD_CONSIST_WINDOWS	Valid values are Y(es) or N(o). Y will clear any non-active ECA consistency windows. N will produce an error and end the backup. Default: N	
CLEAN_OLD_SNAP_SESSIONS	Valid values are Y(es) or N(o). If set to Y, inactive SNAP sessions that reside on this volume that are from other source volumes are cleaned (removed) before the backup. If set to N, inactive SNAP sessions are not removed and the backup will end with an error. Default: N	
CONSIST_TIME_OUT_SECONDS	Valid values are 01-256. This parameter sets the maximum number of seconds to suspend I/O on standard volumes during backup. Default: 256	
BKUP_VALID_ON_CONSIST_FAIL	Valid values are Y(es) or N(o). If set to Y, the backup will still be registered if a consistency window cannot be obtained, or the panel is closed before the split or SNAP completes. Default: N	
WAIT_FOR_VOL_OFFLINE_SECONDS	Valid values are 01-99. The number of seconds to wait for a volume to go offline. Default: 05	
WAIT_FOR_VOL_OFFLINE_RETRIES	Valid values are 01-99. The number of retries while waiting for a volume to go offline. Default: 99	
MAKE_READY_NOTREADY_DEVICES	Valid values are Y(es) or N(o). If set to Y, not-ready devices are made ready. If set to N, the utility produces an error if not-ready devices are found. Default: Y	
MAKE_BKUP_VOLS_NOTREADY	Valid values are Y(es) or N(o). If set to Y, backup volumes are made not-ready. Default: Y	
ALLOW_SHARED_TARGET_VOLUMES	Valid values are Y(es) or N(o). Allow SNAP or Flash target volumes to be shared among different backup profiles. Default: N	
RECALL_MIGRATED_WAIT	Valid values are 01-99. Maximum number of minutes to wait for migrated data sets to be recalled. Default: 15	

<i>Table 6. Parameters that affect the backup utility (continued)</i>		
Parameter	Description	Notes
RECALL_MIGRATED_DATA	Valid values are E(rror), I(gnore), or R(ecall). Indicates what action to take when migrated data sets are encountered. Error says that the backup should stop with an error return code. Ignore says that backup should continue without the migrated data sets. Recall says that an attempt should be made to recall the data sets prior to making the backup. Default: E Note: IMS Recovery Expert will only check for migrated IMS data sets. Additional user data sets that are requested to be included in the System Level Backup should not be migrated if they need to be included in the System Level Backup.	
SHADOW_IMAGE	Valid values are Y(es) or N(o). For HDS devices, controls whether ShadowImage or FlashCopy emulation will be used to perform fast-replication. Default: N	
BYPASS_NON_RECOV	Valid values are Y(es) or N(o). Controls whether volumes that contain only non-recoverable database data sets will be included in the System Level Backup. Default: N	
NOTIFY_IC_TYPE	Valid values are IC, UIC, or SMSIC. This determines the type of DBRC NOTIFY to do for image copies if 'Issue NOTIFY.IC' is set to 'Y' in the backup profile. Default: IC	

SNAP backup parameters

The following table provides information about SNAP backup parameters.

<i>Table 7. Parameters that affect the SNAP backup</i>		
Parameter	Description	Notes
MAX_RETURN_CODE	Valid values are 4/8/12/integer Specifies the maximum return code of all EMC SNAP commands before processing stops Default: / (EMC default)	
SNAP_WAIT	Valid values are Y(es) or N(o) If Y, the backup utility waits for the SNAP operation to complete before ending the job. If N, the backup utility can end while the SNAP operation completes the Symmetrix caches updates to the source volume until the SNAP operation is complete. Default: Y	

Table 7. Parameters that affect the SNAP backup (continued)

Parameter	Description	Notes
SNAP_WAIT_HOURS	If SNAP_WAIT is Y, the number of hours to wait for the SNAP operation to complete before continuing. Default: 00	
SNAP_WAIT_MINUTES	If SNAP_WAIT is Y, the number of minutes to wait for the SNAP operation to complete before continuing. Default: 02	
SNAP_WAIT_SECONDS	If SNAP_WAIT is Y, the number of seconds to wait for the SNAP operation to complete before continuing. Default: 30	
MAX_ADRDSSU	This is the maximum number of address spaces that can be spawned. Default: / (EMC default)	
MAX_TASKS1	The maximum number of individual requests that can be attached and used. Default: / (EMC default)	
MAX_TASKS2	The maximum number of individual activities that can be performed within a single request. Default: / (EMC default)	
DEBUG_MODE	Valid values are A(ll), T(race), D(ump), E(rror) or X(tra). Sets the amount of information written for debugging to the BSYSNAPO DD. Default: / (EMC default)	
DEBUG_EXTENTS	Value values are Y(es) or N(o). Specifies whether DEBUG information about extents is to be included. Default: / (EMC default)	
TOLERATE_ENQ_FAILURES	This parameter allows a volume to be SNAPPED when exclusive serialization cannot be obtained. This parameter should be set to Y(es). Default: / (EMC default)	
COPY_VOLUME_ID	This parameter controls whether the volume serial number of the source volume gets copied to the target volume. Default: Y	
PHASED_SNAP	If set to Y, this parameter enables phased SNAP or SNAP group processing. This will break the actual EMC SNAP VOLUME command into separate phases. The purpose of this parameter is to improve performance and lessen the impact of the SNAP VOLUME commands on the storage array. Default: N	

<i>Table 7. Parameters that affect the SNAP backup (continued)</i>		
Parameter	Description	Notes
SNAP_GROUP_PDS	If PHASED_SNAP is Y, this parameter must contain the name of a partitioned data set. It is recommended to use an extended PDS (a PDSE). This data set will be used internally to store the phased SNAP commands it needs to issue.	
WAIT_FOR_BACKGROUND_COPY	If set to Y, IMS Recovery Expert will wait for background SNAPS to complete before letting the job complete. Default: N	

BCV split utility parameters

The following table provides information about BCV split utility parameters.

<i>Table 8. Parameters that affect the BCV split utility.</i>		
Parameter	Description	Notes
BCV_WAIT_SECONDS	Valid values are 01-99. The number of seconds to wait between each check for BCV split completion. Default: 06	
WAIT_RETRIES	Valid values are 01-99. The number of times to check for BCV split completion. Default: 99	

Restore utility parameters

The following table provides information about restore utility parameters.

<i>Table 9. Parameters that affect the restore utility</i>		
Parameter	Description	Notes
ABEND_ON_ERRORS	Valid values are Y(es) or N(o). Y indicates the utility will issue a z/OS abend code if errors are encountered. The abend code issued will be the value specified for USER_ABEND_RETURN_CODE. Default: N	
USER_ABEND_RETURN_CODE	Valid values are 01-99. This parameter allows you to provide a user abend code if the ABEND_ON_ERRORS parameter is set to Y. If the ABEND_ON_ERRORS parameter is set to N, the program error return code is provided. Default: 08	
WAIT_FOR_VOL_OFFLINE_SECONDS	Valid values are 01-99. The number of seconds to wait for a volume to go offline. Default: 06	

Table 9. Parameters that affect the restore utility (continued)		
Parameter	Description	Notes
WAIT_FOR_VOL_OFFLINE_RETRIES	Valid values are 01-99. The number of retries while waiting for a volume to go offline. Default: 99	
WAIT_FOR_VOL_ONLINE_SECONDS	Valid values are 01-99. The number of seconds to wait for a volume to go online. Default: 06	
WAIT_FOR_VOL_ONLINE_RETRIES	Valid values are 01-99. The number of retries while waiting for a volume to go online. Default: 99	
CLEAN_OLD_SNAP_SESSIONS	Valid values are Y(es) or N(o). If set to Y, inactive SNAP sessions that reside on this volume that are from other source volumes are cleaned (removed) before the restore. If set to N, inactive SNAP sessions are not removed and the restore will end with an error. Default: Y	
FORCE_SPLIT	Valid values are Y(es) or N(o). For BCV profiles, the current BCV generation will be split before the restore. If this parameter is set to Y, the FORCE parameter will be added to the split call. Default: N	
PERFORM_CHECKSUM	Valid values are Y(es) or N(o). If Y, a checksum operation will be performed on a restored volume to ensure it has not been altered since backup. Default: N	
CLEAR_CF_STRUCTURES	Valid values are Y(es) or N(o). If Y, a command is issued to clear the coupling facility structure for data sharing systems. Default: Y	

IMS recovery process parameters

The following parameters in the BSY#PARM member provide default values for the recovery options. These parameters provide default values for all IMS systems.

However, you can create unique, default recovery options for each IMS subsystem or IMS group by using the BSY#SSID member. Rename the BSY#SSID member so that the SSID portion of the name matches the IMS subsystem ID or IMS group ID as defined to IMS Recovery Expert. You can then tailor the default values for each BSY#SSID parameter to the specific IMS subsystem ID or IMS group ID. Using the ISPF interface, each time you create recovery options, IMS Recovery Expert looks for a BSY#SSID member where the SSID matches the SSID being processed. If the SSID being processed is a group, IMS Recovery Expert first looks for a BSY#SSID member where the SSID is the group name. If not found, then it will look for a member where SSID is one of the individual IMS subsystem IDs. If either is found, the recovery options specified are used as defaults for the specific IMS subsystem or IMS group ID. If not found, then the values in BSY#PARM are used.

Table 10. Parameters that affect an IMS recovery process

Parameter	Description	Notes
IMS_DELDEF_DATASET	Data set that contains members for IDCAMS delete/define commands for database data sets. Default: none	
IMS_GENJCL_DATASET1	First data set in concatenation when any GENJCL function needs to be performed for a recovery process. Default: none	
IMS_GENJCL_DATASET2	Second data set in concatenation when any GENJCL function needs to be performed for a recovery process. Default: none	
IMS_GENJCL_DATASET3	Third data set in concatenation when any GENJCL function needs to be performed for a recovery process. Default: none	
IMS_GENJCL_DATASET4	Fourth data set in concatenation when any GENJCL function needs to be performed for a recovery process. Default: none	
IMS_GENJCL_DATASET5	Fifth data set in concatenation when any GENJCL function needs to be performed for a recovery process. Default: none	
IMS_GENJCL_DFLT_MBR	Specifies the default member name which must be located in one of the IMS_GENJCL_DATASET(1-5) data sets. The member contains default values which are used by the GENJCL process. If a member is specified, it is passed in the DEFAULTS() parameter for all GENJCL calls when recovery JCL is created. Default: none	
IMS_ITKBSRVR	Specifies the XCF group name of the ITKB server. Default: ITKBSRVP	
GENJCL_USER_RECOV_MEM	GENJCL member to use for the recovery function. Default: BSYDRF	
GENJCL_USER_FPIX_MEM	GENJCL member to use if the fast path secondary index function needs to be invoked. Default: BSYFPSI	
GENJCL_USER_HBIX_MEM	GENJCL member to use if the HALDB PINDEX/ILDS rebuild function needs to be invoked. Default: BSYPRECO	

Table 10. Parameters that affect an IMS recovery process (continued)

Parameter	Description	Notes
GENJCL_USER_FFIX_MEM	GENJCL member to use if the index rebuild function needs to be invoked for non-fast path. Default: BSYIIB	
GENJCL_USER_CA_MEM	GENJCL member to use if the User Change Accumulation function needs to be invoked during recovery. Default: BSYHPCA	
GENJCL_USER_IC_MEM	GENJCL member to use if the Image Copy function needs to be invoked after a recovery function. Default: BSYHPIC	
IMS_RECOVERY_UTIL	The only valid value is Y to indicate recovery processing will be performed. Default: Y (IMS)	
IMS_INDEX_UTIL	Valid values are Y (Yes) and N (No). Specify whether index rebuild processing should be driven when recovery is performed. Default: Y	
IMS_CA_UTIL	Valid values are Y (Yes) and N (No). Specify whether change accumulation processing should be driven prior to driving recovery. Default: Y	
IMS_IC_UTIL	Valid values are Y (Yes) and N (No). Specify whether an image copy should be taken after recovery is performed. Default: Y	
IMS_DRFX_BPECFG	Specifies the name of the IMS Recovery Expert configuration member. Default: IROBPECG	
IMS_DRFX_IMSRECFG	Specifies the name of the BPE configuration member. Default: IROCFG01	
USE_FFIX_FOR_HALDB_RBLD	Valid values are Y (Yes) or N (No). Indicates whether to use the FFIX index rebuild utility to rebuild HALDB PINDEX/ILDS. Default: Y(Yes)	
INDEX_RBLD_WHEN_RECOV	Valid values are Y (Yes) or N (No). Indicates whether you want to have indexes which are set to be recovered rebuilt instead of recovered. Default: Y(Yes)	
HALDB_RBLD_ON_RECOV_TO_CURRENT	Valid values are Y (Yes) or N (No). Indicates whether you want to have HALDB ILDS/PINDEX rebuilt when a HALDB is recovered to current. Default: Y(Yes)	

Table 10. Parameters that affect an IMS recovery process (continued)

Parameter	Description	Notes
RECOVJOB_JOBNAME_METHOD	<p>Valid values are 1 and 2. Specify the method that is used to create the jobnames for spawned recovery jobs.</p> <ul style="list-style-type: none"> • Specify 1 to suffix the TSO userid with a single character A-Z or 0-9, with each new job using a different character. • Specify 2 to suffix the TSO userid with the single character T. 	
INCLUDE_IX_IN_RECOV_LIST	<p>Valid values are Y(es) or N(o).</p> <ul style="list-style-type: none"> • Y indicates that when IMS Recovery Expert executes the GENJCL calls to build JCL and control cards for performing recovery, indexes will be processed and included in the recovery list. • N indicates that indexes will not be processed and are not included in the recovery list. 	
DR_LASTPITCA_AGE	<p>Specifies whether timestamp age validation is performed during the disaster recovery preparation job when a system recovery profile indicates the type of recovery is LASTPITCA. This parameter accepts a 2 digit number from 00-99.</p> <ul style="list-style-type: none"> • A value of 00 turns validation off. • A value of 01 to 99 specifies a number of hours. During LASTPITCA validation, the newest PITCA for all CA groups in the profile is used as the coordinated recovery time. A check is done to make sure that this timestamp is not older than the number of hours specified. If it is, a warning message is issue. This verification only generates warning conditions and will not terminate the disaster recovery preparation job. 	
DR_LASTPITCA_RANGE	<p>Specifies whether time difference validation is performed during the disaster recovery preparation job when a system recovery profile indicates the type of recovery is LASTPITCA. This parameter accepts a 2 digit number from 00-99.</p> <ul style="list-style-type: none"> • A value of 00 turns this validation off. • A value of 01 to 99 specifies a number of hours. During LASTPITCA validation, the time difference between the oldest and newest PITCA for all CA groups in the profile is checked and if the range is greater than the number of hours specified, a warning message is issued. This verification only generates warning conditions and will not terminate the disaster recovery preparation job. 	

Table 10. Parameters that affect an IMS recovery process (continued)

Parameter	Description	Notes
DR_LASTIC_AGE	<p>Specifies whether timestamp age validation is performed during the disaster recovery preparation job when a system recovery profile indicates the type of recovery is LASTIC. This parameter accepts a 2 digit number from 00-99.</p> <ul style="list-style-type: none"> • A value of 00 turns this validation off. • A value of 01 to 99 specifies a number of hours. During LASTIC validation, the newest batch IC for all objects in the profile is checked to make sure that the timestamp is not older than the number of hours specified. If it is, a warning message is issued. This verification only generates warning conditions and will not terminate the disaster recovery preparation job. 	
DR_LASTIC_RANGE	<p>Specifies whether time difference validation is performed during the disaster recovery preparation job when a system recovery profile indicates the type of recovery is LASTIC. This parameter accepts a 2 digit number from 00-99.</p> <ul style="list-style-type: none"> • A value of 00 turns this validation off. • A value of 01 to 99 specifies a number of hours. During LASTIC validation, the time difference between the oldest and newest batch IC for all objects in the profile is checked and if the range is greater than the number of hours specified, a warning message is issued. This verification only generates warning conditions and will not terminate the disaster recovery preparation job. 	
FORCE_STARTDB	<p>If FORCE_STARTDB is set to Y, IMS Recovery Expert always issues the IMS STA DB command (STA AREA command for DEDB), regardless of whether the IMS DBR command was issued at the beginning of the database recovery process.</p> <p>Default: N</p>	

Offload utility parameters

The following table provides information about Offload utility parameters.

Table 11. Parameters that affect the Offload utility

Parameter	Description	Notes
ABEND_ON_ERRORS	<p>Valid values are Y(es) or N(o). Y indicates the utility will issue a z/OS abend code if errors are encountered. The abend code issued will be the value specified for USER_ABEND_RETURN_CODE.</p> <p>Default: N</p>	

<i>Table 11. Parameters that affect the Offload utility (continued)</i>		
Parameter	Description	Notes
ACTION_ON_WARNING	Valid values are W (WTOR), C (Continue), or A (Abort). This value specifies the action to take when warnings occur during application recovery. Default: C	
IMS_SLB_ONLY	Valid values are Y (Yes) or N (No). This value indicates whether or not you want to perform SLB only processing during application recovery. Default: N	
USER_ABEND_RETURN_CODE	Valid values are 01-99. This parameter allows you to provide a user abend code if the ABEND_ON_ERRORS parameter is set to Y. If the ABEND_ON_ERRORS parameter is set to N, the program error return code is provided. Default: 08	
CLIP_PREFIX	The prefix to use when clipping volume serials during offload processing. Default: ZZ	IMS Recovery Expert might need to temporarily clip (or change the volser of) the target volume to bring the target online.

Disaster recovery parameters

The following table provides information about Disaster Recovery parameters.

<i>Table 12. Parameters that affect Disaster Recovery</i>		
Parameter	Description	Notes
DR_HEALTH_CHECK	Valid values are Y(Yes) or N(No). Indicates whether to run HCHECK after the Disaster Recovery utility.	
GEN_VOLSERS_FOR_STEPLIB_DSNS	Valid values are Y(Yes) or N(No). Indicates whether to include VOLSER=volser on STEPLIB for the Disaster Recovery restoration jobs that include the IMS Recovery Expert load libraries. Default: N(No)	Specify Y if the IMS Recovery Expert load library will be uncataloged at the Disaster Recovery site at the time that the IMS Recovery Expert jobs are run.
DR_RECALL_MIGRATED_WAIT	Valid values are 01-99. Indicates the maximum number of minutes to wait for migrated data sets to be recalled. Default: 15	

Table 12. Parameters that affect Disaster Recovery (continued)

Parameter	Description	Notes
DR_RECALL_MIGRATED_DATA	<p>Valid values are E(rror), I(gnore), or R(ecall). Indicates which action to take when migrated database data sets are encountered.</p> <ul style="list-style-type: none"> • Error indicates that the DR preparation job should stop with an error return code. • Ignore indicates that DR preparation should continue without the migrated data sets. • Recall indicates that an attempt should be made to recall the data sets prior to continuing with the DR preparation job. <p>Default: E</p>	
DR_DLIBATCH_OPTION	<p>Valid values are I(gnore), E(rror), or C(ordinated). Indicates what action to take when the DR preparation job encounters DLI batch jobs with databases authorized for higher than READ access and the DR Site Recovery Point is not set to B for Backup.</p> <p>(I)gnore indicates that the DR preparation job should continue processing and report on active DLI batch jobs with databases authorized for higher than READ access.</p> <p>(E)rror indicates that the DR preparation job should terminate with an error if there are any active DLI batch jobs with databases authorized for higher than READ access.</p> <p>(C)ordinated indicates that if there are active DLI batch jobs with databases authorized for higher than READ access that are also connected to the associated Db2 subsystem, then the recovery timestamp will be reset to match the start time of the earliest DLI batch job if needed.</p> <p>Note: When you specify (C)ordinated, the DR preparation job must execute on the same z/OS LPAR as the associated Db2 subsystem.</p> <p>Default: I</p>	
DR_HISTORY_RETENTION	<p>Specify a number from 000-999 in days to keep history information related to DR preparations jobs in the repository. A value of 0 means that no history is retained.</p> <p>Default: 0</p>	

Application options parameters

The following table provides information about Application Options parameters.

Table 13. Parameters that affect Application Options

Parameter	Description	Notes
SET QUIESCE_TIMEOUT	Set the timeout value that is passed to IMS when the UPD DB or UPD AREA commands are executed for quiesce. If all of the databases cannot be quiesced in the specified time, the command is rejected with errors. Default: 5 seconds.	
RECOV_CHKPT_RESTART	Valid values are Y(Yes) or N(No). Indicates whether you want checkpoint restart processing active for local application recovery jobs. If you set this parameter to Y(Yes), then you must also allocate the checkpoint restart repository (SBSYSAMP member BSCHKPT) and update your BSYPV220 invocation CLIST to include RBRCHKPT() to point to this data set. Default: N(No).	

Enabling IMS Recovery Expert in online and batch IMS environments

IMS Recovery Expert must be added to the IMS control regions for the IMS systems that will be defined to IMS Recovery Expert.

Configuring IMS Tools Generic exit

IMS Recovery Expert provides IMS Partner Exit BSYPPE0 (for DFSPPE0) and IMS Logger Exit BSYPFLGX0 (for DFSFLGX0). These user exits are implemented based on IMS Tools Generic Partner Exit interface and Generic Logger Exit interface.

About this task

IMS Tools Generic Partner Exit and Generic Logger Exit interfaces are distributed as part of the IMS Tools Generic exits included in IBM IMS Tools Base for z/OS. You must install and configure IMS Partner Exit BSYPPE0. You must install and configure IMS Logger Exit BSYPFLGX0 only if you use the **Issue Log Suspend** option.

The IMS Tools Generic Partner Exit and IMS Tools Generic Logger Exit interface is a general-purpose interface that allows multiple exits to be defined and called. As part of the installation and configuration for the IMS Tools Generic Partner Exit, you might have already performed the following steps. However, if these steps have not yet been completed, you need to complete them now before continuing.

Procedure

1. Create a unique GPR*iiii*0 member for each IMS system in which IMS Recovery Expert is needed where *iiii* is the 4-character IMS subsystem identifier.
2. Create a unique GLX*iiii*0 member for each IMS system in which IMS Recovery Expert is needed where *iiii* is the 4-character IMS subsystem identifier. This step is optional. It is needed only if the **Issue Log Suspend** option is set to Y. See “[Issue Log Suspend](#)” on page 119 for more details.
3. APF-authorize the executable load libraries for IMS Tools Generic exits.
4. Update your IMS control region JCL to include in the STEPLIB concatenation the executable load libraries for IMS Tools Generic exits.

What to do next

You can use the SBSYSAMP(BSYGPR) and SBSYSAMP(BSYGLX) sample members to set up IMS Tools Generic Partner Exit and Generic Logger Exit configuration members for each IMS system. For detailed instructions on how to add a configure these members, see the *IMS Tools Base: IMS Tools Common Services User's Guide and Reference*.

Important: If you use any other user-defined, vendor partner, or logger exit that does not support IMS Tools Generic exits, you must ensure that the libraries that contain the DFSPUE0 or DFSGLX0 exits are concatenated ahead of the SGLXLOAD. Also, ensure that those exits pass control to the next exit in the STEPLIB so that IMS Tools Generic exits get control.

Making the IMS Recovery Expert load library available

You must also make additional IMS Recovery Expert modules available to the IMS control region and DL/I batch jobs.

Choose one of the following options:

- The IMS Recovery Expert library can be added to the STEPLIB for the control region and all DL/I batch jobs.
- The following modules can be copied to the IMS RESLIB:
 - BSYIMSOF
 - BSYIMSD1
 - BSYIMSE1
 - BSYIMSF1

IMS Recovery Expert load module library can be updated by applying maintenance. However, you do not need to restart the IMS control region after applying the PTF unless instructed to do so. If the PTF requires you to restart the IMS control region, it is instructed on SMP/E HOLDDATA.

Defining IMS Recovery Expert to IMS Tools Knowledge Base

If you want reports from IMS Recovery Expert to be saved in the IMS Tools Knowledge Base (ITKB), you must define IMS Recovery Expert to the IMS Tools Knowledge Base.

IMS Tools Knowledge Base is a component of IBM IMS Tools Base for z/OS (program number 5655-V93). To define IMS Recovery Expert to IMS Tools Knowledge Base, modify and run the SBSYSAMP member BSYITKB. This job defines IMS Recovery Expert and all of its associated reports to IMS Tools Knowledge Base.

Defining RECONID members to IMS Tools Knowledge Base

To save reports from IMS Recovery Expert in the IMS Tools Knowledge Base (ITKB), you must define the necessary RECONID members to the IMS Tools Knowledge Base.

RECONID members identify each unique RECON environment. You can find detailed information about RECONID members and how to define them in the information about RECON administration in the *IMS Tools Base: IMS Tools Knowledge Base User's Guide and Reference*. See the information about RECON administration for an explanation of the RECONID member definition process.

Add a RECONID member for each RECON environment for which you will run IMS Recovery Expert.

Setting up for recovery

IMS Recovery Expert interfaces with the tools which are a part of the IMS Recovery Solutions Pack as well as any other vendor or user utilities when recovering a database or group of databases (application recovery), when restoring an entire IMS environment (system restore), or in a disaster recovery situation (disaster recovery).

Before creating the profiles necessary to perform any of these recoveries, there are several setup tasks that must be done.

The setup tasks include:

- Setting the defaults for the recovery utilities to be used
- Identifying GENJCL libraries and creating skeletal members
- Identifying or creating a PDS with IDCAMS control statements to delete and define database data sets
- Building the SLB dynamic API environment

Setting defaults for recovery utilities

You can define to IMS Recovery Expert the utilities to invoke for the various recovery steps that might run to recover a database or index.

The recovery utilities that might be invoked are:

- a database recovery utility
- an index rebuild utility for full function, fast path, and HALDB
- a change accumulation utility
- an image copy utility

IMS Recovery Expert makes use of the DBRC GENJCL feature for building the jobs required for driving these utilities. As a result, IMS Recovery Expert can support any of the IMS Recovery Solutions Pack, base IMS, or other vendor utilities for these functions. You can define the default DBRC skeleton members and other parameters in the BSY#PARM or BSY#SSID members (refer to [“\(Optional\) Configuring the PARMLIB member”](#) on page 42).

The following parameters in BSY#PARM identify which utilities to invoke:

IMS_RECOVERY_UTIL

This parameter must be set to Y to indicate that a database recovery utility will be invoked as part of database recovery when needed.

IMS_INDEX_UTIL

This parameter specifies whether an index rebuild utility will be invoked during application recovery as needed. This setting includes index rebuild for all types of databases. Valid values are:

- Y - indicates that an index rebuild utility should be used
- N - indicates that an index rebuild utility should not be used

IMS_CA_UTIL

This parameter specifies whether a change accumulation utility will be invoked prior to database recovery. Valid values are:

- Y - indicates that a change accumulation utility should be used
- N - indicates that a change accumulation utility should not be used

IMS_IC_UTIL

Typically, an image copy needs to be run after a recovery has been performed. This parameter specifies whether an image copy utility will be invoked after database recovery has completed. Valid values are:

- Y - indicates that an image copy utility should be used
- N - indicates that an image copy utility should not be used

The values specified in the BSY#PARM member are the defaults that are used when creating a new application profile, system restore profile, or disaster recovery profile but each value may be overridden in any of the specific profiles.

Identifying GENJCL libraries and skeletal members

IMS Recovery Expert invokes the DBRC GENJCL function to generate the JCL necessary to run the steps in a recovery process. The PDS data sets where your GENJCL members exist need to be specified to IMS Recovery Expert.

Up to 5 PDS libraries can be specified. The parameters in the BSY#PARM member that identify these libraries are:

- IMS_GENJCL_DATASET1
- IMS_GENJCL_DATASET2
- IMS_GENJCL_DATASET3
- IMS_GENJCL_DATASET4
- IMS_GENJCL_DATASET5

The GENJCL libraries specified in the BSY#PARM member are the default data sets to use when a new application, system restore, or disaster recovery profile is used. You can also override these values in any individual profile.

Creating GENJCL skeletal members

The GENJCL members that are used by IMS Recovery Expert include special control cards which do not exist in the DBRC GENJCL language. This is done because IMS Recovery Expert might make multiple GENJCL calls when generating each utility, and the DBRC GENJCL language capabilities do not support all the necessary functionality. The types of calls that can be made for each utility are shown in “GENJCL calls by utility” on page 62. For each utility, each of these calls have a GENTYPE and GENPHAS which is specific to the function being performed and the symbols passed. To allow you to tailor your GENJCL skeletons to your utilities needs, you can indicate which of these calls you want to process and the JCL or control cards to generate for the call. This is done by enclosing the GENJCL statements within a GENJCL_BEGIN/GENJCL_END block. The format of these statements is:

```
GENJCL_BEGIN GENTYPE=type
GENPHAS=phase
```

This indicates the beginning of a series of JCL or control cards that are to be processed for the GENJCL call when the GENTYPE and GENPHAS variables match the type and phase specified on the control card.

```
GENJCL_END
```

This indicates the end of the block for the prior GENJCL_BEGIN.

Refer to “GENJCL calls by utility” on page 62 to tailor your GENJCL skeletons to meet the needs of your utility. When IMS Recovery Expert makes a GENJCL call, it will only process the statements within the GENJCL_BEGIN/GENJCL_END block that matches the GENTYPE and GENPHAS. If a GENJCL_BEGIN/GENJCL_END block is not coded for a GENTYPE/GENPHAS call, then that GENJCL call is skipped.

IMS Recovery Expert also provides skeletal members that will list the variables and values passed on each call. These members can be useful for tailoring your own skeletal members for other vendor utilities. The members are:

Function	Member	Purpose
Recovery	BSYLISRV	Provides listing capabilities for each GENJCL call made when building the recovery jobs
Recovery	BSYIMSRV	Executes the base IMS Recovery utility
Recovery	BSYDRF	Executes the IBM IMS Database Recovery Facility utility

Function	Member	Purpose
Image Copy	BSYLISIC	Provides listing capabilities for each GENJCL call made when building the image copy jobs
Image Copy	BSYIMSIC	Executes the base IMS Image Copy utility
Image Copy	BSYHPIC	Executes the IBM IMS High Performance Image Copy utility
FF Index Rebuild	BSYLISIX	Provides listing capabilities for each GENJCL call made when building the index rebuild jobs
FF Index Rebuild	BSYIIB	Executes the IBM IMS Index Builder utility
FP Index Rebuild	BSYLISFP	Provides listing capabilities for each GENJCL call made when building fast path secondary index rebuild jobs
FP Index Rebuild	BSYFPSI	Executes the IBM IMS Fast Path Secondary Index utility
HALDB Rebuild	BSYLISFP	Provides listing capabilities for each GENJCL call made when building HALDB PINDEX or ILDS jobs
HALDB Rebuild	BSYPRECO	Executes the IMS HALDB PINDEX/ILDS utility (DFS PRECO)
HALDB Rebuild	BSYIIB	Executes the IBM IMS Index Builder utility (See Note)
Change Accumulation	BSYLISCA	Provides listing capabilities for each GENJCL call made when building change accumulation jobs
Change Accumulation	BSYIMSCA	Executes the IMS Change Accumulation utility
Change Accumulation	BSYHPCA	Execute the IBM IMS High Performance Change Accumulation utility

Note: The BSYIIB member can be used to execute the IBM IMS Index Builder for rebuilding HALDB PINDEX/ILDS, but only when you specify **Use FF for HALDB** as the **Execute Index Rebuild** recovery option. BSYIIB will not function properly if you specify **HALDB GENJCL member name** as the **Execute Index Rebuild** recovery option.

For the IMS Recovery Solution Pack utilities, IMS Recovery Expert uses the **GENJCL . USER** command to process the skeletal members. All of the documented symbolic keywords in the DBRC reference guides are supported for the specific GENJCL.USER function that is invoked by IMS Recovery Expert.

For user utilities, IMS Recovery Expert performs the various GENJCL functions as described in the section titled [“GENJCL calls by utility”](#) on page 62.

Defining GENJCL skeletal member names

You can also specify the default GENJCL skeletal member to invoke for each utility that might need to be run. The following parameters in the BSY#PARM member specify the default skeletal members:

GENJCL_USER_RECOV_MEM

Specifies the GENJCL member to be used for performing database recovery.

GENJCL_USER_FFIX_MEM

Specifies the GENJCL member to be used for performing full function index rebuild. This member is also used if the BSY#PARM or recovery options parameter "USE_FFIX_FOR_HALDB_RBLD" is set to Y.

GENJCL_USER_FPIX_MEM

Specifies the GENJCL member to be used for performing fast path secondary index rebuild.

GENJCL_USER_HBIX_MEM

Specifies the GENJCL member to be used for performing HALDB PINDEX and ILDS rebuild. This member is not used if the BSY#PARM or recovery options parameter "USE_FFIX_FOR_HALDB_RBLD" is set to Y.

GENJCL_USER_CA_MEM

Specifies the GENJCL member to be used for performing change accumulation.

GENJCL_USER_IC_MEM

Specifies the GENJCL member to be used for creating post recovery image copies.

For each of these utilities, you only need to specify a member for the utilities that were specified in [“Setting defaults for recovery utilities”](#) on page 59 or that might be overridden in a profile.

The GENJCL skeletal members specified in the BSY#PARM member are the default members to use when a new application, system restore, or disaster recovery profile is used. You can also override these values in any individual profile.

GENJCL calls by utility

When IMS Recovery Expert needs to create JCL to execute one of the defined utilities, it makes one or more GENJCL calls using the GENJCL skeleton member that you specified. All documented symbolic keywords in the DBRC reference guides are supported by each of these calls. In addition, IMS Recovery Expert passes the symbolic keywords listed in the following tables on the DBRC GENJCL USERKEYS keyword.

For each call, IMS Recovery Expert sets two special keywords that indicate the type and phase of the call. The call type is specified by the GENTYPE keyword and indicates the type of call that is being made. The call phase is specified by the GENPHAS keyword and indicates the phase of the call that is being made. The GENTYPE value varies by utility. The GENPHAS value is one of the following:

- CTL – indicates that this is a control type call; currently only passed on GENTYPE=START and GENTYPE=END
- JCL – indicates that this is a JCL type call; this is passed on the calls when JCL would be created by GENJCL
- SYSIN – indicates that this is a SYSIN or control card type call; this is passed on the calls when SYSIN or control card input would be created by GENJCL

For each utility shown in the following table, each possible call and the passed symbolic keywords and values are listed and can be used to generate your own GENJCL skeletons. See [“Creating GENJCL skeletal members”](#) on page 60 for more details on how to build your own GENJCL skeletons.

Recovery Utility

The possible GENJCL calls made when processing the recovery utility and their order are shown in the following table:

<i>Table 14. Recovery Utility: GENJCL calls</i>			
GENJCL Function	Called	Symbolic Keyword	Value
GENJCL.USER	Once	GENTYPE	START
		GENPHAS	CTL
		SSID	ssid / grpname
GENJCL.USER	Once	GENTYPE	PIT
		GENPHAS	JCL
		PITDAT7	yyyyddd
		PITDATE	yyddd
		PITTIME	hhmmsst
		RCVTIME	'CURRENT' yydddhhmmssthjju yyddhhmmsst
		RCVTYPE	PITR [,NOCHECK] TSR CURRENT
GENJCL.USER	Once per CAGRP (See Note "1" on page 66)	GENTYPE	CAGROUP
		GENPHAS	JCL
		GRPNAME	cagrpnm
		GRPNO	1-99999
GENJCL.USER	Once per RECOVGRP (See Note "1" on page 66)	GENTYPE	RCVGROUP
		GENPHAS	JCL
		GRPNAME	Rcvgrpnm
		GRPNO	1-99999

<i>Table 14. Recovery Utility: GENJCL calls (continued)</i>			
GENJCL Function	Called	Symbolic Keyword	Value
GENJCL.RECOV	Once per DBDS (See Note “4” on page 66)	GENTYPE	RECOV
		GENPHAS	JCL
		SSID	ssid / grpname
		DBTYPE	FF FP HALDB
		DBNAME	dbdname
		MDBNAME	HALDB master dbdname
		DBDDN	ddname
		DBTYPE	FF FP HALDB
GENJCL.USER	Once	GENTYPE	SYSIN
		GENPHAS	SYSIN
		SSID	ssid / grpname
GENJCL.USER	Once per CAGRP (See Note “1” on page 66)	GENTYPE	CAGROUP
		GENPHAS	SYSIN
		GRPNAME	cagrpnm
		GRPNO	1-99999
GENJCL.USER	Once per RECOVGRP (See Note “1” on page 66)	GENTYPE	RCVGROUP
		GENPHAS	SYSIN
		GRPNAME	Rcvgrpnm
		GRPNO	1-99999

Table 14. Recovery Utility: GENJCL calls (continued)			
GENJCL Function	Called	Symbolic Keyword	Value
GENJCL.USER	Once per DBDS (See Note “2” on page 66) (See Note “4” on page 66)	GENTYPE	DATASET
		GENPHAS	SYSIN
		DBNAME	dbdname
		MDBNAME	HALDB master dbdname
		DBDDN	ddname
		DBTYPE	FF FP HALDB
		ICRCVD (See Note “3” on page 66)	FFY FFN FPY FPN HDY HDN
		XICTYP (See Note “5” on page 66)	CIC BAT
	XICRUN (See Note “5” on page 66)	yydddhhmmssthjju	
GENJCL.USER	Once	GENTYPE	PIT
		GENPHAS	SYSIN
		PITDAT7	yyyyddd
		PITDATE	yyddd
		PITTIME	hhmmsst
		RCVTIME	‘CURRENT’ yydddhhmmssthjju yyddhhmmsst
		RCVTYPE	PITR [,NOCHECK] TSR CURRENT
GENJCL.USER	Once	GENTYPE	END
		GENPHAS	CTL

Notes:

1. The CAGRP and RECOVGRP calls are made only when the CAGRP or RECOVGRP name were actually included in the application profile. However, if SLB image copies are used as input into recovery, this process is performed at the data set level so that the ICRCVD symbolic can be set, indicating that IMS Recovery Expert has already recovered the data set. Also, on restart, even if these groups were included in the application profile, it is possible that these calls are not made if some of the DBDSs in the group were previously image copied. In that case, the group calls are skipped so that the entire group is not reprocessed.
2. When a CAGRP or RECOVGRP was included in the application profile and a GENTYPE for CAGRP or RECOVGRP is done for all members in the group, the DATASET call is not made for those DBDSs that were processed as part of the group calls.
3. The ICRCVD symbolic is used to indicate whether IMS Recovery Expert already recovered the database from an image copy and, as a result, the recovery utility can skip that process. The values for this variable and their meaning are:
 - FFY – database is FF and image copy was restored
 - FFN – database is FF and image copy was not restored
 - FPY – database is FP and image copy was restored
 - FPN – database is FP and image copy was not restored
 - HDY – database is HALDB and image copy was restored
 - HDN – database is HALDB and image copy was not restored
4. If the setting in the **Execute Recovery** options for "Include indexes in recovery list" is set to N, then this call will not be made for any FF, FP, or HALDB primary or secondary indexes.
5. If **Recovery Resources** is set to U on Recovery utility profile and CIC type User Image Copy is specified, XICTYP is set to CIC and XICRUN is set to the UIC RUN timestamp value. Otherwise, XICTYP is set to BAT and XICRUN is not set.

If **Recovery Resources** is set to U on Recovery utility profile, you must change GENJCL skeletal member as follows:

Change for FF DB

Before change:

```
%DELETE (%DBTYPE NE 'FF' | %ICRCVD NE 'FFY')
  ADD DBDS(%DBNAME %DBDDN) USEDDBDS DBATRB(DBDSL(999)) IC() IB() PC()
%ENDDDEL
```

After change:

```
%DELETE (%DBTYPE NE 'FF' | %ICRCVD NE 'FFY' | %XICTYP EQ 'CIC')
  ADD DBDS(%DBNAME %DBDDN) USEDDBDS DBATRB(DBDSL(999)) IC() IB() PC()
%ENDDDEL
%DELETE (%DBTYPE NE 'FF' | %ICRCVD NE 'FFY' | %XICTYP NE 'CIC')
  ADD DBDS(%DBNAME %DBDDN) USEUICTIME(%XICRUN) -
  DBATRB(DBDSL(999)) IC() IB() PC()
%ENDDDEL
```

Change for HALDB

Before change:

```
%DELETE (%DBTYPE NE 'HALDB' | %ICRCVD NE 'HDY')
  ADD DBDS(%DBNAME %DBDDN) USEDDBDS DBATRB(DBDSL(999)) IC() IB() PC()
%ENDDDEL
```

After change:

```
%DELETE (%DBTYPE NE 'HALDB' | %ICRCVD NE 'HDY' | %XICTYP EQ 'CIC')
  ADD DBDS(%DBNAME %DBDDN) USEDDBDS DBATRB(DBDSL(999)) IC() IB() PC()
%ENDDDEL
%DELETE (%DBTYPE NE 'HALDB' | %ICRCVD NE 'HDY' | %XICTYP NE 'CIC')
  ADD DBDS(%DBNAME %DBDDN) USEUICTIME(%XICRUN) -
```

```
DBATRB(DBDSL(999)) IC() IB() PC()
%ENDDDEL
```

Change for FP DB

Before change:

```
%DELETE (%DBTYPE NE 'FP' | %ICRCVD NE 'FPY')
  ADD AREA(%DBNAME %DBDDN) USEAREA DBATRB(DBDSL(999)) IC() IB() PC()
%ENDDDEL
```

After change:

```
%DELETE (%DBTYPE NE 'FP' | %ICRCVD NE 'FPY' | %XICTYP EQ 'CIC')
  ADD AREA(%DBNAME %DBDDN) USEAREA DBATRB(DBDSL(999)) IC() IB() PC()
%ENDDDEL
%DELETE (%DBTYPE NE 'FP' | %ICRCVD NE 'FPY' | %XICTYP NE 'CIC')
  ADD AREA(%DBNAME %DBDDN) USEUICTIME(%XICRUN) -
    DBATRB(DBDSL(999)) IC() IB() PC()
%ENDDDEL
```

This change is included in the sample GENJCL skeletal member BSYDRF.

Full Function Index Build Utility

The possible GENJCL calls made when processing the Full Function Index Build utility and their order are shown in the following table:

Table 15. Full Function Index Build Utility: GENJCL calls

GENJCL Function	Called	Symbolic Keyword	Value
GENJCL.USER	Once per each DB with associated indexes	GENTYPE	START
		GENPHAS	CTL
		SSID	ssid / grpname
GENJCL.USER	Once per each DB with associated indexes	GENTYPE	SYSIN
		GENPHAS	SYSIN
		SSID	ssid / grpname

<i>Table 15. Full Function Index Build Utility: GENJCL calls (continued)</i>			
GENJCL Function	Called	Symbolic Keyword	Value
GENJCL.USER	Once for all FF secondary indexes if IXSEL=ALL. Once for each FF secondary index if IXSEL=SELECTED	GENTYPE	FFSIX
		GENPHAS	SYSIN
		PRIMDBD	primary dbdname
		INDXDBD	index dbdname or 'ALL' if IXSEL=ALL
		IXTYPE	FFSIX
		IXSEL	ALL SELECTED
		IXMORE (See Note)	Y if more indexes N on last (or only) index
		IXNUM	1-99999 (index counter within the DB)
GENJCL.USER	Once for each FF primary index	GENTYPE	FFPIX
		GENPHAS	SYSIN
		PRIMDBD	primary dbdname
		INDXDBD	index dbdname
		IXTYPE	FFPIX
		IXSEL	N/A (blanks)
		IXMORE (See Note)	Y if more indexes N on last (or only) index
		IXNUM	1-99999 (index counter within the DB)

<i>Table 15. Full Function Index Build Utility: GENJCL calls (continued)</i>			
GENJCL Function	Called	Symbolic Keyword	Value
GENJCL.USER	Once for all HALDB secondary indexes if IXSEL=ALL. Once for each HALDB secondary index if IXSEL=SELECTED	GENTYPE	HBSIX
		GENPHAS	SYSIN
		PRIMDBD	primary dbdname
		INDXDBD	index dbdname or 'ALL' if IXSEL=ALL
		IXTYPE	HBSIX
		IXSEL	ALL SELECTED
		IXMORE (See Note)	Y if more indexes N on last (or only) index
		IXNUM	1-99999 (index counter within the DB)
GENJCL.USER	Once for all HALDB ILDS partitions if IXSEL=ALL. Once for each HALDB ILDS partitions if IXSEL=SELECTED	GENTYPE	HBILDS
		GENPHAS	SYSIN
		PRIMDBD	primary dbdname
		INDXDBD	index dbdname
		IXTYPE	HBILDS
		IXSEL	ALL SELECTED
		IXMORE (See Note)	Y if more indexes N on last (or only) index
		IXNUM	1-99999 (index counter within the DB)

<i>Table 15. Full Function Index Build Utility: GENJCL calls (continued)</i>			
GENJCL Function	Called	Symbolic Keyword	Value
GENJCL.USER	Once for each HALDB primary index if FF index rebuild is being used for HALDB	GENTYPE	HBPIX
		GENPHAS	SYSIN
		PRIMDBD	primary dbdname
		INDXDBD	index dbdname
		IXTYPE	HBPIX
		IXSEL	N/A (blanks)
		IXMORE (See Note)	Y if more indexes N on last (or only) index
		IXNUM	1-99999 (index counter within the DB)
GENJCL.USER	Once per each DB with associated indexes	GENTYPE	END
		GENPHAS	CTL

Note: The IXMORE symbolic keyword is set to Y if there are more indexes within the specify GENTYPE and GENPHASE call. For example, if a FF database has multiple secondary indexes and the IXSEL is selected, then there will be a GENTYPE=FFSIX, GENPHAS=SYSIN call for each secondary index. IXMORE will be set to Y to indicate that more calls will be made, or N to indicate the last call. This variable can be used when creating a series of indexes, which must be separated by a comma and closed with a parenthesis on the last occurrence.

Fast Path Secondary Index Build Utility

The possible GENJCL calls made when processing the Fast Path Index Build utility and their order are shown in the following table. This series of calls is made for each DB that has secondary indexes.

<i>Table 16. Fast Path Secondary Index Build Utility: GENJCL calls</i>			
GENJCL Function	Called	Symbolic Keyword	Value
GENJCL.USER	Once per each DB with associated indexes	GENTYPE	START
		GENPHAS	CTL
		SSID	ssid / grpname
GENJCL.USER	Once per each DB with associated indexes	GENTYPE	SYSIN
		GENPHAS	SYSIN
		SSID	ssid / grpname

<i>Table 16. Fast Path Secondary Index Build Utility: GENJCL calls (continued)</i>			
GENJCL Function	Called	Symbolic Keyword	Value
GENJCL.USER	Once for each FP secondary index	GENTYPE	FPSIX
		GENPHAS	SYSIN
		PRIMDBD	primary dbdname
		INDXDBD	index dbdname
		IXTYPE	FPSIX
		IXMORE	Y if more indexes N on last (or only) index
		IXNUM	1-99999 (index counter within the DB)
GENJCL.USER	Once per each DB with associated indexes	GENTYPE	END
		GENPHAS	CTL

HALDB Primary Index / ILDS Build Utility

The possible GENJCL calls made when processing the HALDB Primary Index / ILDS utility and their order are shown in the following table:

<i>Table 17. HALDB Primary Index / ILDS Build Utility: GENJCL calls</i>			
GENJCL Function	Called	Symbolic Keyword	Value
GENJCL.USER	Once for each HALDB partition	GENTYPE	START
		GENPHAS	CTL
		SSID	ssid / grpname
GENJCL.USER	Once for each HALDB partition	GENTYPE	SYSIN
		GENPHAS	SYSIN
		SSID	ssid / grpname

<i>Table 17. HALDB Primary Index / ILDS Build Utility: GENJCL calls (continued)</i>			
GENJCL Function	Called	Symbolic Keyword	Value
GENJCL.USER	Once for each partition	GENTYPE	HALDB
		GENPHAS	SYSIN
		MDBNAME	HALDB master dbdname
		PART	partition name
		BUILD	ILE INDEX BOTH
GENJCL.USER	Once for each HALDB partition	GENTYPE	END
		GENPHAS	CTL

Change Accumulation Utility

The possible GENJCL calls made when processing the Change Accumulation utility and their order are shown in the following table:

<i>Table 18. Change Accumulation Utility: GENJCL calls</i>			
GENJCL Function	Called	Symbolic Keyword	Value
GENJCL.USER	Once	GENTYPE	START
		GENPHAS	CTL
		SSID	ssid / grpname
GENJCL.USER	Once for each CAGRP	GENTYPE	SORT
		GENPHAS	JCL
		CAGRP	cagrpnm
		CAGRPNO	1-99999
GENJCL.CA	Once for each CAGRP	GENTYPE	CA
		GENPHAS	JCL
		GRPNAME	cagrpnm
		CAGRPNO	1-99999

<i>Table 18. Change Accumulation Utility: GENJCL calls (continued)</i>			
GENJCL Function	Called	Symbolic Keyword	Value
GENJCL.USER	Once	GENTYPE	SYSIN
		GENPHAS	SYSIN
		SSID	ssid / grpname
GENJCL. USER	Once	GENTYPE	PIT
		GENPHAS	SYSIN
		PITDAT7	yyyyddd
		PITDATE	yyddd
		PITTIME	hhmmsst
		CATIME	'CURRENT' yydddhhmmssthjju yyddhhmmsst
GENJCL.USER	Once for each CAGRP	GENTYPE	SORT
		GENPHAS	SYSIN
		CAGRP	cagrpnm
		CAGRPNO	1-99999
GENJCL.USER	Once for each CAGRP	GENTYPE	GROUP
		GENPHAS	SYSIN
		CAGRP	cagrpnm
		CAGRPNO	1-99999
GENJCL.USER	Once	GENTYPE	END
		GENPHAS	CTL

Post Recovery Image Copy Utility

The possible GENJCL calls made when processing the Post Recovery Image Copy utility and their order are shown in the following table:

<i>Table 19. Post Recovery Image Copy Utility: GENJCL calls</i>			
GENJCL Function	Called	Symbolic Keyword	Value
GENJCL.USER	Once	GENTYPE	START
		GENPHAS	CTL
		SSID	ssid / grpname
GENJCL.USER	Once for each CAGRP (See Note)	GENTYPE	CAGROUP
		GENPHAS	JCL
		GRPNAME	cagrpnm
		GRPNO	1-99999
GENJCL.USER	Once for each RECOVGRP (See Note)	GENTYPE	RCVGROUP
		GENPHAS	JCL
		GRPNAME	rcvgrpnm
		GRPNO	1-99999
GENJCL.IC	Once per DBDS	GENTYPE	IC
		GENPHAS	JCL
		ICNUM	1-99999
		DBTYPE	FF FP HALDB
		SSID	ssid / grpname
GENJCL.USER	Once	GENTYPE	SYSIN
		GENPHAS	SYSIN
		SSID	ssid / grpname
GENJCL.USER	Once for each CAGRP (See Note)	GENTYPE	CAGROUP
		GENPHAS	SYSIN
		CAGRP	cagrpnm
		CAGRPNO	1-99999

<i>Table 19. Post Recovery Image Copy Utility: GENJCL calls (continued)</i>			
GENJCL Function	Called	Symbolic Keyword	Value
GENJCL.USER	Once for each RECOVGRP (See Note)	GENTYPE	RCVGROUP
		GENPHAS	SYSIN
		GRPNAME	rcvgrpnm
		GRPNO	1-99999
GENJCL.USER	Once per DBDS	GENTYPE	DATASET
		GENPHAS	SYSIN
		ICNUM	1-99999
		DBNAME	dbdname
		DBDDN	ddname
		DBTYPE	FF FP HALDB
GENJCL.USER	Once	GENTYPE	END
		GENPHAS	CTL

Note: The CAGRP and RECOVGRP calls are only made when the CAGRP or RECOVGRP name were actually included in the application profile. Also, on restart, even if these groups were included in the application profile, it is possible that these calls are not made if some of the DBDSs in the group were previously image copied. In that case, the group calls are skipped so that the entire group is not reprocessed.

Testing Skeleton Members

The following DD statements can be added to any IMS Recovery Expert generated recovery JCL to help test a skeletal member, or to view the symbolic keywords and values that are available to create skeletal JCL members.

BSYJCLO

If you add this DD statement to an IMS Recovery Expert generated recovery job (that is, an application recovery job, or a system recovery job used in DR or full system recovery), then IMS Recovery Expert will write the JCL that is generated using the skeletal JCL members during a recovery job. This DD must point to a file with LRECL=80, RECFM=F or FB.

JCLONLY DD DUMMY

If you add this DD statement to an IMS Recovery Expert generated recovery job, then when the recovery job is run, IMS Recovery Expert will only generate the JCL using the skeletal members. No recovery steps will be run. If a JCLONLY DD is specified in the JCL, a BSYJCLO DD must also be specified.

Specifying IDCAMS DELETE/DEFINE control statements

If any utility in the recovery process requires the database or index data sets to be deleted and then redefined before the utility runs, then a library with IDCAMS control statements to delete and define the data set must be specified to IMS Recovery Expert.

The library must contain a member for each data set that will be deleted and redefined. The member name for each data set must match the DD name or ADS name defined to IMS for the data set.

If you are using the IMS Database Recovery Facility as your recovery utility, it has the ability to delete/define the data set based on the existing data set attributes or to execute IDCAMS delete/define commands specified in the DDEFPS DD statement. Refer to the *IMS Recovery Solution Pack: IMS Database Recovery Facility User's Guide* for more information.

Building the SLB Dynamic API Environment

IMS Database Recovery Facility has the capability to use IMS Recovery Expert System Level Backups (SLB) as recovery assets.

When IMS Recovery Expert creates an SLB, it can keep track of all DBDS that are backed up in the SLB. The SLB contains the equivalent of fast-replication image copies for each DBDS in the SLB.

A dynamic application programming interface (API) is provided that allows IMS Database Recovery Facility jobs to utilize these SLBs for image copies when those SLBs can meet the recovery criteria better than an image copy recorded in the RECON data sets. By using IMS Recovery Expert SLBs as image copies, you can reduce the need for creating image copies.

When you drive recovery from the IMS Database Recovery Facility and use IMS Recovery Expert to create system level backups, you must install the dynamic API in order for SLBs to be used as valid recovery assets. If you drive recovery from the IMS Recovery Expert (which has the ability to drive the IMS Database Recovery Facility) you do not need to install the API.

Using SLBs in the recovery process

The use of IMS Recovery Expert SLBs by IMS Database Recovery Facility jobs is controlled by the USESLBIC() keyword.

- When USESLBIC(Y) is specified, IMS Database Recovery Facility jobs use the SLB API and SLBs can be used as sources for image copies.
- When USESLBIC(N) is specified, SLBs are not used.
- When USESLBIC(Y) is set, and a given database is not contained in the SLB used for processing the recovery list, IMS Database Recovery Facility attempts to use non-SLB image copies as sources for image copies.

These image copies must have time stamps greater-than or equal-to the time stamp of the SLB.

When IMS Database Recovery Facility jobs run with USESLBIC(Y) and determine that there is an SLB that best matches the recovery criteria, the SLB API issues a **NOTIFY . IC** command to create an image copy record in the RECON data sets for that SLB image copy.

The format of the SLB image copy record data set name is:

```
SLB . Ixxxx . Dxxxx . dbdname . ddname
```

The SLB image copy data set name is symbolic and no physical data set exists with that name. When an SLB image copy record exists in the RECON data sets, and an IMS Database Recovery Facility job is run with USESLBIC(N), and the job determines that this record should be used for recovery, then the job fails when attempting to allocate the symbolic data set. Therefore, once IMS Database Recovery Facility jobs execute with USESLBIC(Y), the jobs should continue to run with this setting.

When USESLBIC(Y) is specified, IMS Database Recovery Facility is able to use SLBs as recovery assets:

- SLBs are created by IMS Recovery Expert and written to fast-replication devices.

- SLBs can also be offloaded to other DASD or tape devices. Therefore SLBs can exist on fast-replication devices, offload data sets, or both.
- If the SLB exists on both, the SLB on the fast-replication device is used in recovery.

If there are offload data set(s), they are displayed on the VERIFY(ALLOC) and VERIFY(OPEN) reports. This does not necessarily indicate that the offload data set(s) are used for recovery. It just indicates that they are available if needed. If the offload data set(s) are used, the recovery report indicates that fact.

When an SLB is used for recovery, the SLB API issues a NOTIFY.IC to register the image copy record in the RECON data sets. These image copy records are the symbolic records discussed earlier. IMS Recovery Expert can be used to delete the SLB from the fast replication devices.

As long as the SLB still exists on offload data sets, the SLB, and any symbolic image copy records associated with the SLB, are still usable. However, if the offload data sets are also deleted, the symbolic image copy records are no longer valid. If you want to ensure that these records are not used, you can delete them from the RECON data sets.

The VERIFY function can be used to determine the correlation between the SLB's fast-replication volume(s) and the offload data sets.

When USESLBIC(Y) is specified, and either databases are being recovered or their recovery assets are being verified, it is a best practice to examine the job log for FRD4312E and FRD4320I error messages.

These messages are displayed when there is an error in the application programming interface between IMS Database Recovery Facility and IMS Recovery Expert or when the database is not contained in the SLB.

Setting up the environment to support SLB image copies

The IMS Recovery Expert System Level Backup (SLB) API activation utility is used to activate, deactivate, or list the dynamic API environments that exist on an z/OS system.

This API allows IMS Database Recovery Facility and IMS Database Recovery Facility Extended Functions jobs to use any existing IMS Recovery Expert SLBs when performing functions that access image copies. The API identifies the IMS Recovery Expert environment and eliminates the need to change the job JCL.

The API requires information relating to the IMS Recovery Expert environment. This information includes the names of the IMS Recovery Expert repository data sets and the execution load libraries.

This information is provided in one of two ways:

- Modify the IMS Database Recovery Facility JCL to include DD statements for each of these data sets.
- Run the SLB API utility to dynamically build the API environment that allows IMS Database Recovery Facility jobs to access the required information without the need for JCL changes.

The SLB API activation utility should be enabled after each IPL on any z/OS system where IMS Database Recovery Facility and IMS Database Recovery Facility Extended Functions jobs can run. Once activated, the API remains active until the next IPL or until it is removed or deactivated through the API activation utility.

If the SLB API activation utility is executed multiple times to activate different environments, only the last environment activated is used. All previous environments remain defined but are inactive.

Changes are not allowed to the dynamic API environments if the utility detects that there are active users of the API interface.

The recommended method is to use the dynamic SLB API activation utility so that IMS Database Recovery Facility JCL does not have to be changed.

Sample JCL

The sample JCL for activating, deactivating, and listing the API environments can be found in SBSYSAMP(BSY#UTIL). Customize this job to your environment and set it up to run after each IPL on

any LPAR where IMS Database Recovery Facility and IMS Database Recovery Facility Extended Functions jobs need to run.

The EMCLOAD and FDRLOAD DDs are required if either tool is used for data movement.

The BSYGROUP DD is required only if the combined SLB feature is active.

All other DDs should match the data sets specified in your IMS Recovery Solution Pack CLIST, which invokes the IMS Recovery Expert ISPF interface.

Command reference for SLB API activation utility

The following commands can be specified in the BSYIN DD control statement to enable IMS Recovery Expert SLB API activation utility functions.

ACTIVATE

The **ACTIVATE** command is used to either build a new dynamic API environment and make it active, or convert an existing environment to be the active environment.

If other environments exist when the **ACTIVATE** is performed, those environments remain intact but become inactive and are not used by the API. Only one dynamic API environment can be active at a time. Once the activation is completed successfully, the API can be called dynamically without specifying the load library and repository data sets in the JCL that uses the API.

If you want to use the API for an environment that is different from the active environment, you must specify the required DD statements in the IMS Database Recovery Facility or IMS Database Recovery Facility Extended Functions JCL.

ACTIVATE performs the following operations:

1. Ensure that all required DD statements are specified in the JCL.

The utility terminates otherwise.

2. Check to see if there are any active users of the API.

If there are active users, then no changes are allowed and the utility terminates.

No changes are allowed (for example, **ACTIVATE** or **DEACTIVATE**) when there are active users of the API.

3. Check to see if the BSY#API interface module is loaded into LPA (Link Pack Area).

If the module is not loaded, a copy is loaded into LPA and messages are displayed indicating it was loaded.

Messages are also issued showing the maintenance level of the module and whether it was loaded or it already existed.

4. Check to see if there is a dynamic API environment that matches the DD statements allocated in the JCL.

If a matching environment exists, and it is not currently the active environment, then the environment is converted and designated as the active environment.

If a matching environment does not exist, then a new dynamic API environment is created and is designated the active environment.

DEACTIVATE

The **DEACTIVATE** command is used to remove one or more dynamic API environments. The **DEACTIVATE** parameter can be specified using the following formats:

DEACTIVATE

This form of the command deactivates only the dynamic API environment that matches the DD statements allocated in the JCL.

DEACTIVATE performs the following operations:

1. Ensure that all required DD statements are specified in the JCL.

The utility terminates otherwise.

2. Check to see if there are any active users of the BSY#API interface module loaded in LPA (Link Pack Area).

If there are active users, then no changes are allowed and the utility terminates.

No changes are allowed (for example, **ACTIVATE** or **DEACTIVATE**) when there are active users of the API.

3. Locate the dynamic API environment that matches the DD statements allocated in the JCL.

If none is found, a message is issued and the utility terminates.

4. If a dynamic API environment is found that matches the DD statements allocated in the JCL, the environment control blocks are unchained from the list and the storage is freed.

If the deactivated environment was the active environment, the next environment in the chain is made active.

If the last environment is deactivated, then the BSY#API interface module is also deleted from LPA.

Note: The **DEACTIVATE** command appears as DEACTIVATE(RVTE) in the output.

DEACTIVATE(ALL)

This form of the command deactivates all dynamic API environments. If this form is used, the API can no longer be called unless the necessary data sets are allocated in the job that uses the API.

DEACTIVATE(ALL) performs the following operations:

1. Check to see if there are any active users of the API.

If there are active users, then no changes are allowed and the utility terminates.

No changes are allowed (for example, **ACTIVATE** or **DEACTIVATE**) when there are active users of the BSY#API module that is loaded into LPA (Link Pack Area).

2. Run the chain of all dynamic API environments and deletes each control block.
3. Remove the BSY#API module from LPA.

LIST

The **LIST** command is used to display information about the dynamic API environment on a z/OS system.

Messages are issued showing information related to the BSY#API interface module and each dynamic API environment that exists.

Example BSYIN control statements

The examples in this section show BSYIN control statements using commands to control the SLB API activation utility.

Example 1

The following example lists any defined dynamic API environments and additionally shows the active API environment:

```
//BSYIN DD *  
LIST
```

Example 2

The following example uses the DD statements allocated in the JCL to build a new API environment, or convert an existing environment, and activate that environment.

```
//BSYIN DD *  
ACTIVATE
```

Example 3

The following example performs the following operations:

- List all dynamic API environments that currently exist and additionally show the active API environment
- Deactivate only the active dynamic API environment that matches the DD statements allocated in the JCL
- List again to ensure that the deactivated environment has been removed
- Deactivate all other existing dynamic API environments
- List again to ensure that the deactivated environments have been removed
- Build and activate a new API environment that matches the DD statements allocated in the JCL
- List again to ensure that the new dynamic API environment is now designated as active

```
//BSYIN DD *  
LIST  
DEACTIVATE  
LIST  
DEACTIVATE(ALL)  
LIST  
ACTIVATE  
LIST
```

Example BSYIN control statement output

The following output was produced from a BSYIN control statement using commands to control the SLB API activation utility:

```

16:23:12 BSY0001I - IBM IMS Recovery Solution Pack for z/OS Starting.
Version 02.02.000
16:23:12 BSY0003I - Control Cards:
16:23:12 BSY0004I - LIST
16:23:12 BSY0004I - DEACTIVATE
16:23:12 BSY0004I - LIST
16:23:12 BSY0004I - DEACTIVATE(ALL)
16:23:12 BSY0004I - LIST
16:23:12 BSY0004I - ACTIVATE
16:23:12 BSY0004I - LIST
16:23:12 BSY0004I -
16:23:12 BSY0004I -
16:23:12 BSY0004I -
16:23:12 BSY0560I -
16:23:12 BSY0560I - Processing LIST....
16:23:12 BSY0560I - .... Querying LPA for BSY#API
16:23:12 BSY0561I - BSY#API located in LPA
16:23:12 BSY0568I - BSY#API ENTRYPT = 20E4D000
16:23:12 BSY0568I - BSY#API LOADPT = 20E4D000
16:23:12 BSY0568I - BSY#API MODLEN = 000038C8
16:23:12 BSY0568I - BSY#API TIMESTAMP = APARV2R2M0
16:23:12 BSY0568I - BSY#API VERSION = 03/17/2021
16:23:12 BSY0567I -
16:23:12 BSY0567I - Active BSY#API environment:
16:23:12 BSY0567I - Created by TSMXD on 2021-03-21 16:02:04.90467
16:23:12 BSY0567I - BSYLOAD = IRS.DEV21.LOAD
16:23:12 BSY0567I - EMCLOAD = RSRTE.EMC.LINKLIB.BETA760
16:23:12 BSY0567I - FDRLOAD = RSRTE.VENDOR.FDR.LOAD
16:23:12 BSY0567I - Db2PARMS= IRS.IRS21.CONTROL
16:23:12 BSY0567I - BSYBPROF= IRS.IRS21.PROFILE
16:23:12 BSY0567I - BSYBOFFL= IRS.IRS21.OFFOPTS
16:23:12 BSY0567I - BSYBPMAP= IRS.IRS21.PROFILE.MAPS
16:23:12 BSY0567I - BSYBPCAT= IRS.IRS21.PROFILE.CATS
16:23:12 BSY0567I - BSYSBACK= IRS.IRS21.SYSBACK
16:23:12 BSY0567I - BSYSBQBJ= IRS.IRS21.SYSBACK.OBJS.IMS
16:23:12 BSY0567I - BSYSBVOL= IRS.IRS21.SYSBACK.VOLS
16:23:12 BSY0567I - BSYSBSSD= IRS.IRS21.SYSBACK.SSIDS
16:23:12 BSY0567I - BSYBREPT= IRS.IRS21.BREPORT
16:23:12 BSY0567I - BSYP0BJS= IRS.IRS21.OBJECTS
16:23:12 BSY0567I - BSYARCH = IRS.IRS21.ARCHIVES.IMS
16:23:12 BSY0567I - BSY#PARM= IRS.DEV21.SAMPLE MEMBER = BSY#PARM
16:23:12 BSY0560I -
16:23:12 BSY0560I - Processing DEACTIVATE....
16:23:12 BSY0570I - Deleting active BSY#API environment
16:23:12 BSY0560I - .... Querying LPA for BSY#API
16:23:12 BSY0561I - BSY#API located in LPA
16:23:12 BSY0568I - BSY#API ENTRYPT = 20E4D000
16:23:12 BSY0568I - BSY#API LOADPT = 20E4D000
16:23:12 BSY0568I - BSY#API MODLEN = 000038C8
16:23:12 BSY0568I - BSY#API TIMESTAMP = APARV2R2M0
16:23:12 BSY0568I - BSY#API VERSION = 03/17/2021
16:23:12 BSY0560I - .... BSY#API being deleted from LPA
16:23:12 BSY0561I - BSY#API deleted from LPA
16:23:12 BSY0560I - .... Querying LPA for BSY#API
16:23:12 BSY0561I - BSY#API not located in LPA
16:23:12 BSY0560I -
16:23:12 BSY0560I - Processing LIST....
16:23:12 BSY0560I - .... Querying LPA for BSY#API
16:23:12 BSY0561I - BSY#API not located in LPA
16:23:12 BSY0560I -
16:23:12 BSY0560I - Processing DEACTIVATE(ALL)....
16:23:12 BSY0560I - .... Querying LPA for BSY#API
16:23:12 BSY0561I - BSY#API not located in LPA
16:23:12 BSY0560I -
16:23:12 BSY0560I - Processing LIST....
16:23:12 BSY0560I - .... Querying LPA for BSY#API
16:23:12 BSY0561I - BSY#API not located in LPA

```

```

16:23:12 BSY0560I -
16:23:12 BSY0560I - Processing ACTIVATE....
16:23:12 BSY0560I - .... Querying LPA for BSY#API
16:23:12 BSY0561I - BSY#API not located in LPA
16:23:12 BSY0560I - .... BSY#API being added to LPA
16:23:12 BSY0561I - BSY#API added to LPA
16:23:12 BSY0568I - BSY#API TOKEN = 000009110000018E
16:23:12 BSY0568I - BSY#API ENTRYPT = A0E4D000
16:23:12 BSY0568I - BSY#API LOADPT = 20E4D000
16:23:12 BSY0568I - BSY#API MODLEN = 000038C8
16:23:12 BSY0560I - .... Querying LPA for BSY#API
16:23:12 BSY0561I - BSY#API located in LPA
16:23:12 BSY0568I - BSY#API ENTRYPT = 20E4D000
16:23:12 BSY0568I - BSY#API LOADPT = 20E4D000
16:23:12 BSY0568I - BSY#API MODLEN = 000038C8
16:23:12 BSY0568I - BSY#API TIMESTAMP = APARV2R2M0
16:23:12 BSY0568I - BSY#API VERSION = 03/17/2021
16:23:12 BSY0560I - API environment added
16:23:12 BSY0567I -
16:23:12 BSY0567I - Active BSY#API environment:
16:23:12 BSY0567I - Created by TSMXD on 2021-03-21 16:23:12.36718
16:23:12 BSY0567I - BSYLOAD = IRS.DEV21.LOAD
16:23:12 BSY0567I - EMCLOAD = RSRTE.EMC.LINKLIB.BETA760
16:23:12 BSY0567I - FDRLOAD = RSRTE.VENDOR.FDR.LOAD
16:23:12 BSY0567I - Db2PARMS= IRS.IRS21.CONTROL
16:23:12 BSY0567I - BSYBPROF= IRS.IRS21.PROFILE
16:23:12 BSY0567I - BSYBOFFL= IRS.IRS21.OFFOPTS
16:23:12 BSY0567I - BSYBPMAP= IRS.IRS21.PROFILE.MAPS
16:23:12 BSY0567I - BSYBPCAT= IRS.IRS21.PROFILE.CATS
16:23:12 BSY0567I - BSYSBACK= IRS.IRS21.SYSBACK
16:23:12 BSY0567I - BSYSBOBJ= IRS.IRS21.SYSBACK.OBJS.IMS
16:23:12 BSY0567I - BSYSBVOL= IRS.IRS21.SYSBACK.VOLS
16:23:12 BSY0567I - BSYSBSSD= IRS.IRS21.SYSBACK.SSIDS
16:23:12 BSY0567I - BSYBREPT= IRS.IRS21.BREPORT
16:23:12 BSY0567I - BSYPOBJS= IRS.IRS21.OBJECTS
16:23:12 BSY0567I - BSYARCH = IRS.IRS21.ARCHIVES.IMS
16:23:12 BSY0567I - BSY#PARM= IRS.DEV21.SAMPLE MEMBER = BSY#PARM
16:23:12 BSY0560I -
16:23:12 BSY0560I - Processing LIST....
16:23:12 BSY0560I - .... Querying LPA for BSY#API
16:23:12 BSY0561I - BSY#API located in LPA
16:23:12 BSY0568I - BSY#API ENTRYPT = 20E4D000
16:23:12 BSY0568I - BSY#API LOADPT = 20E4D000
16:23:12 BSY0568I - BSY#API MODLEN = 000038C8
16:23:12 BSY0568I - BSY#API TIMESTAMP = APARV2R2M0
16:23:12 BSY0568I - BSY#API VERSION = 03/17/2021
16:23:12 BSY0567I -
16:23:12 BSY0567I - Active BSY#API environment:
16:23:12 BSY0567I - Created by TSMXD on 2021-03-21 16:23:12.36718
16:23:12 BSY0567I - BSYLOAD = IRS.DEV21.LOAD
16:23:12 BSY0567I - EMCLOAD = RSRTE.EMC.LINKLIB.BETA760
16:23:12 BSY0567I - FDRLOAD = RSRTE.VENDOR.FDR.LOAD
16:23:12 BSY0567I - Db2PARMS= IRS.IRS21.CONTROL
16:23:12 BSY0567I - BSYBPROF= IRS.IRS21.PROFILE
16:23:12 BSY0567I - BSYBOFFL= IRS.IRS21.OFFOPTS
16:23:12 BSY0567I - BSYBPMAP= IRS.IRS21.PROFILE.MAPS
16:23:12 BSY0567I - BSYBPCAT= IRS.IRS21.PROFILE.CATS
16:23:12 BSY0567I - BSYSBACK= IRS.IRS21.SYSBACK
16:23:12 BSY0567I - BSYSBOBJ= IRS.IRS21.SYSBACK.OBJS.IMS
16:23:12 BSY0567I - BSYSBVOL= IRS.IRS21.SYSBACK.VOLS
16:23:12 BSY0567I - BSYSBSSD= IRS.IRS21.SYSBACK.SSIDS
16:23:12 BSY0567I - BSYBREPT= IRS.IRS21.BREPORT
16:23:12 BSY0567I - BSYPOBJS= IRS.IRS21.OBJECTS
16:23:12 BSY0567I - BSYARCH = IRS.IRS21.ARCHIVES.IMS
16:23:12 BSY0567I - BSY#PARM= IRS.DEV21.SAMPLE MEMBER = BSY#PARM
16:23:12 BSY0002I - IBM IMS Recovery Solution Pack for z/OS complete. RC=000.

```

(Optional) Analyzing IMS data set placement for System Level Backup validation

If a System Level Backup created by IMS Recovery Expert will be used to restore an entire IMS environment, there are strict guidelines on how IMS is configured on your local DASD.

About this task

These utilities require the segregation of the active logs, RECONs, and IMS system data sets from the database data. They also require the MVS user catalogs where the data sets of an IMS system are to be backed up and restored with the IMS system.

The IMS Recovery Expert System Setup facility collects and displays information about the IMS system's user catalogs, IMS system data sets, active logs, and related IMS database data sets. Before a System Level Backup can be created, IMS Recovery Expert validates that the data sets are separated by volume. This ensures that valid system restores can be done based on options specified in the backup profiles.

Note: It is highly recommended that you analyze data set placement before attempting the first System Level Backup.

Procedure

1. On the IMS Recovery Expert main menu panel (BSY\$MAIN), specify 1 (System Operations) on the **Option** line and press Enter.

```
BSY$SYMN V2R2      ----- System Operations Menu -----
Option  ==>

                                     2021/06/30 13:53:57
                                     User: PDMONA - BSY

-----

  1. IMS System Analysis and Configuration
  2. System Backup Profiles
  3. System Level Backup Operations
  4. Disaster Recovery Profiles
```

Figure 20. **System Operations Menu** panel

2. On the **System Operations Menu** panel (BSY\$SYMN), specify **1** (IMS System Analysis and Configuration) on the **Option** line and press Enter.

```
Enter IMS System or Group
BSY$SSIW
  IMS System          (? for system list)
  Backup Method L    (Bcv/Snap/Flash/disk(L))
  F1=HELP           F2=SPLIT           F3=END           F4=RETURN

The System Backup and System Restore utilities are the fastest and most
effective backups available for IMS. In order for this utility to be
effective, there are very strict guidelines on how IMS is configured on your
local DASD. This utility requires the segregation of the Active logs and
RECON datasets from the database data. It also requires that the MVS User
catalogs where the data sets are catalogued to be backed up and restored
with the IMS system. This utility will help you in getting your IMS system
available for System Backup and System Restore Utilities.
```

Figure 21. **Enter IMS System or Group** panel

3. On the **Enter IMS System or Group** panel (BSY\$SSIW), specify an IMS system or group and a backup method.
 - a) To choose from a list of IMS systems, specify ? in the **IMS System** field and press Enter.

```

                Select a Subsystem ID
BSY$SYSL  V2R2                Scroll ==> PAGE
Option ==>                Row 1 of 18  +

Line Command: S - Select subsystem

Cmd  System Active  Level Group  z/OS
  IAX  No
  IAA3  No          IAA
  IAA4  No          IAA
  IAA5  No          EMC
  IAA6  No          EMC
  IAA7  No          RS47
  IAA8  No          RS47
  IAX3  No          GRP
  IBAD  No          TST2
  IBA2  No
  IBA9  No
  ICA2  Yes        1210          RS23

```

Figure 22. **Select a Subsystem ID** panel

- b) On the **Select a Subsystem ID** panel, specify S in the **Cmd** field next to the subsystem you want to select, and press Enter. If the selected system has been analyzed previously, you will have the option to reanalyze the system.

```

                Data Found in Repository
BSY$SDAT
This system has been previously analyzed.
You may display the stored data from the
repository or have this system re-analyzed.

Re-analyze System Info  N (Yes/No)

```

Figure 23. **Data Found in Repository** panel (BSY\$SDAT)

- c) In the **Re-analyze System Info** field, specify Y (Yes) or N (No) and press Enter.
4. On the **Enter IMS System or Group** panel, finalize your selections and press Enter to access the **System Setup Information** panel.

BSY\$SSID V2R2 --- Subsystem Analysis and Configuration --- 2021/06/30 14:07:06
 Option ==> Scroll ==> PAGE

Commands: ANALYZE

 System/Group: ICA2 Active: Yes Datasharing: No
 Date of Last Analysis: 06/25/2021
 Message: Subsystem configuration allows for application recovery or
 full system restore only.

Row 1 of 57 +

Existing MVS User Catalogs used by this subsystem
 D,S,L Other ICF.RSPLEX01.IMS.ICA2.CAT1 Volume IMP10B
 Line Cnds: (D-Dataset Display, V-View Aliases)

IMS Recon Datasets
 RECON # 1 IMSICA2.RECON1 Volume IMP10B
 RECON # 2 IMSICA2.RECON2 Volume IMP10B
 RECON # 3 IMSICA2.RECON3 Volume IMP10B
 Line Cnds: (None)

Active Log Datasets
 ICA2 - Prime IMSICA2.OLP00 Volume IMP10B
 ICA2 - Prime IMSICA2.OLP01 Volume IMP10B
 ICA2 - Prime IMSICA2.OLP02 Volume IMP10B
 Line Cnds: (None)

Alias used with associated MVS User Catalogs
 IMSICA2 ICF.RSPLEX01.IMS.ICA2.CAT1 D,S,L Other
 Line Cnds: (D-Dataset Display)

Additional User Datasets
 IMSICA2.PDBISC.TESTDB Volume IMP10B
 Line Cnds: (None)

User Excluded Datasets
 IMS.TOOLS.LOADLIB
 IMS.V1510.SDXRRESL
 Line Cnds: (None)

Volumes used by this subsystem

Volume	Data	DCat	System	SysCat	Log	LogCat	Arc	ArcCat	Other
-NONE-	Yes	No	No	No	No	No	Yes	No	No
IMP10B	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

 Line Cnds: (D-Dataset Display)

***** Bottom of Data *****

Figure 24. *Subsystem Analysis and Configuration* panel (BSY\$SSID)

Chapter 4. Using the IMS Recovery Expert ISPF Interface

An overview of the IMS Recovery Expert ISPF functionality provides general information on how to use the panels.

Topics:

- “Header fields” on page 87
- “Getting help” on page 88
- “Column display functionality” on page 88
- “Gathering maintenance level information with the DISPLAY MEPL command” on page 98

Header fields

Every IMS Recovery Expert ISPF panel has a set of header fields at the top of the panel.

These header fields are highlighted in the following sample panel:

```
BSY$BPRD V2R2      ----- System Backup Profile Display ----- 2021/06/30 14:05:14
Option  ==>                               Scroll ==> PAGE

Line Commands: B - Build  U - Update  C - Create  V - View  D - Delete
                R - Rename G - Group

-----
Profile Like *                               SSID Like *
Creator Like *                               Row 1 of 61  +>
-----

Cmd  Name                Creator  SSID/  Group  Updt
     BAT                 PDBATA  EMC    U
     BATTERY             PDBATA  EMC    U
     BAT1234             PDBATA  EMC    U
     CSLB GRP2           CSMESH  GRP2   U
     CSLB STOGROUP/TRGP00L CSMESH  GRP1   U
     EMC                 PDBISC  EMC    U
     EMC-FC              CSOSTR  EMC    U
     EMC-L               CSOSTR  EMC    U
     EMC-S               CSOSTR  EMC    U
     EMC_TARGET_POOL    CSOSTR  EMC    U
```

Figure 25. **System Backup Profile Display** panel (BSY\$BPRD)

These fields are described as follows:

BSY\$BPRD

The shortened product name and panel ID.

VnRn

The product version and release.

Panel title

The title of the panel. In this figure, the panel title is **System Backup Profile Display**.

Date and time

Displays the current date and time.

Option

This line is used to specify an option or a command. The option line appears at the bottom of the panel if your ISPF session is configured for “Command line at the bottom”.

Scroll

The **Scroll** field contains the current scroll amount; you can change it by typing over the scroll amount.

Getting help

On any IMS Recovery Expert product panel, you can press PF1 to access help for the function you are using. Also, when a message is displayed at the bottom of the panel, you can press PF1 to access additional information about the message.

Column display functionality

IMS Recovery Expert CSETUP functionality enables you to manipulate the column display in the following ways:

- Rearrange report columns horizontally using the CFIX and CORDER options.
- Change the width of individual columns using the CSIZE option.
- Control the vertical ordering of columns using the CSORT option.
- Scroll horizontally between columns, in both left and right directions.
- Scroll horizontally within a single report column while other report columns remain stationary on the screen.
- Insert column numbers above each display column.
- Generate a ruler at the top of the report columns beneath the headings.
- Display an entire row-column data element.
- The customizations, or “views”, you configure using CFIX, CORDER, CSIZE, and CSORT can be saved across sessions.

Note the following regarding syntax presented in this section:

- Underlines indicate the minimum acceptable abbreviation for each keyword.
- Variables are shown in italicized lowercase type.
- Keyword options are separated by vertical lines (|).

Accessing the CSETUP primary option menu

The CSETUP primary option menu enables you to access the various CSETUP options and configure column display functions.

About this task

Using the **CSETUP** command allows you to access the CSETUP primary option menu.

Procedure

1. On any panel which shows a table display, specify CSETUP (or CSET) on the **Option** line and press Enter.

```

BSYSET ----- Setup Primary Option Menu ----- 2021/11/11 11:52:48
Command ==>
                                     Permanent View

1  CFIX      Select columns to be fixed on the left side of the report
2  CORDER   Modify the horizontal placement of columns
3  CSIZE    Customize the size of columns
4  CSORT    Select columns to sort
5  CRESET   Reset column values
6  CREMOVE  Remove all customizations, including original defaults
7  PVIEW    Permanent View (toggle between temporary and permanent)

HELP      Setup Tutorial

```

Figure 26. **Setup Primary Option Menu** panel (BSYSET)

2. On the **Setup Primary Option Menu** panel, specify on the **Command** line the number corresponding to the option you want to access, and press Enter. The following options are available:

CFIX

Option 1, CFIX, enables you to fix and unfix columns. For more information, see [“Fixing a column”](#) on page 89.

CORDER

Option 2, CORDER, enables you to reposition columns. For more information, see [“Repositioning columns”](#) on page 91.

CSIZE

Option 3, CSIZE, enables you to change the displayed width of columns. For more information, see [“Resizing columns”](#) on page 92.

CSORT

Option 4, CSORT, enables you to select one or more columns for sorting and thus modify the order of the rows displayed. For more information, see [“Sorting”](#) on page 94.

CRESET

Option 5, CRESET, enables you to reset all customizations. For more information, see [“Resetting CSET customizations”](#) on page 96.

CREMOVE

Option 6, CREMOVE, enables you to remove all customizations. For more information, see [“Removing CSET customizations”](#) on page 96.

PVIEW

Option 7, PVIEW, enables you to toggle between permanent view and temporary view.

Note: You can also directly invoke each CSETUP option. Specify the corresponding command (for example, CFIX, CORDER, CSIZE, CSORT, CRESET, CREMOVE, or PVIEW) on the option line on any dynamic display.

3. Press Enter.

Fixing a column

The CFIX option enables you to fix and unfix columns.

About this task

A fixed column is always located at the far left side of the display. It does not shift horizontally (as unfixed columns do) when scrolling to the left or right. **INNER COLUMN SCROLLING** and **CEXPAND** commands can be used on a fixed column if the column is narrower than its maximum width. Certain columns might be permanently fixed in the report and cannot be unfixed. These columns have a fix status of P (permanently fixed).

A column cannot be fixed if it is larger than the available display area. There are also restrictions for fixing columns related to the size requirements of other columns. For more information, see [“CSET restrictions” on page 98](#).

Procedure

1. Specify CFIX on the **Option** line on any panel, and press Enter.

```

BSYFIX ----- Define Fixed Columns ----- 2021/11/11 11:54:05
Option ==> Scroll ==> PAGE
Commands: Enter: Process selections;
Cmd: F Fix U Unfix
-----
ROW 1 OF 6

Column Function ==> 1 (1-Fix/Unfix, 2-Order, 3-Size, 4-Sort)
Permanent View ==> Y (Y-Perm, N-Temp) Reset View ==> N (Y,N)

Device Width : 80
Old Fixed Width: 5      Old Unfixed Width: 75
New Fixed Width:      New Unfixed Width:
-----

Cmd New Old Len Column_Name
P  P  P      5  CMD
          9  SOURCE_VOLUMES
          8  SOURCE_DEVTYPE
          6  SOURCE_UNIT
         10  TARGET_VOLUMES
         42  MESSAGE_AREA

```

Figure 27. **Define Fixed Columns** panel (BSYFIX)

On the **Define Fixed Columns** panel, the following fields are displayed:

Column Function

Enables you to jump to any of the CSET functions by specifying the appropriate number. The number corresponding to the current option displays in this field.

Permanent View

Indicates whether the view you define is permanent or temporary. Valid values are:

Y

View customizations are permanent.

N

View customizations are temporary.

Reset View

Resets all customizations.

Device Width

Displays the current display device size (screen width).

Old Fixed Width

Displays the sum of the FIXED column widths before any changes in the current CFIX panel.

Old Unfixed Width

Displays the UNFIXED area before any changes in the current CFIX panel. Old Unfixed Width = Device Width - Old Fixed Width.

New Fixed Width

Displays the sum of the FIXED column widths that will result if the FIX/UNIFIX changes are saved.

New Unfixed Width

Displays the UNFIXED area that will result if the FIX/UNIFIX changes are saved. New Unfixed Width = Device Width - New Fixed Width.

Cmd

Field where you specify line commands. Valid line commands are F (fix) and U (unfix).

New

Displays the new CFIX view settings.

Old

Displays the previous CFIX view settings.

Len

Displays the length of the column.

Column Name

Displays the name of the column.

2. Specify F in the **Cmd** field next to column(s) you want to fix.
3. Specify U in the **Cmd** field next to column(s) you want to unfix.
4. Press Enter.
 - The changed values display in the **New** column next to the corresponding column(s).
5. Press PF3 to save changes and return to the display panel.

Repositioning columns

The CORDER option enables you to reposition report columns.

About this task

If any columns are fixed, they are grouped together as the leftmost report columns. The unfixed columns are grouped together to the right of any fixed columns. CORDER does not move a column out of its group. A fixed column cannot be relocated to the right of an unfixed column. Likewise, an unfixed column cannot be relocated to the left of a fixed column.

Procedure

1. Specify CORDER on the **Option** line on any display panel and press Enter.

```

BSYORD ----- Define Column Display Order ----- 2021/11/11 11:56:37
Option ==>
Commands: Enter: Process selections          Scroll ==> PAGE
Cmd: Specify number for column position
-----
                                                    ROW 1 OF 6

Column Function ==> 2 (1-Fix/Unfix, 2-Order, 3-Size, 4-Sort)
Permanent View ==> Y (Y-Perm, N-Temp)  Reset View ==> N (Y,N)

Cmd Fix New Old Column_Name
P          1 CMD
          2 SOURCE_VOLUMES
          3 SOURCE_DEVTTYPE
          4 SOURCE_UNIT
          5 TARGET_VOLUMES
          6 MESSAGE_AREA

```

Figure 28. **Define Column Display Order** panel (BSYORD)

On the **Define Column Display Order** panel, the following fields are displayed:

Column Function

Enables you to jump to any of the CSET functions by typing in the appropriate number. The number corresponding to the current option displays in this field.

Permanent View

Indicates whether the CSETUP customization you define is permanent or temporary. CSETUP customization refers to the change made in the CSETUP functions CFIX, CORDER, CSIZE, and CSORT. These customizations are called views. Valid values are: Y (CSETUP customization is permanent), or N (CSETUP customization is temporary).

Reset View

Resets all customizations.

Cmd

In the **Cmd** field, you can specify the number for column position.

Fix

Displays fixed columns. Valid values are: F (indicates that the column is fixed) or P (indicates that the column is permanently fixed).

New

Displays the new CORDER view settings.

Old

Displays the previous CORDER view settings.

Column_Name

Displays the name of the column.

2. Specify a number next to a column to specify its order.
3. Press Enter.

The new column order numbers display in the **New** column next to each column.

4. Press PF3 to return to the display panel.

Resizing columns

The **CSIZE** command enables you to change the displayed width of columns. This function is primarily intended for non-numeric data where there are large blank areas in all (or most) rows in a given column. Although the displayed width might change, the underlying data does not change.

About this task

If a column's size is less than the column maximum, some data might not be displayed. You can use the **INNER COLUMN SCROLLING** and **CEXPAND** commands to view data outside the display range of the resized column.

Note: If the minimum and maximum column widths are equal, the column cannot be resized.

Procedure

1. Specify CSIZE on the **Option** line on any display panel and press Enter.

```
BSYSIZ ----- Define Column Size ----- 2021/11/11 11:57:46
Option ==> Scroll ==> PAGE
Commands: Enter: Process selections;
Cmd: Column size, between MIN and MAX
-----
ROW 1 OF 6

Column Function ==> 3 (1-Fix/Unfix, 2-Order, 3-Size, 4-Sort)
Permanent View ==> Y (Y-Perm, N-Temp) Reset View ==> N (Y,N)

Device_Width : 80
Old_Fixed_Width: 5      Old_Unfixed_Width: 75
New_Fixed_Width:      New_Unfixed_Width:
-----

Cmd New Old Min Max Fix Column_Name
  5   5   5   5   5 P      CMD
    9   2   9       SOURCE_VOLUMES
    8   2   8       SOURCE_DEVTYPE
    6   2   6       SOURCE_UNIT
   10  2  10       TARGET_VOLUMES
   42 10  42       MESSAGE_AREA
```

Figure 29. **Define Column Size** panel (BSYSIZ)

On the **Define Column Size** panel, the following fields are displayed:

Column Function

Specify the appropriate number to jump to any of the CSET functions. The number corresponding to the current option displays in this field.

Permanent View

Specify whether the view you define is permanent or temporary. Valid values are: Y (view customizations are permanent) or N (view customizations are temporary).

Reset View

Resets all customizations.

Device_Width

Displays the current display device size (screen width).

Old_Fixed_Width

Displays the sum of the FIXED column widths.

Old_Unfixed_Width

Displays the UNFIXED area.

New_Fixed_Width

Displays the sum of the FIXED column widths.

New_Unfixed_Width

Displays the UNFIXED area.

Cmd

Specify the number for column position.

New

Displays the new CSIZE view settings.

Old

Displays the previous CSIZE view settings.

Min

Displays the minimum column length.

Note: If the minimum and maximum column widths are equal, the column cannot be resized.

Max

Displays the maximum column length.

Note: If the minimum and maximum column widths are equal, the column cannot be resized.

Fix

Displays fixed columns. Valid values are: F (indicates that the column is fixed) or P (indicates that the column is permanently fixed).

Column_Name

Displays the name of the column.

2. Specify the column size in the **Cmd** field next to the column you want to resize.

Note: The column size you specify must be between the **Min** and **Max** values that are displayed for that column.

3. Press Enter.

The new view criteria is displayed in the **New** column.

4. Press PF3 to return to the display panel.

Sorting

CSORT functionality enables you to select one or more columns for sorting, and modify the order of the rows displayed on many of the IMS Recovery Expert product panels.

About this task

Columns are selected by sort priority and direction. Direction is either ascending (default) or descending. When more than one column is selected for sorting, the second column only differentiates when rows have matching data in the first column. Similarly, a third column only impacts the sort when data in the first two columns is identical.

A maximum of nine columns can be selected for sorting at a time. Internal requirements might require a smaller maximum. A message is issued if the maximum number of columns selected for sorting is exceeded.

Note: CSORT and SORT are synonymous.

Procedure

1. Specify CSORT (or SORT) on the **Option** line on any display panel and press Enter.

```
BSYSRT ----- Define Sort Columns ----- 2021/11/11 11:58:58
Option  ==>                               Scroll ==> PAGE
Commands: Enter: Process selections;
Cmd: 1-9 Dir: A Asc D Desc
-----
                                                    ROW 1 OF 6

Column Function ==> 4 (1-Fix/Unfix, 2-Order, 3-Size, 4-Sort)
Permanent View ==> Y (Y-Perm, N-Temp) Reset View ==> N (Y,N)
Stop Sorting    ==> N (Y,N)

Cmd Dir New Old Column_Name
          SOURCE_VOLUMES
          SOURCE_DEVTYPE
          SOURCE_UNIT
          TARGET_VOLUMES
          MESSAGE_AREA
```

Figure 30. **Define Sort Columns** panel (BSYSRT)

On the **Define Sort Columns** panel, the following fields are displayed:

Column Function

Enables you to jump to any of the CSET functions by specifying the appropriate number. The number corresponding to the current option is displayed in this field.

Permanent View

Indicate whether the view you define is permanent or temporary. Valid values are: Y (view customizations are permanent) or N (view customizations are temporary).

Stop Sorting

Indicates whether stop sorting is specified. Valid values are: Y (stop sorting) or N (continue sorting).

Cmd

Specify the sort order.

Dir

Specifies the lexicographic order for the column. Valid values are: A (Default; values are listed in ascending order, smallest to largest) or D (values are listed in descending order, largest to smallest).

New

Displays the new CSORT view settings.

Old

Displays the previous CSORT view settings.

Column_Name

Displays the name of the column.

2. Specify A or D in the **Cmd** field next to the columns on which you want to base your sort. Press Enter. The new sort preferences are displayed in the **New** column.
3. Press PF3 to return to the display panel.

Fast path SORT command

The **SORT** command can be used as a primary (fast path) command by specifying the appropriate SORT syntax on the **Option** line of any report panel and pressing Enter.

The functionality supports both single and multi-column sorting and enables users to specify sort order (ascending or descending) for each column in the sort.

Syntax for single-column sorting

The syntax for single-column sorting is as follows:

```
SORT column_identifier dir
```

Where *column_identifier* is either the column name or the relative column number, and *dir* is the direction in which to sort the column data. Valid values for *dir* are:

Asc

(Default) Sorts data in ascending order.

Desc

Sorts data in descending order.

Important:

- There must be a space between the *column_identifier* and its *dir* (if used).
- The relative column number for a column is determined based on the column's placement when it is visible on the panel. Thus, relative column numbers are only available for columns currently visible on the panel. Relative column numbers are determined by counting the displayed columns from left to right, with the leftmost visible column being assigned the number **1** and each successive column (reading left to right) being assigned a relative column number that is incremented by 1.

Note: To quickly determine the column number, use the **CNUM** command to toggle the column numbers above each display column.

- You can sort on a column that is not displayed if you use the column name (instead of the relative column number) as the *column_identifier* in the SORT syntax.

Multi-column sorting

The syntax for multi-column sorting is as follows:

```
SORT column_identifier dir column_identifier dir
```

Where *column_identifier* is either the column name or the relative column number, and *dir* is an optional indication of the direction in which to sort the column data. Valid values for *dir* are:

Asc

(Default) Sorts data in ascending order.

Desc

Sorts data in descending order. Note that the values for *column_identifier* and *dir* must all be separated by spaces. The maximum number of columns that can be sorted at a time is 9.

Usage examples

This example is of a report display that has three columns, all of which display on the panel:

- Column 1: Name
- Column 2: Creator
- Column 3: Status

You can sort these columns in the following ways:

SORT NAME

Sorts display data in ascending order based on the value in the **Name** column (when no *dir* value is specified, the default sort order is ascending, thus **SORT NAME** and **SORT NAME A** are synonymous).

SORT NAME D

Sorts display data in descending order based on the value in the **Name** column.

SORT NAME DESC

Sorts display data in descending order based on the value in the **Name** column.

SORT NAME A CREATOR D

Sorts display data first in ascending order based on the value in the **Name** column, and then sorts data in descending order based on the value in the **Creator** column.

SORT NAME ASC CREATOR DESC

Sorts display data first in ascending order based on the value in the **Name** column, and then sorts data in descending order based on the value in the **Creator** column.

SORT 1 A

Sorts display data in ascending order based on the value in the **Name** column.

SORT 1 A CREATOR D

Sorts display data first in ascending order based on the value in the **Name** column, and then sorts data in descending order based on the value in the **Creator** column.

SORT 3 2 1

Sorts the display data first in ascending order based on the value in the **Status** column, then in ascending order based on the value in the **Creator** column, and finally in ascending order based on the value in the **Name** column.

Resetting CSET customizations

The **CRESET** command enables you to reset all customizations.

The **CRESET** command can be issued as a primary command. After you issue the **CRESET** command, all fixed columns are unfixed (except for any permanently fixed columns), all selected sort columns are cleared and sorting is disabled, all column sizes are set to the initial values or maximum values if no suggested value previously existed, and original column locations are restored.

CRESET

Resets all customizations (unfixes fixed columns, clears selected sort columns, sorting disabled, column sizes set to initial values, original column locations restored).

Note: **CRESET** differs from **CREMOVE**; **CREMOVE** sets all column sizes to their maximum values and ignores any initial, suggested sizes.

Removing CSET customizations

The **CREMOVE** command enables you to remove all customizations.

The **CREMOVE** command can be issued as a primary command. After you issue the **CREMOVE** command, all fixed columns are unfixed (except for those that are permanently fixed), all selected sort columns are cleared and sorting is disabled, all column sizes are set to their maximum values, and original column locations are restored.

CREMOVE

Removes all customizations (unfixes fixed columns, clears selected sort columns, sorting disabled, column sizes set to maximum values, original column locations restored).

Note: **CREMOVE** differs from **CRESET**; **CREMOVE** sets all column sizes to their maximum values and ignores any initial, suggested sizes.

Column scrolling

Column scrolling enables you to scroll horizontally between columns (both left and right).

Use the following commands when viewing any dynamic display panel to scroll horizontally between columns:

CRIGHT *n*

Enables you to scroll the left side of the display panel *n* report columns to the right.

CLEFT *n*

Enables you to scroll the left side of the display panel *n* report columns to the left.

Inner column scrolling

Inner column scrolling enables you to scroll horizontally within a single report column while other report columns remain stationary. Inner column scrolling can be useful for columns that have been shortened using the **CSIZE** command.

Use the following commands when viewing any dynamic display panel to scroll horizontally within a single report column:

ICRIGHT

Enables you to scroll to the right within one report column while the other report columns remain stationary.

ICLEFT

Enables you to scroll to the left within one report column while the other report columns remain stationary.

Column numbering

Column numbering inserts a column number above each display column. The inserted column numbers are relative to the leftmost display column.

Use the **CNUM** command to invoke column numbering. The **CNUM** command enables you to toggle on/off the column numbers above each display column.

Note:

- The leftmost displayed column is always numbered **1** regardless of how far to the right you scroll.
- You can use column numbers when issuing the primary **SORT** command. For more information, see [“Fast path SORT command” on page 95](#).
- Column numbers are not removed with the **CRESET** or **CREMOVE** commands. To remove column numbers, reissue the **CNUM** command.

Ruler display

The **COLS** command enables you to generate a ruler at the top of the report columns beneath the headings. This ruler tracks the current position within the column.

The < > symbols indicate whether there is additional column data to the left or right of the displayed data. For example:

```
<-5----2----5->
```

In this example, positions 13 through 28 are displayed. There is data both to the left and right of the currently displayed area. The **COLS** command can be issued alone as a toggle switch, or with one parameter: **(ON|OFF)**.

Using the **COLS (ON|OFF)** command enables you to generate a ruler at the top of the report columns to track the current position within the column.

Expanding columns

The **CEXPAND** command enables you to display an entire row-column data element.

The **CEXPAND** command can be useful when the **CSIZE** command has reduced a column to a width that is too narrow to display all data. Expanding columns using the **CEXPAND** command is an alternative to inner column scrolling.

To use the **CEXPAND** command, place the cursor on a row-column element and issue the **CEXPAND** command. The cursor position determines the row-column that expands. The **CEXPAND** command can be issued alone or with two parameters (row and column).

The **CEXPAND (row column)** command enables you to display an entire row-column data element where *row* is the number of the row and *column* is the number of the column (non-heading lines only) that you want to expand.

CSET restrictions

The following restrictions apply to the **CSET** command.

- Total fixed column sizes cannot exceed screen width.
- Total fixed column sizes must leave enough unfixed space for the minimum allowed size for all unfixed columns. If a column is not eligible for resizing, the column's minimum size requirement is the same as its maximum size. Minimum and maximum sizes for all columns are shown in the CSIZE display.
- If a column has been re-sized, then its current width is treated as its smallest allowable size. When a column is re-sized its current size must fit on the screen completely. For example, on an 80-byte screen with no fixed columns, a 128-byte column can only be re-sized to 80 bytes or less (assuming no conflicting minimum size is associated with the column). If there were two 10-byte fixed columns, for a total fixed area size of 20 bytes, the 128-byte column would be limited to 60 bytes or its minimum allowed size, whichever was smaller.

Gathering maintenance level information with the DISPLAY MEPL command

The **DISPLAY MEPL** command allows you to access maintenance level information for all product load modules.

Procedure

1. On the IMS Recovery Expert main menu panel (BSY\$MAIN), specify **DISPLAY MEPL** on the **Option** line, and press Enter.

Option ==>

```
Build job in Data set      PDBISC.RON.CNTL
                   Member      #MEPL      Member name for generated JCL
```

```
Job Cards:
==>//PDBISCA JOB PDBISC,CLASS=A,NOTIFY=&SYSUID,MSGCLASS=X
==>//*
==>//*
==>//*
```

Enter and/or modify the above Job Card information. When ready, press Enter to submit job. Send Job output to product support.

2. In the **Build job in Data set** field, specify a data set name. In the **Member** field, specify the member in which to save the JCL. In the **Job Cards** field, specify the job card information required to run the JCL.
3. Press Enter.

Results

When the MEPL job is run, a report is generated for each module in the product library that can be used to identify the maintenance level of the module.

The following report is an example of the generated report:

```
IMS Recovery Expert for z/OS
Run Date is 2021/07/23 at 16:25:12
SYSLIB1=BSY.WRK0220.LOADLIB
0369 members processed of 0369 found in 1 SYSLIB libraries

CSECT          OFFSET          DATA
-----
Starting Load module BSY$ADMN CONCAT#(1)
BSY$ADMN      00000000 \ 0{ BSY$ADMN 06/20/2021 09.09 (c) Copyright
BSYBLNKT      00000EA8
BSYNAMET      00000FA8
BSYNNUMT      000010A8
ISPLINK       000011A8 {0    x4  ISPLINK  2021.212 {0    x4  {0    x4  {0

Starting Load module BSY$ADM1 CONCAT#(1)
BSY$ADM1      00000000 \ 0{ BSY$ADM1 06/20/2021 09.09 (c) Copyright
BSYNNUMT      00001378
BSYNAMET      00001478
ISPLINK       00001578 {0    x4  ISPLINK  2021.212 {0    x4  {0    x4  {0
```

Chapter 5. Collecting and analyzing data with the System Setup facility

The IMS Recovery Expert System Setup facility collects and displays information about IMS system user catalogs, IMS system data sets, active logs, and related IMS database data sets.

Some System Level Backups require data set isolation. If this is the case in your environment, you must analyze the physical location of your data sets and the user catalogs for those data sets. You can use the System Setup facility to collect and display the information that you must ensure that your IMS system is configured correctly for data set isolation.

You can access the **System Setup** panel from the IMS Recovery Expert **System Operations Menu** by specifying option **1 - IMS System Analysis and Configuration**.

Topics:

- [“Configuring an IMS system for data set isolation” on page 101](#)
- [“Configuration summary for the system setup facility” on page 101](#)
- [“Analyzing IMS systems” on page 102](#)
- [“Separating the MVS user catalogs” on page 106](#)
- [“Viewing the data sets allocated on a volume” on page 108](#)
- [“Managing aliases in the MVS user catalogs” on page 110](#)
- [“Optimizing volumes used by the IMS system” on page 111](#)

Configuring an IMS system for data set isolation

You must configure an IMS system if data set isolation is required for that system.

When configuring the IMS system, you must ensure that the following guidelines are met for each IMS system that requires data set isolation:

- The IMS system has at least two separate MVS user catalogs: one for the IMS data and one for the IMS log and IMS system data sets.
- Those two MVS user catalogs are on separate volumes.
- There are separate aliases for IMS system database data sets, and for the log and system data sets.
- The MVS user catalogs for the IMS data, and for the log and system data sets each contain the appropriate aliases.
- The IMS data, and log and system data sets on the volumes associated with the IMS subsystem are properly separated, located on Symmetrix devices, and do not contain data or catalogs that might be inappropriately back-leveled upon restoration.
- The volumes containing IMS data do not contain other MVS data that might be inappropriately back-leveled upon restore.

Configuration summary for the system setup facility

Follow the general procedure to configure an IMS system using the IMS Recovery Expert System Setup facility.

Procedure

1. Specify 1 (System Operations) on the IMS Recovery Expert main menu panel and press Enter. On the **System Operations Menu** panel, specify 1 and press Enter.
2. Analyze the IMS System.

- For more information, see [“Analyzing IMS systems”](#) on page 102.
3. On the **System Backup Setup for IMS System** panel, check the message area for the results of the analysis.
For more information, see [“Reviewing system setup information”](#) on page 104.
 4. Separate the MVS user catalogs into two catalogs: one for logs and system data sets and one for IMS database data sets. You can define new catalogs or modify existing catalogs.
For more information, see [“Separating the MVS user catalogs”](#) on page 106.
 5. Add or move the aliases for the log and system data sets to the appropriate log and system data sets catalog.
For more information, see [“Separating the MVS user catalogs”](#) on page 106 and [“Managing aliases in the MVS user catalogs”](#) on page 110.
 6. Add or move the aliases for IMS database data sets to the appropriate MVS user catalog.
For more information, see [“Separating the MVS user catalogs”](#) on page 106 and [“Managing aliases in the MVS user catalogs”](#) on page 110.
 7. Rename or move the RECON data sets if needed (requires the IMS subsystem to be down).
Note: If you rename the RECON data sets, you must change the IMS procedure to reflect the new IMS RECON names before restarting the subsystem.
 8. Rename or move the active logs if necessary (requires the IMS subsystem to be shut down).
 9. Reanalyze the system.
For more information, see [“Analyzing IMS systems”](#) on page 102.
 10. View the volumes in use by the IMS system. Resolve any major issues. For example:
 - Ensure that log and database data sets do not reside on the same volume.
 - Move other MVS user catalogs unrelated to the IMS system to another location.
 - Ensure that the volumes to be backed up are on Symmetrix devices.
 For more information, see [“Optimizing volumes used by the IMS system”](#) on page 111.

Analyzing IMS systems

The following section describes the process of analyzing and reanalyzing an IMS system.

Selecting an IMS system for analysis

To select an IMS system for analysis:

Procedure

1. On the IMS Recovery Expert main menu panel (BSY\$MAIN), specify **1** (System Operations) on the **Option** line and press Enter.
2. On the **System Operations Menu** panel (BSY\$SYMN), specify **1** (IMS System Analysis and Configuration) and press Enter.

```

Enter IMS System or Group
BSY$SSIW

  IMS System          (? for system list)
  Backup Method L    (Bcv/Snap/Flash/disk(L))
  F1=HELP           F2=SPLIT      F3=END        F4=RETURN
  
```

Figure 31. **Enter IMS System or Group** panel (BSY\$SSIW)

3. On the **Enter IMS System or Group** panel, specify a subsystem ID in the **IMS System** field, and the backup method to perform on the IMS system in the **Backup Method** field. The SSID or group name must have been defined in the IMS Recovery Expert setup panels before you can proceed.

4. Press Enter to start the system analysis. If the subsystem has previously been analyzed, the **Data Found in Repository** panel is displayed.

What to do next

```
          Data Found in Repository
BSY$SDAT
This system has been previously analyzed.
You may display the stored data from the
repository or have this system re-analyzed.

Re-analyze System Info  N (Yes/No)
```

Figure 32. **Data Found in Repository** panel (BSY\$SDAT)

You can view the most recent analysis, or reanalyze the system. The previous analysis is saved in the IMS Recovery Expert repository. To retrieve it and view it, specify N in the **Reanalyze IMS System Info** field and press Enter. To reanalyze the system, specify Y in the **Reanalyze IMS System Info** field and press Enter.

Reviewing system setup information

When the analysis is complete, the **System Setup Information** panel is displayed.

```

BSY$SSID V2R2      Subsystem Analysis and Configuration      2021/11/11  15:25:34
Option ===>                               Scroll ===> PAGE

Commands: ANALYZE

-----
System/Group: EMC      Active:                Datasharing: Yes
Date of Last Analysis: 10/09/2021
Message: Subsystem configuration allows for application recovery or
-----
                                                    Row 1 of 74      +

Existing MVS User Catalogs used by this subsystem
Data Log Other ICF.RSPLEX01.IMS.A5DB.CAT1      Volume SIRXA6
Log Other      ICF.RSPLEX01.IMS.A5SYS.CAT1     Volume SIRXA3
Line Cmds: (D-Data set Display, V-View Aliases)

IMS Recon Data sets
RECON # 1      IMSA5LOG.RECON1                  Volume SIRXA5
RECON # 2      IMSA5LOG.RECON2                  Volume SIRXA5
RECON # 3      IMSA5LOG.RECON3                  Volume SIRXA5
Line Cmds: (None)

Active Log Data sets
IAA5 - Prime   IMSA5EX.OLP00                       Volume SIRXA2
IAA5 - Prime   IMSA5EX.OLP01                       Volume SIRXA2
IAA5 - Second  IMSA5EX.OLS01                       Volume SIRXA2
IAA5 - Second  IMSA5EX.OLS02                       Volume SIRXA2
IAA6 - WrtAhd  IMSA6EX.WADS0                         Volume SIRXA2
IAA6 - WrtAhd  IMSA6EX.WADS1                         Volume SIRXA2
Line Cmds: (None)

Alias used with associated MVS User Catalogs
IMSA5DB        ICF.RSPLEX01.IMS.A5DB.CAT1           Data Other
IMSA5EX        ICF.RSPLEX01.IMS.A5SYS.CAT1         Log Other
IMSA5SYS       ICF.RSPLEX01.IMS.A5SYS.CAT1         Other
IMSA6EX        ICF.RSPLEX01.IMS.A5SYS.CAT1         Log Other
IMSA6SYS       ICF.RSPLEX01.IMS.A5SYS.CAT1         Other
Line Cmds: (D-Data set Display)

Additional User Datasets
TSMGM.TEMP                                           Volume TSP118
Line Cmds: (None)

User Excluded Datasets
IMS.V1510.SDFSRESL
NSMS.IAA4.DBNSMS0.DBNSMS0
NSMS.IAA4.DBNSMS0I.DBNSMS0I
BSY.WRK0220.LOADLIB
Line Cmds: (None)

Volumes used by this subsystem
Volume      Data DCat System SysCat Log LogCat Arc ArcCat Other Flash
-NONE-      Yes  No  No    No    No  No    Yes  No    No    N/A
SIRXA0      No  No  No    No    No  No    No  No    Yes  Yes
SIRXA2      No  No  No    No    Yes No    No  No    Yes  Yes
SIRXA3      No  No  No    No    No  Yes  Yes  No    Yes  Yes
SIRXA4      No  No  No    No    No  No    Yes  No    Yes  Yes
SIRXA5      No  No  No    No    Yes No    Yes  No    Yes  Yes
SIRXA6      Yes Yes  No    No    No  Yes  No  Yes  Yes  Yes
SIRXA7      Yes No  No    No    No  No    No  No    Yes  Yes
Line Cmds: (D-Data set Display)

***** Bottom of Data *****

```

Figure 33. **Subsystem Analysis and Configuration** panel (BSY\$SSID)

The following fields appear at the top of the panel, and describe the status of the system and the analysis data:

System/Group

The IMS system or group analyzed.

Active

Yes indicates that the IMS system is currently active.

Datasharing

Yes indicates that the system is a member of a data sharing group.

Date of Last Analysis

The date that the last analysis was run.

Message

This message is related to the last analysis of the IMS system or group. The following messages are examples:

- *System configuration is optimal.*
- *System configuration prevents system level backup.* At least some of the data sets for the IMS system are not on a supported EMC Symmetrix device.
- *System configuration allows any application level recovery or a full system restore (data and logs).* IMS Recovery Expert can backup and restore the system, but log/system data sets and database data sets are mixed on the same devices. A partial system level restore, where the database data sets are restored then rolled forward, is not allowed.
- *Other non-IMS data will be backed up and restored.* The IMS log/system data sets and database data is properly segregated, but IMS Recovery Expert has detected other non-IMS data sets on one or more system volumes. You can view the other data sets by using the D line command on the affected volumes.

Note: If any non-IMS data sets detected are empty user catalogs, you should move the catalogs to a volume not being used by the IMS system. If you choose not to move the catalogs, you will have to manually deallocate them before performing a system restore.

The following sections appear on this panel:

Existing MVS User Catalogs used by this Subsystem

This section lists the MVS user catalog name for the data sets. The type of data sets (data/log/other) is displayed to the left. The location of the user catalog is displayed in the **Volume** field to the far right. Specify V next to a catalog to view all aliases assigned to the catalog. Specify D next to a catalog to view all the data sets assigned to the catalog.

IMS RECON Datasets

In this section, the **RECON 1**, **RECON 2**, and **RECON 3** fields list the data set names for IMS RECON 1, 2, and 3 respectively. The location of the RECONS is displayed in the **Volume** field to the far right.

Active Log Datasets

This section lists the data set names for all active log data sets. The location of the active logs is displayed in the **Volume** field to the far right.

Alias used with associated MVS User Catalogs

This section lists the aliases defined for the MVS user catalogs. Specify D next to an alias to view data sets associated with the alias.

Additional User Datasets

This section lists the data sets that are included in the backup due to the include/exclude list associated with the subsystem definition. Use option 0.2.2 to view the included data sets.

User Excluded Datasets

This section lists the data sets that are excluded from the backup due to the include/exclude list associated with the subsystem definition. Use option 0.2.2 to view the excluded data sets.

Volumes used by this Subsystem

This section lists the volumes used by the specified subsystem. Highlighted volumes might have issues that need to be addressed before IMS Recovery Expert can be used on this system. Specify D next to a volume to view data sets on the volume.

Valid primary commands

You can use the following primary command on this panel:

ANALYZE

This command gathers information about the IMS system as in the original analysis.

Separating the MVS user catalogs

You can view the status of the Existing MVS User Catalogs sections of the **System Setup Information** panel. This allows you to review the status of your MVS user catalog.

You must ensure that the MVS user catalogs are separated into two catalogs: one for logs and system data sets, and one for IMS database data sets. You can define new catalogs or modify existing catalogs to accomplish this.

You can also use this section to view aliases and add new aliases to the user catalogs. You need to ensure that there are separate aliases for the IMS system's database data sets, and log and IMS system data sets, and that each MVS user catalog for the IMS data, and for the log and system data sets contains the appropriate aliases.

Viewing existing MVS user catalogs

All MVS catalogs currently in use by this IMS system are listed under the Existing MVS User Catalogs used by this IMS System heading.

```
Existing MVS User Catalogs used by this subsystem
Data Log Other ICF.RSPLEX01.IMS.A5DB.CAT1      Volume SIRXA6
Log Other      ICF.RSPLEX01.IMS.A5SYS.CAT1     Volume SIRXA3
Line Cnds: (D-Data set Display, V-View Aliases)
```

Figure 34. Existing MVS User Catalogs used by this subsystem panel

The types of data sets (Data/Log/Other) aliased in the catalogs are shown to the left. The location of the user catalog is shown in the **Volume** field on the far right. If the existing MVS catalogs show that IMS database data sets (Data on the left) and IMS log/system data sets (Data or Log on the left) are cataloged in the same catalog, you must separate them by creating new catalogs or changing the existing catalogs. You must also ensure that the two catalogs are located on different volumes.

Viewing the aliases for a user catalog

View the aliases in a specific user catalog for both existing and new MVS user catalogs.

Procedure

1. To view the aliases for a user catalog, specify V next to a user catalog.

Aliases are listed on the **Usercat Alias List Display** panel.

```
BSY$SSAL V2R2 ----- Usercat Alias List Display ----- 2021/11/11 16:33:48
Option ===>                                           Scroll ==> PAGE
-----
Subsystem: EMC      Usercat: ICF.RSPLEX01.IMS.A5DB.CAT1

The following aliases are in this usercat.  If the "IMS" column is Yes, the
alias is being used by this IMS for either Logs or Data. The count is the
number of IMS data sets using the alias name.
                                           Row 1 of 3
-----
Cmd  Alias                IMS  Logs  Data  Count
    IMA5DB                Yes  No   Yes  00002351
    IMA5LOG                Yes  Yes  No   00009489
    IMA6LOG                Yes  Yes  No   00000828
***** Bottom of Data *****
```

Figure 35. Usercat Alias List Display panel (BSY\$SSAL)

2. Press Enter.

Displaying the data sets currently cataloged by the MVS catalog

To view a list of data sets that are cataloged in the user catalog:

Procedure

1. Specify D next to an existing or new MVS catalog.

Because IMS Recovery Expert does not save individual data set information in its repository, you might be required to reanalyze the subsystem if you have not performed a recent analysis. You are not required to perform the analysis, but IMS Recovery Expert will not be able to display information about tracks, volume, or data type for data sets.

```
Re-Analyze System?
BSY$SSRX
This command requires a current analysis to show
which data sets are in use by this IMS. If you do
not perform the analysis, all data sets will still
be shown but will have a status of "N/A". Do you
want to perform the analysis now? N
```

Figure 36. **Re-Analyze System** panel (BSY\$SSRX): MVS Catalogs

2. Press Enter.

3. Optional: If analysis is needed, specify Y on the **Re-Analyze System** panel and press Enter. After analysis (or if you are not viewing a previously saved analysis), the **Usercat Dataset List Display** panel opens.

```
BSY$SSUC      ----- Usercat Dataset List Display ----- 2021/11/11 15:36:40
Option  ===>                                     Scroll  ==> PAGE
-----
System/Group: EMC      Usercat: ICF.RSPLEX01.IMS.A5DB.CAT1

The following data sets are cataloged in the above usercat.
                                           Row 1 of 1874      +
-----
Cmd  Data set Name                               Tracks Volume  IMS Sys  Data
-----
  IMSA5DB.ADRS1                                SIRXA7  N/A N/A  N/A
  IMSA5DB.ADRSI1                               *VSAM*  N/A N/A  N/A
  IMSA5DB.ADRSI1.DATA                          SIRXA7  N/A N/A  N/A
  IMSA5DB.ADRSI1.INDEX                         SIRXA7  N/A N/A  N/A
  IMSA5DB.AGPSI1                               *VSAM*  N/A N/A  N/A
  IMSA5DB.AGPSI1.DATA                          SIRXA6  N/A N/A  N/A
  IMSA5DB.AGPSI1.INDEX                         SIRXA6  N/A N/A  N/A
  IMSA5DB.ANNTY1                               SIRXA7+ N/A N/A  N/A
  IMSA5DB.ANXSI1                               *VSAM*  N/A N/A  N/A
  IMSA5DB.ANXSI1.DATA                          SIRXA7  N/A N/A  N/A
  IMSA5DB.ANXSI1.INDEX                         SIRXA7  N/A N/A  N/A
  IMSA5DB.COLTN1                              SIRXA7  N/A N/A  N/A
```

Figure 37. **Usercat Dataset List Display** panel (BSY\$SSUC)

IMS data sets related to the selected IMS environment are shown in ISPF default color blue. Non-IMS data sets are highlighted in the ISPF default color turquoise. Your colors might be displayed differently if you have changed your ISPF default colors.

The user catalog for which you are viewing data sets is listed at the top of the panel. The following information is provided:

System/Group

The IMS subsystem or group being analyzed.

Usercat

The user catalog being analyzed.

Data set Name

The fully qualified name of the data set.

Tracks

The number of tracks allocated for the data set.

Volume

The volume on which the data set is located, or the data set type if the data set is not physically allocated on the volume.

IMS

The value in this column is set to Yes if the data set is an IMS data set for the selected IMS environment.

Sys

The value in this column is set to Yes if the data set is an IMS active or archive log data set or an IMS system data set for the selected IMS environment.

Data

The value in this column is set to Yes if the data set is an IMS database data set for the selected IMS environment.

Viewing the data sets allocated on a volume

To view the data sets allocated on a volume:

Procedure

1. Specify D next to a volume on the **System Setup Information** panel.

Because IMS Recovery Expert does not save individual data set information in its repository, this command might require you to reanalyze the system if you have not performed a recent analysis. You are not required to perform the analysis, but IMS Recovery Expert will not be able to display information about the data sets' tracks, volume, or data type.

```

                                Re-Analyze System?
BSY$SSRX
  This command requires a current analysis to show
  which data sets are in use by this IMS.  If you do
  not perform the analysis, all data sets will still
  be shown but will have a status of "N/A".  Do you
  want to perform the analysis now?          N

```

Figure 38. Re-Analyze System panel (BSY\$SSRX): Volume Data Sets

2. Press Enter.
3. Optional: If analysis is needed, specify Y on the **Re-Analyze System** panel and press Enter. After analysis (or if the data was sufficiently up to date), the **Volume Dataset List Display** panel is displayed.

```
BSY$SSVD V2R2 ----- Volume Dataset List Display ----- 2021/08/08 14:05:55
Option ==> Scroll ==> CSR
```

```
-----
System/Group: EMC      Volume Serial: SIRXA6
Free Trks:  42,528    IMS Data Trks:  5,878    IMS Log Trks:      0
-----
Row 1 of 420 +
Cmd Dataset Name                               Tracks    IMS Logs Data
-----
ICF.RSPLEX01.IMS.A5DB.CAT1                      75        Yes No Yes
ICF.RSPLEX01.IMS.A5DB.CAT1.CATINDEX             10        Yes No Yes
IMSA5DB.AGPSI1.DATA                             5         Yes No Yes
IMSA5DB.AGPSI1.INDEX                            1         Yes No Yes
IMSA5DB.CSTMTR1.DATA                            75        Yes No Yes
IMSA5DB.CSTMTR1.INDEX                           20        Yes No Yes
IMSA5DB.DBHDOS21.DBHDOS21.DATA                  5         Yes No Yes
IMSA5DB.DBHDOS21.DBHDOS21.INDX                  1         Yes No Yes
IMSA5DB.DBHIOS21.DBHIOS21.DATA                  5         Yes No Yes
IMSA5DB.DBHIOS21.DBHIOS21.INDX                  1         Yes No Yes
IMSA5DB.DBHIOS22.DBHIOS22.DATA                  5         Yes No Yes
IMSA5DB.DBHIOS22.DBHIOS22.INDX                  1         Yes No Yes
IMSA5DB.DBHIO02.DBHIO02                         15        Yes No Yes
IMSA5DB.DBHIO02I.DBHIO02I.DATA                  5         Yes No Yes
IMSA5DB.DBHIO02I.DBHIO02I.INDX                  1         Yes No Yes
IMSA5DB.DBPDVS22.A00002.DATA                    5         Yes No Yes
IMSA5DB.DBPDVS22.A00002.INDEX                   1         Yes No Yes
IMSA5DB.DI21PARO.DATA                           45        Yes No Yes
IMSA5DB.DOC5I1.DATA                             2         Yes No Yes
-----
```

Figure 39. **Volume Data Set List Display** panel (BSY\$SSVD)

The following fields are displayed on this panel:

System/Group

The IMS subsystem or group being analyzed.

Volume Serial

The volume serial number being analyzed.

Free Trks

The number of tracks free on the volume.

IMS Data Trks

The number of tracks being used by IMS database data sets for the specified IMS environment.

IMS Log Trks

The number of tracks being used by IMS log and system data sets for the specified IMS environment.

The remainder of the panel lists the data sets on the volume. IMS data sets related to the selected IMS environment are shown in ISPF default color blue. Non IMS data sets are highlighted in the ISPF default color turquoise. Your colors might be displayed differently if you have changed your ISPF default colors.

Dataset Name

The data set name.

Tracks

The number of tracks allocated by the data set on the displayed volume.

IMS

The value in this column is set to Yes if the data set is an IMS data set for the selected IMS environment.

Logs

The value in this column is set to Yes if the data set is an IMS active or archive log data set for the selected IMS environment.

Data

The value in this column is set to Yes if the data set is an IMS database data set for the selected IMS environment.

Managing aliases in the MVS user catalogs

The alias used with associated MVS User Catalogs section shows the aliases currently defined in the existing MVS catalogs. You can view the data sets currently defined to an alias using this section.

Viewing the data sets for an alias

To view the data sets that are using a particular alias:

Procedure

1. Specify D next to an alias.

Because IMS Recovery Expert does not save individual data set information in its repository, this command might require you to reanalyze the system if you have not performed a recent analysis. You are not required to perform the analysis, however, IMS Recovery Expert will not be able to display information about tracks, volume, or data type for data sets.

```
Re-Analyze System?
BSY$SSRX
This command requires a current analysis to show
which data sets are in use by this IMS. If you do
not perform the analysis, all data sets will still
be shown but will have a status of "N/A". Do you
want to perform the analysis now?      Y
```

Figure 40. **Re-Analyze System** panel (BSY\$SSRX): Alias Data Sets

2. Press Enter.
3. Optional: If analysis is needed, specify Y on the **Re-Analyze System** panel and press Enter. After analysis (or if you are not viewing a previously saved analysis), the **Alias Dataset Display** panel is displayed.

```
BSY$SSUA V2R2 ----- Alias Dataset Display ----- 2021/11/11 15:47:31
Option ===> Scroll ===> PAGE
-----
Subsystem: EMC Alias: IMSA5EX
The following data sets are using the above alias.
-----
Row 1 of 88 +
-----
Cmd Data set Name Tracts Volume IMS Sys Data
-----
IMSA5EX.ACBLIB SIRXA1 N/A N/A N/A
IMSA5EX.ACBLIB.EMPTY SIRXA2 N/A N/A N/A
IMSA5EX.ACBLIBA SIRXA2 N/A N/A N/A
IMSA5EX.ACBLIBB SIRXA2 N/A N/A N/A
IMSA5EX.ACBLIBP SIRXA2 N/A N/A N/A
IMSA5EX.BLDSP01 SIRXA2 N/A N/A N/A
IMSA5EX.BLDSP02 SIRXA2 N/A N/A N/A
IMSA5EX.BLDSP03 MIGRAT N/A N/A N/A
IMSA5EX.DBDLIB SIRXA1 N/A N/A N/A
IMSA5EX.DBDLIB.EMPTY SIRXA2 N/A N/A N/A
IMSA5EX.DBDLIBB SIRXA2 N/A N/A N/A
IMSA5EX.DFSTRA01 SIRXA2 N/A N/A N/A
```

Figure 41. **Alias Data Set Display** panel (BSY\$SSUA)

IMS data sets related to the selected subsystem are shown in ISPF default color blue. Non-IMS data sets are highlighted in the ISPF default color turquoise. Your colors might be displayed differently if you have changed your ISPF default colors.

At the top of the panel, the following information about the IMS environment and alias for which you are viewing data sets is displayed:

Data set Name

The fully qualified name of the data set.

Tracks

The number of tracks allocated for the data set.

Volume

The volume on which the data set is located, or the data set type if the data set is not physically allocated on the volume.

IMS

The value in this column is set to Yes if the data set is an IMS data set for the selected IMS environment.

Sys

The value in this column is set to Yes if the data set is an IMS active or archive log data set or an IMS system data set for the selected IMS environment.

Data

The value in this column is set to Yes if the data set is an IMS database data set for the selected IMS environment.

Optimizing volumes used by the IMS system

The IMS Subsystem section lists all the volumes used by the specified IMS environment. You can use this section to address issues such as data sets other than IMS data sets residing on a volume.

The volumes are displayed in various ISPF default colors, depending on the status of the volume.

Note: Your colors might be different if you have changed your ISPF default colors.

Dark blue

Volume is optimal.

Light blue

The volume contains data other than IMS data.

Pink

Both log and database data reside on the volume.

Red

The volume cannot be backed up by IMS Recovery Expert.

Chapter 6. Creating and maintaining System Level Backup profiles

System Level Backup profiles contain information that is passed to IMS Recovery Expert and incorporated into the backup job when it is built.

Using the IMS Recovery Expert ISPF interface, you can create a System Level Backup profile to specify the source volumes to be backed up for a system and their associated target units. In addition, you set other backup options such as the backup type and the number of generations to keep in the profile. Backup profiles are reusable and editable, and are created on a per system or group basis. After profile setup has run, you cannot change the system or group profile name or type of backup in a profile. You can change other settings and redefine the source and target volumes. You can easily rename and delete backup profiles using line commands.

Topics:

- [“Profile setup” on page 113](#)
- [“Accessing the backup profile list” on page 114](#)
- [“Creating IBM FlashCopy and EMC TimeFinder/Clone backup profiles” on page 116](#)
- [“Creating an EMC BCV backup profile” on page 122](#)
- [“Creating an IBM DFSMSdss backup profile” on page 127](#)
- [“Performing System Level Backups on Hitachi storage systems” on page 131](#)
- [“About offload options” on page 132](#)
- [“Specifying target pool” on page 141](#)
- [“Message Area messages” on page 142](#)
- [“Managing profiles” on page 144](#)
- [“Considerations when using copy blades” on page 146](#)

Profile setup

Profile setup is a validation process performed by IMS Recovery Expert before a backup of a system can be taken.

This process authenticates the volumes for the system, checks the locations of the user data, logs, and user catalogs, and performs other validations to ensure the backup can proceed and that the resulting backup will be usable.

A backup profile must successfully complete profile setup before a backup can be generated. When a backup profile has been set up, it does not need to be set up again unless changes are made to the source or target volume configuration, or unless IMS Recovery Expert detects certain errors while building a backup job. If this happens, the profile is flagged as “Setup Needed” on the **Update Backup Profile** panel. When building a backup job, if profile setup is needed, it is included as the first job step in the JCL. If you request, IMS Recovery Expert can build only the profile setup syntax in the JCL; in this case, no backup is taken.

Profile setup includes the following validations:

- Ensures all volumes in use by the IMS system are included in the backup.
- If the backup is a full backup, ensures all IMS log volumes are also included in the backup.
- Ensures that the user catalogs in use by the IMS system are included in the backup.
- Ensures the log data sets and user data sets are on separate volumes. This includes the user catalogs for log data sets and for database data sets. If log and database data are not separated, the backup can continue, but only a full restore will be allowed.

- Ensures that all source volumes are valid, online, and available for backup.
- Ensures all target volumes are valid and available for backup.
- For IBM FlashCopy backup profiles, verifies that the source and target volume are both FlashCopy capable, and reside within the same logical subsystem.
- Verifies that target units of a backup are not in use by any other backup profile; if so, a warning message is issued. Otherwise, the backup might destroy the data sets for another subsystem.
- Ensures that IMS control information does not reside on any volume that is being backed up.
- Checks that all source and target volumes are at a minimum microcode and patch level for backup.
- For EMC TimeFinder/Clone BCV backup profiles:
 - Verifies that the source volumes do not have established BCVs that are not part of the backup profile.
 - Verifies the target BCVs are not established to any volumes that are not listed as source volumes in the profile.
 - Establishes the first generation of BCVs to the source volumes and puts all other generations on hold. When those BCVs are synchronized with the source volumes, the profile is ready to be built.

After profile setup has been successfully completed, the IMS SSID and backup type are made read-only in the profile and cannot be changed.

Profile setup must be re-run under the following circumstances:

- If the number of backup generations changes
- If you add, change, or delete the source or target units
- If the backup type is changed from Full to Data or from Data to Full
- If you specify a one-generation BCV backup, when the backup job is executed, the BCVs are split. IMS Recovery Expert does not establish another generation because only one generation can exist. To use this profile to create another backup, you must rerun profile setup. This will reestablish the one and only generation and start the mirroring process so the BCVs can be split to create the next backup.
- If IMS Recovery Expert detects certain errors while running a backup, the profile will be flagged as **Setup Needed**. These errors include but are not limited to:
 - Errors that occur during the split phase of a BCV backup. If these errors are detected, the backup process will end.
 - Errors that occur while establishing the next generation of BCVs. If these errors are detected, the backup is still valid because the split processing completed successfully. However, profile setup is needed because the next generation has not been established and therefore is not mirroring the volumes.

Accessing the backup profile list

The **Backup Profile and Display** panel lists the System Level Backup profiles that have been created.

Procedure

1. Specify **1** (System Operations) on the IMS Recovery Expert main menu panel (BSY\$MAIN) and press Enter.
2. On the **System Operations Menu** panel (BSY\$SYMN), specify **2** (System Backup Profiles) and press Enter.

```

Enter System Backup Profile Selection Criteria
BSY$BPLK
  Profile Like *
  Creator Like *
  SSID      Like *
  
```

Figure 42. **Enter System Backup Profile Selection Criteria** panel (BSY\$BPLK)

On the **Enter Backup Profile Selection Criteria** panel, you can limit the profiles that are listed on the next panel by specifying a profile name, profile creator name, or SSID. You can use the asterisk (*) wildcard character in one or all of the fields to view all profiles, all profiles for a creator, or all profiles for a SSID.

- When you finish specifying information on the **Enter System Backup Profile Selection Criteria** panel, press Enter.

```

BSY$BPRD V2R2      ----- System Backup Profile Display ----- 2021/06/30 14:05:14
Option  ===>
                                Scroll ===> PAGE

Line Commands: B - Build  U - Update  C - Create  V - View  D - Delete
                R - Rename G - Group

-----
Profile Like *                               SSID Like *
Creator Like *                               Row 1 of 61  +>
-----

Cmd  Name                Creator  SSID/  Group  Updt
    BAT                 PDBATA  EMC    U
    BATTERY             PDBATA  EMC    U
    BAT1234             PDBATA  EMC    U
    CSLB_GRP2          CSMESH  GRP2   U
    CSLB_STOGRROUP/TRGPOOL CSMESH  GRP1   U
    EMC                PDBISC  EMC    U
    EMC-FC             CSOSTR  EMC    U
    EMC-L              CSOSTR  EMC    U
    EMC-S              CSOSTR  EMC    U
    EMC_TARGET_POOL    CSOSTR  EMC    U
  
```

Figure 43. **System Backup Profile Display** panel (BSY\$BPRD)

The first time you access the **System Backup Profile Display** panel, it appears as shown in the example.

Use the **RIGHT** and **LEFT** scroll commands (PF10 and PF11) to see all the available columns. Use the **UP** and **DOWN** commands (PF7 and PF8) to scroll through the list when there are more profiles than can be displayed on one panel.

Cmd

In the **Cmd** field next to each System Level Backup profile, specify any of the following line commands:

- B**
Build
- U**
Update
- C**
Create
- V**
View
- D**
Delete
- R**
Rename
- G**
Group

Profile Like

The profile name or mask you specified on the **Enter Backup Profile Selection Criteria** panel is displayed here. You can change the name or mask to see different profiles on this panel.

Creator Like

The profile creator name or mask you specified on the **Enter Backup Profile Selection Criteria** panel is displayed here. You can change the name or mask to see different profiles on this panel.

SSID Like

The IMS subsystem ID, group name, or mask you specified on the **Enter Backup Profile Selection Criteria** panel is displayed here. You can change the name or mask to see different profiles on this panel.

Row x of y

Displays the current row and the total number of rows in the profile list. Adjacent to this field is a scroll indicator:

< >

Indicates to scroll left or right for data.

<

Indicates to scroll left for more data.

>

Indicates to scroll right for more data.

+

Indicates to scroll down for more data.

-

Indicates to scroll up for more data.

Name

The name of the profile.

Creator

The profile creator.

SSID

The IMS subsystem ID or Group Name for which the profile was created.

Updt

This column indicates how users other than the profile creator can use the profile.

U(pdate)

Allows other users to update the profile.

V(iew)

Allows other users to view but not update the profile.

N(o access)

Prevents other users from viewing or updating the profile.

Description

The profile description, if included.

Last Updated: Userid

The user ID of the last user to update the profile.

Last Updated: Timestamp

The date and time that the profile was last updated.

Created: Userid

The user ID of the creator of the profile.

Created: Timestamp

The date and time that the profile was created.

Creating IBM FlashCopy and EMC TimeFinder/Clone backup profiles

IMS Recovery Expert makes IBM FlashCopy backups by using the FlashCopy function, a copy service available for IBM Enterprise Storage Systems (ESS) devices. IMS Recovery Expert makes EMC

TimeFinder/Clone Volume Snap (SNAP) backups by running the EMC utility. IMS Recovery Expert can maintain up to 99 generations of FlashCopy or SNAP backups.

About this task

When using the FlashCopy and SNAP backup methods, IMS Recovery Expert will automatically vary all target units offline when the backup is taken. These target units will be exact copies of the source units with which they are paired. It is not necessary or recommended to vary the target volumes back online in preparation for the next backup.

Procedure

1. On the **System Backup Profile Display** panel (BSY\$BPRD), specify C on the **Cmd** line and press Enter.

```
Enter New Backup Profile Options
BSY$BPRC
Creator          PDMONA

Profile Name

Description

IMS SSID        IAA  (? for system list)
Backup Method   S   (Bcv/Snap/Flash/dfsmsdss(L))
Source/Target Mapping M (Auto discover/pool mapping,
                        Stogroup discover/pool mapping
                        Manual)
Update Option   U   (Update, View only, No access)
```

Figure 44. **Enter New Backup Profile Options** panel (BSY\$BPRC)

2. On the **Enter New Backup Profile Options** panel, specify information in the following fields:

Creator

This field is automatically filled with your user ID as the profile creator.

Profile name

Specify a name for the profile (up to 30 characters).

Description

(Optional) Specify a profile description.

IMS SSID

Specify the IMS system or group for the profile. To view a list of systems and groups to choose from, specify ? in this field and press Enter. The **SSID Selection** panel is displayed. This panel lists available systems and groups and indicates whether they are active or inactive. Select a system or group by specifying S next to the SSID or group name, and then press Enter.

Backup Method

Specify S for Snap or F for FlashCopy backup.

Source/Target Mapping

Specify how source volumes are determined and mapped to the target volumes. You can specify one of the following values in this field:

- Specify A to select **Auto discover/pool mapping**. If you specify this option, the source volumes are automatically discovered at run time and mapped to target volumes using a pool of target volumes (either units or SMS storage groups).
- Specify S to select **Stogroup discover/pool mapping**. If you specify this option, the source volumes are discovered using SMS storage groups that are specified for an IMS system. These source volumes are mapped to target volumes using a pool of target volumes (either units or SMS storage groups).

- Specify M to select **Manual** mapping. If you select this option, you can manually specify the source volumes and map them to target volumes.

Update Option

This option controls how other users can use your profile.

- Specify U to allow others to update the profile.
- Specify V to allow others to view but not update the profile.
- Specify N to prevent others from viewing or updating the profile.

3. Press Enter.

```

BSY$BPRU  V2R2 ----- Update Backup Profile ----- 2021/07/03 10:23:15
Option ==>                                     Scroll ==> PAGE

      Commands: ? - Show all commands
Line Commands: I - Insert  D - Delete  X - Exclude  U - Undo from exclude

-----
Creator: PDMONA      Name: TEST1                      SSID:      IBA2
Share Option: U (Upd,View,No)  Description: TEST1
----- Backup Options -----
Backup Method      ==> S (B/S/F/L)          Current Generation==> 00
Backup Scope       ==> D (Full/Data)        Setup Needed      ==> Y
Backup Generations==> 03 (01 - 99)        Issue Log Suspend==> N (Yes/No)
Offload Options    ==> N (Yes/No/Update)    Validate IMS Vols==> N (Yes/No)
Source Stogroups   ==> N (Yes/No/Update)    Enable DB Restore==> N (Yes/No)
Target Pool        ==> N (Yes/No/Update)    Issue NOTIFY.IC  ==> N
----- Volume Mappings ----- Row 1 of 1
      Source  Dev   Src  Target
Cmd Volumes Type Unit Units  Message Area
I  PRESS ENTER FOR NEW LINE
***** Bottom of Data *****

```

Figure 45. **Update Backup Profile** panel (BSY\$BPRU)

On the **Update Backup Profile** panel, the following fields will be read-only upon profile creation:

Backup Method

The backup method used for this profile:

- B** BCV backup
- S** SNAP backup
- F** FlashCopy backup
- L** DFSMSdss backup

Current generation

When you first create a profile, this field is set to 0. After the profile is built and submitted, this field contains the generation that is currently mirroring IMS.

Setup Needed

When you create a profile, this field is set to Y. The profile setup process must be run the first time a profile is built and the resulting job is submitted. After profile setup is performed, this field contains N when you update the profile. If you update a profile and change the volume configuration, number of generations, or backup scope, rerunning profile setup is required and this field is reset to Y.

4. Specify information in the following fields:

Backup Scope

Indicate if you want a full backup taken (both data and logs) or to backup data only. Note that if you specify data only and IMS Recovery Expert detects log data on the volumes during the backup,

the backup proceeds without error only if all IMS log and data volumes have been included in the profile. In this case, the backup is flagged as a **mixed data** backup and you will only be able to restore both the data and the logs.

Backup Generations

Specify the number of generations of backups you want to keep. Valid values are 1 to 99.

Offload Options

Specify Y in this field if you want to retain more backups than the number specified in the **Backup Generations** field. If you specify this option, IMS Recovery Expert will offload older backups to another device (such as tape or other volumes). When you initially select this option, the **Offload Options** panel will be displayed. If you edit the profile at a later time and want to update the offload options, specify U in this field.

Source Stogroups

This field only appears if you specified S (Stogroup discover/pool mapping) on the **Enter New Backup Profile Options** panel when you created the profile. Specify Y in this field to access the **Source Stogroup Selection** panel, where you can specify each source SMS storage group associated with the IMS subsystem. Specify U in this field to access the **Source Stogroup Selection** panel, where you can edit the source SMS storage groups that have been associated with the IMS subsystem.

Target Pool

Specify U in this field if you want to define a pool of target volumes. The **Target Pool Selection** panel is displayed, allowing you to specify a range of units or a list of SMS storage groups to be used as targets for each source volume. The units or storage groups that are specified will be used at backup time to map each source volume to a target unit.

Issue Log Suspend

Important: Use of this option is not recommended. You seldom need to enable this option because most of the storage devices support the storage-based consistency group function. This function suspends IMS control region activity while creating a System Level Backup, and it can affect IMS online processing.

Specify whether you want IMS Recovery Expert to stop all logging activity on the system(s) while the backup is made. For Flash backups, log suspension is required if the source and target volumes do not support a storage-based consistency group function. For SNAP backups, specify Y to suspend logging activity; logging will resume after the backup has completed. If the Symmetrix arrays are equipped with ECA (Engenuity Consistency Assist), you can specify N in this field to allow ECA to manage the log suspension. Note that if any of the Symmetrix devices do not support ECA, IMS Recovery Expert will automatically suspend the log.

Note: If this field is set to Y, IMS Logger Exit must be installed and configured. See [“Configuring IMS Tools Generic exit”](#) on page 57 for more details.

Validate IMS volumes

If you specify Y in this field, every time the backup job is run IMS Recovery Expert will determine what volumes the system(s) is using and ensure the volumes are included in the backup. The profile setup process will always validate volumes, among other profile setup procedures.

Enable DB Restore

If you want to enable IMS Recovery Expert application or database level recovery from backups created by this profile, specify Y in this field. During backup, IMS Recovery Expert saves information about database data sets that allows databases to be individually restored later. Refer to Chapter 8, [“Recovery using application operations,”](#) on page 167 for more information about application or database level recovery.

Issue NOTIFY.IC

If you want to have a NOTIFY.IC done for each object when a backup is created, specify Y in this field. The NOTIFY.IC will be done for each recoverable object in the backup and allows DBRC to be notified that a backup of the object was created.

Note: Issue NOTIFY.IC is set to Y when a System Level Backup is created. IMS Recovery Expert will issue a NOTIFY.IC for each object in the System Level Backup with an invalid image copy data

set name. If an image copy data set is needed, then the image copy data sets can be created by generating the build image copy JCL from System Level Backup. Refer to [Chapter 12, “Creating image copies from System Level Backups,”](#) on page 251 for more information on generating the build image copy JCL.

5. Determine the source volumes for the specified IMS environment. You can do this in one of the following ways:

- If you specified S to select **Source/Target Mapping**, then you can specify the SMS source storage groups by specifying U in the **Source Stogroups** field. On the **Source Stogroup Selection** panel (BSY\$STOG), you can specify all SMS storage groups that represent the source volumes to include in the backup.
- To build a list of all IMS source volumes for the SSID, specify VOLUME on the **Option** line. When you press Enter, IMS Recovery Expert determines the volumes that are being used by the specified IMS environment. When the scan is complete, the comprehensive list of volumes is displayed in the scrollable Volume Inclusions/Exclusions area.

```

BSY$BPRU  V2R2  ----- Update Backup Profile ----- 2021/07/03 10:23:15
Option  ==>
                                           Scroll ==> PAGE

      Commands: ? - Show all commands
Line Commands: I - Insert  D - Delete  X - Exclude  U - Undo from exclude

-----
Creator: PDMONA      Name: TEST1                      SSID:      IBA2
Share Option: U (Upd,View,No)  Description: TEST1
----- Backup Options -----
Backup Method      ==> S (B/S/F/L)          Current Generation==> 00
Backup Scope      ==> D (Full/Data)         Setup Needed      ==> Y
Backup Generations==> 03 (01 - 99)         Issue Log Suspend==> N (Yes/No)
Offload Options   ==> N (Yes/No/Update)     Validate IMS Vols==> N (Yes/No)
Source Stogroups  ==> N (Yes/No/Update)     Enable DB Restore==> N (Yes/No)
Target Pool       ==> N (Yes/No/Update)     Issue NOTIFY.IC  ==> N
----- Volume Inclusions/Exclusions ----- Row 1 of 8
  Source Dev Src Target
Cmd Volumes Type Unit Units Message Area
  SIRB47 3390-1 6B47
  SIRB46 3390-1 6B46
  SIRB45 3390-1 6B45
  SIRB44 3390-1 6B44
  SIRB43 3390-1 6B43
  SIRB42 3390-1 6B42
  SIRB41 3390-1 6B41
  SIRB40 3390-1 6B40

```

Figure 46. Update Backup Profile panel (BSY\$BPAU): VOLUME option

Each volume listed was detected by IMS Recovery Expert to be in use by the specified IMS subsystem. Use the **UP** and **DOWN** commands (PF7 and PF8) to scroll through the list when there are more volumes than can be displayed on one panel. Review any messages that are displayed in the Message Area.

- To specify a range of IMS source volumes, specify SOURCE on the **Option** line and press Enter.

```

Enter a Source Range
BSY$BPRS
Beginning Source Range
Ending Source Range

```

Figure 47. Enter a Source Range panel (BSY\$BPRS)

On the **Enter a Source Range** panel, specify a beginning and ending range of source units. When you press Enter, IMS Recovery Expert scans the source volumes in the supplied range and determines if the volumes are being used by the specified IMS environment. A volume list is displayed on the **Update Backup Profile** display if the source scan is successful. If an error occurs, review the error message and any message in the Message Area. Use the **UP** and **DOWN** commands

(PF7 and PF8) to scroll through the list when there are more volumes than can be displayed on one panel. Review any informational messages that are displayed in the Message Area.

- To manually input source volumes, specify I as a line command, and specify the source volume in the **Source Volumes** column. Press Enter.

To clear all source (and target) mappings from the profile, specify CLEAR on the **Option** line and press Enter.

6. Specify one or more target volume(s) for each source volume.

You can specify target units for each source volume in one of the following ways:

- Next to each source volume, specify corresponding target unit(s) in the **Target Units** area. The target units must reside on the same Symmetrix array as the paired source volumes.
- Specify TARGET on the **Option** line.

```
Enter a Target Range
BSY$BPRT
Beginning Target Range
Ending Target Range
Enter by Generation      N
```

Figure 48. **Enter a Target Range** panel (BSY\$BPRT)

Specify a beginning and ending range of target units. The **Enter by Generation** field determines how the target unit fields are populated. If you specify N in the **Enter by Generation** field, IMS Recovery Expert assigns volumes sequentially as follows:

```
Volume 1 - target unit 1
           target unit 2
Volume 2 - target unit 3
           target unit 4
```

If you specify Y in the **Enter by Generation** field, IMS Recovery Expert assigns volumes as follows:

```
Volume 1 - target unit 1
           target unit 3
Volume 2 - target unit 2
           target unit 4
```

When you press Enter, the target units are mapped. If an error occurs, review the message in the Message Area. If no target is displayed in the **Target Units** field, no target unit in the specified range could be matched to a source volume. The target and source cannot be matched if the target and source are on different Symmetrix arrays.

7. You can modify the source/target volume mappings in any of the following ways:

- If you want to specify additional mappings (a source volume and its related target units), specify the I line command. To delete a mapping, specify the D line command. Press Enter.
- To exclude a volume, specify the E line command next to a volume. If you exclude a volume, IMS Recovery Expert will not include the volume in the backup. The resulting backup will be tagged as a partial backup, which cannot be used for a system restore. However, a partial backup can be used to restore individual databases if you have enabled the DB restore function. To undo an excluded volume, specify the U line command. Press Enter.
- To clear all target units from the mappings in the profile, specify the **TGTCLR** command on the **Option** line. To clear all source and target mappings from the profile, specify the **CLEAR** command on the **Option** line. Press Enter.
- To display more volume mappings, you can toggle the header fields on and off by specifying the **HEADER** command on the **Option** line.
- To save the information you specified without ending your edit session, specify SAVE on the **Option** line.

8. When you have completed volume mapping, press PF3 to save your profile and exit.

Creating an EMC BCV backup profile

When using BCV devices for backups, IMS Recovery Expert establishes a BCV device to each IMS source volume during profile setup.

About this task

When a backup is requested, the BCV mirror is split from the IMS source volume. If multiple generations are being maintained, the next generation BCV mirror is then established. The split BCV device can be used as a point-in-time backup for restore operations. IMS Recovery Expert can maintain up to seven generations of backups using the BCV methodology.

When using the BCV backup methods, IMS Recovery Expert will automatically vary all target units offline when the backup is taken. These target units will be exact copies of the source units they are paired with. It is not necessary or recommended to vary the target volumes back online in preparation for the next backup.

Procedure

1. On the **System Backup Profile Display** panel (BSY\$BPRD), specify C on the **Cmd** line and press Enter.

```
Enter New Backup Profile Options
BSY$BPRC
Creator          PDMONA

Profile Name

Description

IMS SSID        IAA  (? for system list)

Backup Method   B  (Bcv/Snap/Flash/dfmsdss(L))

Source/Target Mapping M  (Auto discover/pool mapping,
                          Stogroup discover/pool mapping
                          Manual)

Update Option   U  (Update, View only, No access)
```

Figure 49. **Enter New Backup Profile Options** panel (BSY\$BPRC)

2. On the **Enter New Backup Profile Options** panel, specify information in the following fields:

Creator

This field is automatically completed with your user ID as the profile creator.

Profile name

Specify a name for the profile (up to 30 characters).

Description

(Optional) Specify a profile description.

IMS SSID

Specify the IMS subsystem ID or Group Name for the profile in this field. To view and select from a list of systems and groups, specify ? in this field and press Enter. The **SSID Selection** is displayed. This panel lists the available systems and groups and indicates whether they are active or inactive. Select a system or group by specifying S next to its name, and then press Enter.

Backup Method

Specify B for BCV backup.

Source/Target Mapping

Specify how source volumes are determined and mapped to the target volumes. You can specify one of the following values in this field:

- Specify A to select **Auto discover/pool mapping**. If you specify this option, the source volumes are automatically discovered at run time and mapped to target volumes using a pool of target volumes (either units or SMS storage groups).
- Specify S to select **Stogroup discover/pool mapping**. If you specify this option, the source volumes are discovered using SMS storage groups that are specified for an IMS system. These source volumes are mapped to target volumes using a pool of target volumes (either units or SMS storage groups).
- Specify M to select **Manual** mapping. If you select this option, you can manually specify the source volumes and map them to target volumes.

Update Option

This option controls how other users can use your profile.

- Specify U to allow others to update the profile.
- Specify V to allow others to view but not update the profile.
- Specify N to prevent others from viewing or updating the profile.

3. Press Enter.

```

BSY$BPRU V2R2 ----- Update Backup Profile ----- 2021/07/03 10:54:41
Option ==>
                                     Scroll ==> PAGE

      Commands: ? - Show all commands
Line Commands: I - Insert  D - Delete  X - Exclude  U - Undo from exclude

-----
Creator: PDMONA      Name: TEST12      SSID:      IBA2
Share Option: U (Upd,View,No)  Description: TEST12
-----
Backup Options -----
Backup Method      ==> B (B/S/F/L)      Current Generation==> 00
Backup Scope       ==> D (Full/Data)     Setup Needed      ==> Y
Backup Generations==> 03 (01 - 08)     Issue Log Suspend==> N (Yes/No)
Offload Options    ==> N (Yes/No/Update)   Validate IMS Vols==> N (Yes/No)
                                                         Enable DB Restore ==> N (Yes/No)
                                                         Issue NOTIFY.IC  ==> N (Yes/No)
-----
Volume Mappings -----
Source  Dev  Src  Target  Row 1 of 1
Cmd  Volumes  Type  Unit  Units  Message Area
I  PRESS ENTER FOR NEW LINE
***** Bottom of Data *****

```

Figure 50. Update Backup Profile panel (BSY\$BPRU)

On the **Update Backup Profile** panel, the following fields will be read-only upon profile creation:

Backup Method

The backup method used for this profile. This field contains B for BCV backup.

Current generation

When you first create a profile, this field will be set to 00 and will be read only. After the profile has been built and submitted, this field will contain the generation that is currently mirroring IMS.

Setup Needed

When you create a profile, this field will be set to Y and will be read only. The profile setup process must be run the first time a profile is built and the resulting job submitted. After profile setup has been performed, this field will contain N when you update the profile. If you update a profile and change the volume configuration, number of generations, or backup type, rerunning profile setup will be required and this field will be reset to Y.

4. Specify information in the following fields:

Backup Scope

Indicate if you want a full backup taken (data and logs) or to backup data only. Note that if you specify data only and IMS Recovery Expert detects IMS system log data on the volumes during the backup, the backup will proceed without error only if all IMS log and data volumes have been

included in the profile. In this case, the backup will be flagged as a **mixed data** backup and you will only be able to restore both the data and the logs.

Backup Generations

Specify the number of generations of backups you want to keep. Valid values are 1 to 8. The number of backup generations that will be available for restoration will be one less than the value you specify here, because one generation is always established to and mirroring the IMS source volumes.

Note:

If you specify 1 generation, when the backup job is run, the BCVs are split. IMS Recovery Expert does not establish another generation because only one generation can exist. Instead, the backup profile is marked as **Setup Needed**. To use this profile to create another backup, you must run profile setup. This will reestablish the one and only generation, and start the mirroring process so the BCVs can be split to create the next backup.

Note that running profile setup again will destroy the backup represented by this one generation of BCVs, because the BCVs will begin mirroring the current set of IMS source volumes after they are reestablished.

Offload Options

Specify Y in this field if you want to retain more backups than the number specified in the **Backup Generations** field. If you specify this option, older backups will be offloaded to another device (such as tape or other volumes). When you initially select this option, the **Offload Options** panel will be displayed. If you edit the profile at a later time and want to update the offload options, specify U in this field.

Issue Log Suspend

Specify whether you want IMS Recovery Expert to stop all logging activity on the IMS system(s) while the backup is made. Specify Y to suspend logging activity; logging will resume after the backup has completed. If the Symmetrix arrays are equipped with ECA (Engenuity Consistency Assist), you can specify N in this field to allow ECA to manage the log suspension. Note that if any of the Symmetrix devices do not support ECA, the log is automatically suspended.

Validate IMS Vols

If you specify Y in this field, every time the backup job is run, IMS Recovery Expert will determine what volumes the system(s) is using and ensure that the volumes are included in the backup. The profile setup process will always validate volumes, among other profile setup procedures.

Enable DB Restore

If you want to enable IMS Recovery Expert application level recovery from backups created by this profile, specify Y in this field. During backup, information is saved about database data sets that allows databases to be individually restored later.

Issue NOTIFY.IC

If you want to have a NOTIFY.IC done for each object when a backup is created, specify Y in this field. The NOTIFY.IC will be done for each recoverable object in the backup and allows DBRC to be notified that a backup of the object was created.

Note: Issue NOTIFY.IC is set to Y when a System Level Backup is created. IMS Recovery Expert will issue a NOTIFY.IC for each object in the System Level Backup with an invalid image copy data set name. If an image copy data set is needed, then the image copy data sets can be created by generating the build image copy JCL from System Level Backup. Refer to Chapter 12, “Creating image copies from System Level Backups,” on page 251 for more information on generating the build image copy JCL.

5. Specify source and target volumes.

Specifying source and target volumes for an EMC BCV backup profile

You can select the source volumes to be included in the BCV backup profile in one of several ways. You can select from a list, specify a range, or specify each manually.

Procedure

1. On the **Update Backup Profile** panel, you can specify source volumes for the specified IMS environment in several ways:
 - To build a list of all IMS source volumes for the SSID, specify **VOLUME** on the **Option** line. When you press Enter, IMS Recovery Expert determines the volumes that are being used by the specified IMS environment. When the scan is complete, the comprehensive list of volumes is displayed in the scrollable display area.

```

BSY$BPRU  V2R2  ----- Update Backup Profile ----- 2021/07/03 10:54:41
Option ==>                                         Scroll ==> PAGE

      Commands: ? - Show all commands
Line Commands: I - Insert  D - Delete  X - Exclude  U - Undo from exclude

-----
Creator: PDMONA      Name: TEST12                      SSID:      IBA2
Share Option: U (Upd,View,No)  Description: TEST12
----- Backup Options -----
Backup Method ==> B (B/S/F/L)      Current Generation==> 00
Backup Scope ==> D (Full/Data)     Setup Needed ==> Y
Backup Generations==> 03 (01 - 08) Issue Log Suspend ==> N (Yes/No)
Offload Options ==> N (Yes/No/Update)  Validate IMS Vols ==> N (Yes/No)
                                           Enable DB Restore ==> N (Yes/No)
                                           Issue NOTIFY.IC ==> N (Yes/No)
-----
----- Volume Mappings ----- Row 1 of 1
  Source  Dev   Src   Target
Cmd  Volumes Type Unit Units  Message Area
  R1P10C 3390-3 0B77
-----
  S1P101 3390-3 A555      Source Volume is not on a Symmetrix

```

Figure 51. **Update Backup Profile** panel (BSY\$BPRU)

Each volume listed was detected by IMS Recovery Expert to be in use by the specified IMS environment. Use the **UP** and **DOWN** commands (PF7 and PF8) to scroll through the list when there are more volumes than can be displayed on one panel. Review any messages that are displayed in the Message Area.

To clear all source (and target) mappings from the profile, specify the **CLEAR** command on the **Option** line.

- To specify a range of source volumes to back up, specify **SOURCE** on the **Option** line and press Enter.

```

Enter a Source Range
BSY$BPRS
Beginning Source Range
Ending Source Range

```

Figure 52. **Enter a Source Range** panel (BSY\$BPRS)

On the **Enter a Source Range** panel, specify a beginning and ending range of source units. When you press Enter, IMS Recovery Expert retrieves a list of source volumes in the supplied range that are online and that are capable of fast-replication. This list might include volumes that do not contain data or logs for the specified SSID. If an error occurs, review the error message. Use the **UP** and **DOWN** commands (PF7 and PF8) to scroll through the list when there are more volumes than can be displayed on one panel. You should also review any informational messages that are displayed in the Message Area.

- You can manually input source volumes. Use the I line command and specify the source volume in the **Source Volumes** column.

To clear all source (and target) mappings from the profile, specify the **CLEAR** command on the **Option** line.

2. On the **Update Backup Profile** panel, you can specify one or more target volumes for each source volume in one of several ways. For BCV backup profiles, the target units selected must be offline.
 - Next to each source volume, specify corresponding target unit(s) in the Target Units area. The target units must be the same device type and reside on the same Symmetrix arrays as the paired source volumes.
 - You can specify AUTOTGT on the **Option** line. This command automatically populates the target BCVs that have a relationship with the source volume. If no relationship(s) exist, the **Target Units** field will remain blank.
 - You can specify TARGET on the **Option** line.

```

Enter a Target Range
BSY$BPRT
Beginning Target Range
Ending Target Range
Enter by Generation      N

```

Figure 53. **Enter a Target Range** panel (BSY\$BPRT)

On the **Enter a Target Range** panel, specify a beginning and ending range of target units. The **Enter by Generation** field determines how the target unit fields are populated. If you specify N in the **Enter by Generation** field, IMS Recovery Expert assigns volumes sequentially as follows:

```

Volume 1 - target unit 1
           target unit 2
Volume 2 - target unit 3
           target unit 4

```

If you specify Y in the **Enter by Generation** field, IMS Recovery Expert assigns volumes as follows:

```

Volume 1 - target unit 1
           target unit 3
Volume 2 - target unit 2
           target unit 4

```

When you press Enter, the target units are mapped to the source volumes. If an error occurs, review the message in the Message Area. If no target is displayed in the **Target Units** field, no target unit in the specified range could be matched to a source volume. The target and source cannot be matched if the device types do not match or the target and source are on different Symmetrix arrays.

3. You can modify the source/target volume mappings by doing any of the following:
 - If you want to specify additional mappings (a source volume and its related target units), specify I in the line command area. To delete a mapping, specify D in the line command area.
 - To exclude a volume, specify X in the line command area next to a volume. If you exclude a volume, IMS Recovery Expert will not include the volume in the backup. The resulting backup will be tagged as a partial backup, which cannot be used for a system restore. However, a partial backup can be used to restore individual databases if you have enabled the database restore function. To undo an excluded volume, specify U in the line command area.
 - To clear all target units from the mappings in the profile, specify TGTCLR on the **Option** line. To clear all source and target mappings from the profile, specify **CLEAR** on the **Option** line.
 - To display more volume mappings, you can toggle the header fields on and off by specifying HEADER on the **Option** line.
 - To save the information you specified without ending your edit session, specify SAVE on the **Option** line.
4. When you have completed volume mapping, press PF3 to save your profile and exit.

Creating an IBM DFSMSdss backup profile

IMS Recovery Expert can make backups using DFSMSdss. You might want to use DFSMSdss profiles if your site does not have fast-replication hardware, or if your site's hardware does not support Snap or FlashCopy but supports other fast-replication through DFSMSdss.

About this task

This type of backup profile supports DFSMSdss traditional copies and IBM/STK SnapShot. IMS Recovery Expert can maintain up to 99 generations of DFSMSdss backups on disk.

For DFSMSdss backups, the target volumes must be online when profile setup is run and when the backup is taken. In addition, all target volumes must have their own unique volume serial.

Note: If fast-replication is not used, the backup process might be lengthy depending on the number of volumes copied.

Procedure

1. On the **System Backup Profile Display** panel (BSY\$BPRD), specify C on the **Cmd** line and press Enter.

```
Enter New Backup Profile Options
BSY$BPRC
Creator          PDMONA

Profile Name

Description

IMS SSID        IAA  (? for system list)

Backup Method   S  (Bcv/Snap/Flash/dfsmsdss(L))

Source/Target Mapping M (Auto discover/pool mapping,
                        Stogroup discover/pool mapping
                        Manual)

Update Option   U  (Update, View only, No access)
```

Figure 54. **Enter New Backup Profile Options** panel (BSY\$BPRC)

2. On the **Enter New Backup Profile Options** panel, specify information in the following fields:

Creator

This field is automatically populated with your user ID as the profile creator.

Profile name

Specify a name for the profile (up to 30 characters).

Description

(Optional) Specify a profile description.

IMS SSID

Specify the IMS system or group for the profile in this field. To view a list of systems and groups to choose from, specify ? in this field and press Enter. The **SSID Selection** panel is displayed. This panel lists available systems and groups and indicates whether they are active or inactive. Select a system or group by specifying S next to the SSID or group name, and then press Enter.

Backup Method

Specify L to select DFSMSdss backup.

Source/Target Mapping

Specify how source volumes are determined and mapped to the target volumes. You can specify one of the following values in this field:

- Specify A to select **Auto discover/pool mapping**. If you specify this option, the source volumes are automatically discovered at run time and mapped to target volumes using a pool of target volumes (either units or SMS storage groups).
- Specify S to select **Stogroup discover/pool mapping**. If you specify this option, the source volumes are discovered using SMS storage groups that are specified for an IMS system. These source volumes are mapped to target volumes using a pool of target volumes (either units or SMS storage groups).
- Specify M to select **Manual** mapping. If you select this option, you can manually specify the source volumes and map them to target volumes.

Update Option

This option controls how other users can use your profile.

- Specify U to allow others to update the profile.
- Specify V to allow others to view but not update the profile.
- Specify N to prevent others from viewing or updating the profile.

3. Press Enter.

```

BSY$BPRU  V2R2  ----- Update Backup Profile ----- 2021/07/03 11:01:17
Option  ==>
                                Scroll ==> PAGE

      Commands: ? - Show all commands
Line Commands: I - Insert  D - Delete  X - Exclude  U - Undo from exclude

-----
Creator: PDMONA      Name: TEST123                      SSID:      IAAX
Share Option: U  (Upd,View,No)  Description: TEST123
-----
----- Backup Options -----
Backup Method      ==> L  (B/S/F/L)      Current Generation==> 00
Backup Scope       ==> D  (Full/Data)     Setup Needed       ==> Y
Backup Generations==> 03 (01 - 99)      Issue Log Suspend ==> N (Yes/No)
Offload Options    ==> N  (Yes/No/Update)  Validate IMS Vols ==> N (Yes/No)
                                                Enable DB Restore ==> N (Yes/No)
                                                Issue NOTIFY.IC   ==> N (Yes/No)
-----
----- Volume Mappings ----- Row 1 of 1
      Source  Dev  Src  Target
Cmd  Volumes  Type  Unit  Volumes  Message Area
I  PRESS ENTER FOR NEW LINE
***** Bottom of Data *****

```

Figure 55. **Update Backup Profile** panel (BSY\$BPRU)

On the **Update Backup Profile** panel, the following fields are read-only upon profile creation:

Backup Method

The backup method used for this profile. This field contains L for DFSMSdss backup.

Current generation

When you first create a profile, this field will be set to 0. After the profile has been built and submitted, this field will contain the generation that is currently mirroring IMS.

Setup Needed

When you create a profile, this field will be set to Y. The profile setup process must be run the first time a profile is built and the resulting job submitted. When profile setup has been performed, this field will contain N when you update the profile. If you update a profile and change the volume configuration, number of generations, or backup scope, you must run the profile setup again and this field will be reset to Y.

4. Specify information in the following fields:

Backup Scope

Specify if you want a full backup taken (both data and logs) or to back up data only. Note that if you specify data only and IMS Recovery Expert detects log data on the volumes during the backup, the backup will proceed without error only if all IMS log and data volumes have been included in the

profile. In this case, the backup will be flagged as a **mixed data** backup and you will only be able to restore both the data and the logs.

Backup Generations

Specify the number of generations of backups you want to keep. Valid values are 1 to 99.

Offload Options

Specify Y in this field if you want to retain more backups than the number specified in the **Backup Generations** field. If you specify this option, IMS Recovery Expert will offload older backups to another device (such as tape or other volumes). When you initially select this option, the **Offload Options** panel will be displayed. If you edit the profile at a later time and you want to update the offload options, specify U in this field.

Issue Log Suspend

If all of the source and target volumes support a storage-based consistency function, then set this value to N. Set this value to Y if all of the source and target volumes do not support a storage-based consistency function. If all source and target volumes are FlashCopy capable, then IMS Recovery Expert stops all logging activity on the IMS system(s) while the backup is made when this value is set to Y. If any of the source or target volumes are not FlashCopy capable, then the backup can only be made if the IMS system(s) is not active.

Validate IMS volumes

If you specify Y in this field, each time the backup job is run, IMS Recovery Expert will determine what volumes the IMS environment is using and ensure the volumes are included in the backup. The profile setup process will always validate volumes, among other profile setup procedures.

Enable DB Restore

If you want to enable IMS Recovery Expert application or database-level recovery from backups created by this profile, specify Y in this field. During backup, IMS Recovery Expert saves information about database data sets that allows databases to be individually restored later.

Issue NOTIFY.IC

If you want to have a NOTIFY.IC done for each object when a backup is created, specify Y in this field. The NOTIFY.IC will be done for each recoverable object in the backup and allows DBRC to be notified that a backup of the object was created.

Note: Issue NOTIFY.IC is set to Y when a System Level Backup is created. IMS Recovery Expert will issue a NOTIFY.IC for each object in the System Level Backup with an invalid image copy data set name. If an image copy data set is needed, then the image copy data sets can be created by generating the build image copy JCL from System Level Backup. Refer to [Chapter 12, "Creating image copies from System Level Backups," on page 251](#) for more information on generating the build image copy JCL.

5. Select the source and target volumes for the specified IMS environment.

Specifying source and target volumes for a DFSMSdss backup profile

You can select the source volumes to be included in the DFSMSdss backup profile in one of several ways. You can select from a list, specify a range, or specify each manually.

Procedure

1. On the **Update Backup Profile** panel (BSY\$BPRU), you can specify source volumes for the specified IMS environment in one of the following ways:
 - If you specified S to select **Source/Target Mapping**, then you can specify the SMS source storage groups by specifying U in the **Source Stogroups** field. On the **Source Stogroup Selection** panel (BSY\$STOG), you can specify all SMS storage groups that represent the source volumes to include in the backup.
 - To build a list of all IMS source volumes for the SSID, specify VOLUME on the **Option** line. When you press Enter, IMS Recovery Expert determines the volumes that are being used by the specified IMS environment. When the scan is complete, the comprehensive list of volumes is displayed in the scrollable **Volume Mappings** area.

```

BSY$BPRU  V2R2 ----- Update Backup Profile ----- 2021/07/03  11:01:17
Option  ==>
                                           Scroll ==> PAGE

      Commands: ? - Show all commands
Line Commands: I - Insert  D - Delete  X - Exclude  U - Undo from exclude

-----
Creator: PDMONA      Name: TEST123      SSID:      IAAX
Share Option: U  (Upd,View,No)  Description: TEST123
-----
Backup Options -----
Backup Method      ==> S  (B/S/F/L)      Current Generation==> 00
Backup Scope      ==> D  (Full/Data)     Setup Needed      ==> Y
Backup Generations==> 03 (01 - 99)     Issue Log Suspend==> N (Yes/No)
Offload Options   ==> N  (Yes/No/Update)  Validate IMS Vols==> N (Yes/No)
Source Stogroups  ==> N  (Yes/No/Update)  Enable DB Restore==> N (Yes/No)
Target Pool       ==> N  (Yes/No/Update)  Issue NOTIFY.IC  ==> N
-----
Volume Mappings -----
Source  Dev  Src  Target
Cmd  Volumes  Type  Unit  Units  Message Area
Source  Dev  Src  Target
Cmd  Volumes  Type  Unit  Volumes  Message Area
R1P10C  3390-3  0B77

S1P101  3390-3  A555

```

Figure 56. **Update Backup Profile** panel (BSY\$BPRU)

On the **Update Backup Profile** panel, each volume that is listed was detected by IMS Recovery Expert to be in use by the specified IMS subsystem. Use the **UP** and **DOWN** commands (PF7 and PF8) to scroll through the list when there are more volumes than can be displayed on one panel. Review any messages that are displayed in the Message Area.

- To specify a range of source volumes to back up, specify **SOURCE** on the **Option** line and press Enter.

```

Enter a Source Range
BSY$BPRS
Beginning Source Range
Ending Source Range

```

Figure 57. **Enter a Source Range** panel (BSY\$BPRS)

On the **Enter a Source Range** panel, specify a beginning and ending range of source units. When you press Enter, IMS Recovery Expert scans the source volumes in the supplied range and determines if the volumes are being used by the specified IMS environment. If the source scan is successful, a volume list is displayed on the **Update Backup Profile** panel. If an error occurs, review the error message and any messages in the Message Area. Use the **UP** and **DOWN** commands (PF7 and PF8) to scroll through the list when there are more volumes than can be displayed on one panel. Review any informational messages that are displayed in the Message Area.

- To manually input source volumes, specify the **I** line command and specify the source volume in the **Source Volumes** column. Press Enter.

To clear all source (and target) mappings from the profile, specify **CLEAR** on the **Option** line and press Enter.

2. On the **Update Backup Profile** panel, you can specify one or more target volume(s) for each source volume in one of the following ways.
 - Next to each source volume, specify corresponding target unit(s) in the **Target Units** area. The target units must reside on the same Symmetrix array as the paired source volumes.
 - You can specify **TARGET** on the **Option** line.

```

Enter a Target Range
BSY$BPRT
Beginning Target Range
Ending Target Range
Enter by Generation      N

```

Figure 58. **Enter a Target Range** panel (BSY\$BPRT)

On the **Enter a Target Range** panel, specify a beginning and ending range of target units. The **Enter by Generation** field determines how the target unit fields are populated. If you specify N in the **Enter by Generation** field, IMS Recovery Expert assigns volumes sequentially as follows:

```

Volume 1 - target unit 1
           target unit 2
Volume 2 - target unit 3
           target unit 4

```

If you specify Y in the **Enter by Generation** field, IMS Recovery Expert assigns volumes as follows:

```

Volume 1 - target unit 1
           target unit 3
Volume 2 - target unit 2
           target unit 4

```

When you press Enter, the target units are mapped. If an error occurs, review the message in the Message Area. If no target is displayed in the **Target Units** field, no target unit in the specified range could be matched to a source volume. The target and source cannot be matched if the target and source are on different Symmetrix arrays.

3. You can modify the source/target volume mappings in any of the following ways:

- If you want to specify additional mappings (a source volume and its related target units), specify I in the line command area. To delete a mapping, specify D in the line command area and press Enter.
- To exclude a volume, specify E in the line command area next to a volume and press Enter. If you exclude a volume, IMS Recovery Expert will not include the volume in the backup. The resulting backup will be tagged as a partial backup, which cannot be used for a system restore. However, a partial backup can be used to restore individual databases if you have enabled the DB restore function. To undo an excluded volume, specify U in the line command area and press Enter.
- To clear all target units from the mappings in the profile, specify TGTCLR on the **Option** line and press Enter. To clear all source and target mappings from the profile, specify CLEAR on the **Option** line and press Enter.
- To display more volume mappings, you can toggle the header fields on and off; specify HEADER on the **Option** line and press Enter.
- To save the information you specified without ending your edit session, specify SAVE on the **Option** line and press Enter.

4. When you have completed volume mapping, press PF3 to save your profile and exit.

Performing System Level Backups on Hitachi storage systems

IMS Recovery Expert can make backups of IMS subsystems on Hitachi storage systems in two ways.

Choose the backup method that is applicable to the storage subsystem:

- If the storage subsystem has the Hitachi ShadowImage In-System Replication software, and you want IMS Recovery Expert to use ShadowImage commands when backing up the system, set the PARMLIB parameter SHADOW-IMAGE to Y. Then, create and run FlashCopy backup profiles.

IMS Recovery Expert will detect when source and target volumes are on Hitachi hardware. If so, IMS Recovery Expert will perform native ShadowImage commands to copy the volumes instead of using FlashCopy commands.

Note: If you plan to restore individual objects from a System Level Backup made using ShadowImage commands, fast replication cannot be used to restore the objects.

- If the storage subsystem has the optional Hitachi ShadowImage Compatible Mirroring for IBM FlashCopy installed, when you create and submit FlashCopy backup profiles,IMS Recovery Expert will issue FlashCopy commands to create the System Level Backup.

About offload options

IMS Recovery Expert allows you to offload backups to tape (or another disk location if you choose). You can define various options for offloads depending on the backup method selected.

When you build a backup profile and set the **Perform Offload** field to Y, IMS Recovery Expert offloads the backup according to your specifications when you run the job. Specify how many generations of backups that you want to keep; IMS Recovery Expert deletes the oldest copy if required.

Setting offload options for IBM FlashCopy, EMC SNAP, EMC BCV, and DFSMSdss backups

When offloading backups to tape (or another disk location if you choose) for IBM FlashCopy, EMC BCV, EMC SNAP, and DFSMSdss backups including IBM/STK SnapShot, you can specify the backup destination, data set naming conventions, and other options to meet your site's needs.

About this task

Offload options are set in each backup profile.

Procedure

1. The first time you create a profile, on the **Update Backup Profile** panel, specify Y in the **Offload Options** field and press Enter.

Note: When you later edit a profile, specify U in the **Offload Options** field and press Enter.

```
BSY$OFF1 V2R2 ----- Offload Options ----- 2021/01/31 15:51:25
Option ==>
-----
Creator: PDBATA      Name: BAT                      SSID: EMC
Share Option: U    (Upd,View,No)  Description: ABC
-----
Enter the Offload options to associate with this Backup profile:

Local Primary           ==> N   (Yes/No/Update)
Local Backup            ==> N   (Yes/No/Update)
Recovery Site Primary   ==> N   (Yes/No/Update)
Recovery Site Backup    ==> N   (Yes/No/Update)

Offload Generations     ==> 05  (1 - 99)
Delete Aged Backup files ==> Y   (Yes/No)
Compress Data           ==> N   (Yes/No)
Data Mover              ==> D   (Dfmsdss, Fdr, or fdrInstant)
Encrypt Data            ==> N   (Yes/No/Update)
Number of Tasks         ==> 02  (1 - 99)

Use Multiple Jobs       ==> N   (Yes/No/Update)
```

Figure 59. **Offload Options** panel (BSY\$OFF1)

2. On the **Offload Options** panel, specify information in the following fields:

Local Primary/Local Backup/Recovery Site Primary/Recovery Site Backup

To specify the backup type, specify Y in the appropriate field. At least one of the backup copy types is required. Initially, after you select the backup type and press Enter, the **Offload Options** panel appears. You must set additional offload options for the selected backup type.

- If you select **Local Primary**, the backup will be kept on site.
- If you select **Local Backup**, an additional backup can be created for the local site, the recovery site, or both.

- If you select **Recovery Site Primary**, the backup will be shipped to a remote recovery site.
- If you select **Recovery Site Backup**, an additional backup can be created for the local site, the recovery site, or both.

Offload Generations

Specify how many offline backups to keep. Note that the number of offline generations retained is not related to the number of backup generations specified on the **Update Backup Profile** panel.

Delete Aged Backup Files

If you specify Y in this field, when the oldest generation of the backup is deleted, IMS Recovery Expert will physically delete the backup data sets for the rolled-off generation.

Compress Data

If you specify Y in this field, IMS Recovery Expert will instruct the data mover utility to compress the data when it is copied.

Data Mover

Specify which program IMS Recovery Expert will use to move the offline backup:

- D for DFSMSdss
- F for FDR
- I for FDRINSTANT

Encrypt Data

Specify Y to encrypt data when it is offloaded. Refer to [“Encrypting data”](#) on page 139 for information about using data encryption. After you have set encryption options the first time, specify U in this field to edit these options, or N if you do not want data encrypted during the offload.

Number of tasks

Specify the number of subtasks for IMS Recovery Expert to use when offloading the backups. All backup types (LP, LB, RP, RB) are done simultaneously, so if you specify 4 backups to offload, and specify 4 tasks, then 4 tape drives are required.

Use Multiple Jobs

Using multiple jobs reduces the time it takes to perform offload and restore processes. Specify Y if you want the offload and restore processes to use multiple jobs, U to update the options, or N to use a single job. For more information, see [“Editing multijob options for offload”](#) on page 133.

What to do next

Note: If you specify offload options and then later decide to change the **Offload Options** field to N, the offload options are reset to their defaults.

Editing multijob options for offload

Using multiple jobs reduces the time it takes to perform offload and restore processes.

About this task

To edit multijob options for offload, on the **Offload Options** panel, specify Y (Yes) or U (Update) in the **Use Multiple Jobs** field and press Enter.

```

BSY$OFF6 V2R2 ----- Multijob Options ----- 2021/01/16 16:29:03
Option ==>
-----
Creator: TSMXDA      Name: IAA MITCH      SSID: IAA
Share Option: U    (Upd,View,No)  Description: OFFLOAD ENHANCEMENTS
-----
Enter the options for performing Multijob offload and restore:

Multijob Prefix      ==> TSMXDX   (1-6 character job prefix)

Multijob LPAR list:
LPAR Name           Max Jobs (1-99)      Max Tasks (1-99)
RS22                 02                   02
RS23                 02                   02

```

Figure 60. **Multijob Options** panel (BSY\$OFF6)

On the **Multijob Options** panel (BSY\$OFF6), specify or edit the options used for multijob processing in the following fields:

Multijob Prefix

This is a 1-6 character value that is used as a prefix for the multiple jobs that are created. As each multijob is initiated, the name of the job will begin with this prefix followed by a number from 01-99. If this value is not specified, then the prefix is taken from the first 6 characters of the Master jobname.

Multijob LPAR List

The LPAR list allows you to specify up to 4 entries to be used by the Master job for submitting multijobs. Each entry consists of an 8 character LPAR name, a 2 character max jobs value, and a 2 character max tasks value.

Consider the following information when specifying these entries:

- The same LPAR can be specified more than once in the LPAR List.
- When defining the LPAR List, be aware of the total number of tape drives that are required for processing if the maximum number of jobs is used. For each LPAR List entry, the maximum number of tape drives used is equal to the sum of the maximum number of jobs multiplied by the maximum number of tasks. In [Figure 60 on page 134](#), this number is 8 (2x2+2x2).
- Before any multijobs are initiated, the Master job will determine from the LPAR List entries what the maximum number of jobs is that can be submitted. The Master job will break into groups the volumes for an offload or the recovery units for a recovery so that they can be processed without exceeding the maximum job limit.

LPAR Name

This is a 1-8 character LPAR name. It identifies the name of the LPAR on which the multijob is to be submitted. You can specify a single asterisk (*) to indicate that the LPAR that the jobs will be submitted to is the same LPAR on which the Master job is running.

Max Jobs

This is a 2 digit number from 01-99 and indicates the maximum number of jobs that can be submitted for this entry. The Master job will submit multijobs on the specified LPAR until this limit is reached. When this limit is reached, if more jobs are needed, the Master job will move to the next LPAR List entry. The default value is 4.

Max Tasks

This is a 2 digit number from 01-99 and specifies the maximum number of tasks that are to be created in each multijob for processing. When the multijob is submitted, it will create as many tasks as are needed, up to this limit, to perform offload or restore processing. The default value is 4.

Setting data set options

If you plan to allow IMS Recovery Expert to offload backups, you must set data set names and other specifications for the offloaded data sets.

Procedure

1. On the **Offload Options** panel, specify Y in the appropriate backup type field (**Local Primary**, **Local Backup**, **Recovery Site Primary**, or **Recovery Site Backup**) and press Enter.

Note: When you later edit a profile, specify U in the appropriate backup type field and press Enter.

```
BSY$OFF2 V2R2 ----- LP Offload Options ----- 2021/11/11 13:56:23
Option  ==>
-----
Creator: CSTSUK      Name: DFSMSDSS BACKUP METHOD      SSID: I9A2
Share Option: U    (Upd,View,No)  Description: DFSMSDSS BACKUP METHOD
-----
Update DSN Specification => N          (Yes/No)
Unit Type                => CART       (CART/SYSALLDA/etc.)
Catalog                  => Y          (Yes/No)
Data Class                =>           (8 character class)
Storage Class            =>           (8 character class)
Management Class         =>           (8 character class)
Tape specific parameters (only needed if Unit Type is a Tape device):
Stack Backups on Tape    => Y          (Yes/No)
Tape Stack Limit        => 005         (1 - 999)
Expiration date *or*    =>           (YYYYDDD/YYDDD)
Retention period        => 1234        (4 digit number)
Maximum Tapes           => 005         (1-256)
```

Figure 61. LP Offload panel (BSY\$OFF2)

On the **Offload** panel, the header fields **Creator**, **Name**, **SSID**, **Share Option**, and **Description** that identify the profile are read-only.

2. Specify information in the following fields:

Update DSN specification

Specify Y in this field to set or change the data set specifications.

Unit Type

Specify a valid UNIT where the data set(s) will be written.

Catalog

Specify Y to catalog the data sets. Specify N if you do not want to catalog the data sets.

Data Class

If your site uses SMS to manage data sets, specify the SMS data class.

Storage Class

If your site uses SMS to manage data sets, specify the SMS storage class.

Management Class

If your site uses SMS to manage data sets, specify the SMS management class.

Tape specific parameters

If **Unit Type** is a tape device, specify tape specific parameters in this field.

Stack Backups on Tape

Specify whether you want to stack backups on a single tape when possible.

Tape Stack Limit

If stacking backups, specify the number of volumes that you want IMS Recovery Expert to stack on one tape before dismounting the tape.

Expiration date *or* Retention period

If the unit type specified in the **Unit Type** field is a tape device, specify either the tape expiration date in YYYYDDD format, or the tape retention period as the number of days.

Maximum Tapes

Specify the maximum number of volumes to use for each volume offload file.

Specifying data set naming conventions

You can use the IMS Recovery Expert **Offload DSN Specification** panels to construct data set names for the offloaded backups.

About this task

The data set names are resolved at run time using the conventions specified in the **LP Offload DSN Specification** panels. After you select a backup type on the **Offload Options** panel and press Enter, the **Offload** panel for the selected backup type appears.

Procedure

1. Specify Y in the **Update DSN Specification** field on this panel.

```
BSY$OFF3  V2R2  ----- LP Offload DSN Specification ----- 2021/11/11 14:19:07
Option    ==>
-----
Creator: CSTSUK      Name: DFSMSDSS BACKUP METHOD      SSID: I9A2
Share Option: U (Upd,View,No)  Description: DFSMSDSS BACKUP METHOD
-----
Enter codes to create a dataset name specification:
Qualifier code ==>      Free form literal ==>          Show DSN ==> N

Current dataset name qualifier string:

Valid dataset name specification codes are:
1. Volser              9. Day (DD)          17. Backup Type (#18.#19)
2. *Reserved*         10. Julian Day (DDD) 18. Local/Recovery (L/R)
3. Subsystem ID       11. Hours (HH)      19. Primary/Backup (P/B)
4. User ID            12. Minutes (MM)    20. Job Name
5. Time (HHMMSS)     13. Seconds (SS)   21. Step Name
6. Date (YYYYDDD)    14. Timestamp       22. Profile Creator
7. Year (YYYY)       15. Random Number   23. Profile Name
8. Month (MM)        16. GDG (+1)..(+n)  24. Substring Qualifier
                    25. Use freeform literal
```

Figure 62. **LP Offload DSN Specification** panel (BSY\$OFF3)

2. Press Enter.
3. On the **Offload DSN Specification** panel, specify information in the following fields:

Qualifier code

To include a qualifier, specify its number in the **Qualifier code** field and press Enter. The qualifier string is displayed in the **Current data set name generation qualifier string** field. You can also specify the data set name or string directly in the string field.

Free form literal

After selecting the **Use Freeform literal** qualifier, you can specify an eight-character literal in this field. If you want the literal to be in its own substring, ensure that the literal begins with a period.

Show DSN

To view the string as it would be completed, specify Y in this field and press Enter.

Current data set name qualifier string

This field displays the qualifier string as it was input.

What to do next

Valid qualifiers for the data set names that you can use on the **Offload DSN Specification** panel are listed on the bottom half of the panel:

Volser

The volume serial of the source volume being offloaded.

Subsystem ID

The IMS subsystem ID or Group name.

User ID

The TSO user ID of the job builder.

Time (HHMMSS)

The current time in the format shown.

Date (YYYYDDD)

The current date in the format shown.

Year (YYYY)

The year in the format shown.

Month (MM)

The month in the format shown.

Day (DD)

The day of the month in the format shown.

Julian Day (DDD)

The Julian day.

Hours (HH)

The current time in hours.

Minutes (MM)

The current time in minutes.

Seconds (SS)

The current time in seconds.

Timestamp

The current timestamp in *Dyymmdd.Thhmmss* format.

Random Number

A random number in *Rnnnnnn* format.

GDG (+1)..(+n)

If you are using GDG data sets, this variable appends (+n) to the GDG base. This must be the last qualifier code you specify for the data set name.

Backup Type (#18.#19)

The backup type in x.y format, where x is L for local or R for recovery, and y is P for primary or B for backup.

Local/Recovery (L/R)

The backup type; L for local and R for recovery.

Primary/Backup (P/B)

The image copy backup type; P for primary and B for backup.

Job Name

The job name.

Step Name

The job step name.

Profile Creator

The profile creator ID.

Profile Name

The first 8 characters of the profile name.

Substring Qualifier

Select this option to specify one of the qualifiers and customize the substring. When you press Enter, the **Substring Parameters** panel is displayed.

Use freeform literal

After selecting this qualifier, you can specify an eight-character literal in the **Free Form literal** field. If you want the literal to be in its own substring, ensure that the literal begins with a period. For example, if you specify 1 (Volser), 3 (Subsystem ID), and then 14 (Timestamp), the data set name appears as follows:

```
volser.ssid.D070104.T151509
```

where *volser* and *ssid* resolve to values appropriate to your site.

Using the substring function

Use the Substring Qualifier function to customize substring parameters.

On the **Offload DSN Specification** panel, choose the **Substring Qualifier** function.

```
Substring Parameters
BSY$OSTR
Enter the Qualifier Code ==>
Enter Starting Position ==>
Enter Substring Length ==>
```

Figure 63. **Substring Parameters** panel (BSY\$OSTR)

On the **Substring Parameters** panel, you can specify almost any of the qualifier codes and specify the string's starting position and length. For example, qualifier code 3 generates a string of &SSID, a four-character subsystem name. However, if your site uses three-character SSIDs, you can specify option 24 to specify the SSID and customize the string length, as follows:

```
Substring Parameters
BSY$OSTR
Enter the Qualifier Code ==> 3
Enter Starting Position ==> 1
Enter Substring Length ==> 3
```

Figure 64. **Substring Parameters** panel (BSY\$OSTR): Customization example

An example of the results is shown in the following panel:

```
BSY$OFF3 V2R2 ----- LP Offload DSN Specification ----- 2021/11/11 14:27:39
Option ==>
-----
Creator: CSTSUK      Name: DFSMSDSS BACKUP METHOD      SSID: I9A2
Share Option: U (Upd,View,No)  Description: DFSMSDSS BACKUP METHOD
-----
Enter codes to create a dataset name specification:
Qualifier code ==>      Free form literal ==>      Show DSN ==> N

Current dataset name qualifier string:
&SSID(1,3).

Valid dataset name specification codes are:
1. Volser                9. Day (DD)                17. Backup Type (#18.#19)
2. *Reserved*           10. Julian Day (DDD)       18. Local/Recovery (L/R)
3. Subsystem ID         11. Hours (HH)            19. Primary/Backup (P/B)
4. User ID              12. Minutes (MM)          20. Job Name
5. Time (HHMMSS)        13. Seconds (SS)          21. Step Name
6. Date (YYYYDDD)       14. Timestamp              22. Profile Creator
7. Year (YYYY)          15. Random Number         23. Profile Name
8. Month (MM)           16. GDG (+1)..(+n)        24. Substring Qualifier
                        25. Use freeform literal
```

Figure 65. **LP Offload DSN Specification** panel (BSY\$OFF3): Using the substring function

Using current symbolic string

Some substrings (such as time and date) require the addition of an alphanumeric character or symbol in the beginning of the string.

When you select these substrings from the **Offload DSN Specification** panel, the following panel is displayed.

```
Resulting DSN using current symbolic string
BSY$UPR1
  Enter a Literal or Symbolic to Prefix the Data set Node

  ==>

  Data set Name:
* 210409                                     *
```

Figure 66. Resulting DSN using current symbolic string panel (BSY\$UPR1)

The **Resulting DSN using current symbolic string** panel allows you to insert an alphanumeric character or symbol to make the data set node name valid. When finished, press Enter. The **Offload DSN Specification** panel reopens with the corrected substring.

Viewing a sample string

To view the string as it will be completed, specify Y in the **Show DSN** field.

When you press Enter, the sample string is displayed:

```
Resulting DSN using current symbolic string
BSY$ODSN
  Using the following sample data as input:

  &JOBNAME   = 'JOBNAME '  &STEPNAME  = 'STEPNAME'  &UID       = 'PDMONA'
  &SSID      = 'SSID'      &VOLSER    = 'VOLSER'    &VCATNAME  = 'VCATNAME'
  &LOCREM    = 'L'         &PRIBAC    = 'P'
  &PROFCRTR  = 'CSTSUK'    &PROFNAME  = 'DFSMSDSS'
  The date/time fields are set to the current time.

  The generated data set would be:
* SSI                                     *
```

Figure 67. Resulting DSN using current symbolic string panel (BSY\$ODSN)

Encrypting data

IMS Recovery Expert allows you to encrypt the data when the backup is offloaded to tape or disk. You can specify data encryption for both DFSMSdss and FDR offloads, and customize the encryption to meet your site's needs.

Setting data encryption options for DFSMSdss offloads

Data encryption options are set in each backup profile. To set encryption options for DFSMSdss offloads:

Procedure

1. On the **Offload Options** panel, specify D in the **Data Mover** field, and U in the **Encrypt Data** field, and press Enter.

```
BSY$OFF4 V2R2 ----- DFSMSdss Encryption Options ----- 2021/12/16 13:37:51
Option ==> Scroll ==> PAGE
```

```
-----
Creator: TUSER      Name: TEST1      SSID: IAA
Share Option: U    (Upd,View,No)    Description:

Keypasswd    ==> Y (Yes/No)
ICount       ==> 00016 (1-1000)
Type         ==> C (Clraes128/clrtDes)
RSA          ==> Y (Yes/No)
Type         ==> C (Clraes128/clrtDes/Enctdes)
Label        ==>

***** Bottom of Data *****
```

Figure 68. **DFSMSdss Encryption Options** panel (BSY\$OFF4)

On the **DFSMSdss Encryption Options** panel, the header fields that identify the profile (**Creator**, **Name**, **SSID**, **Share Option**, and **Description**) are read-only.

2. Specify the following encryption options.

- **Keypasswd**: Specify Y to specify the type of encryption that uses an 8 to 32 EBCDIC character key to perform encryption. The keypassword is programmatically generated.
- **ICount**: If you specify Y for **Keypasswd**, you must also indicate how many times DFSMSdss should perform the hash algorithm for the generation of the data key.
- **Type**: If you specify Y for **Keypasswd**, you must also indicate the type of encryption to perform. Specify C for CLRAES128 or D for CLRTDES.
- **RSA**: Specify Y to specify the type of encryption that uses the label of an existing RSA public key.
- **Type**: If you specify Y for **RSA**, you must also indicate the type of encryption to perform. Specify C for CLRAES128, D for CLRTDES, or E for ENCTDES.
- **Label**: If you specify Y for **RSA**, you must also specify the label of an existing RSA public key. The label can be up to 64 characters; the first character must be alphabetic or a national character (#,\$,@). The remaining characters can be alphabetic, numeric, national, or a period.

Note: You can specify either **Keypasswd** or **RSA** encryption, but not both. Refer to the documentation for DFSMSdss for specific information about these encryption types and settings.

What to do next

Note: If you specify encryption options and then later decide to change the **Offload Options** field to N, all encryption options are reset to their defaults.

Setting data encryption options for FDR offloads

Data encryption options are set in each backup profile. To set encryption options for FDR offloads:

Procedure

1. On the **Offload Options** panel, specify F or I in the **Data Mover** field, and U in the **Encrypt Data** field, and press **Enter**.

```

BSY$OFF5 V2R2 ----- FDR Encryption Options ----- 2021/12/16 13:37:51
Option ==> Scroll ==> PAGE

-----
Creator: TUSER      Name: TEST1                      SSID: IAA
Share Option: U    (Upd,View,No)  Description:

Encryption Type ==> S (Substitute/Cipher/Aes/aes192(1)/aes256(2)/aseFast/Tdes)

***** Bottom of Data *****

```

Figure 69. **FDR Encryption Options** panel (BSY\$OFF5)

On the **FDR Encryption Options** panel, the header fields that identify the profile (**Creator**, **Name**, **SSID**, **Share Option**, and **Description**) are read-only.

2. In the **Encryption Type** field, specify the type of encryption to use. Refer to the documentation for your version of FDR for specific information about these encryption types. Valid options are:

- S: Substitute
- C: CIPHER
- A: AES
- 1: AES192
- 2: AES256
- F: AESFAST
- T: TDES

What to do next

Note: If you specify encryption options and then later decide to change the **Offload Options** field to N, all encryption options are reset to their defaults.

Specifying target pool

For backup profiles that are created when **Target Mapping** is set to A, you must define a pool of target volumes.

Procedure

1. On the **Update Backup Profile** panel, specify U in the **Target Pool** field.

```

BSY$POOL V2R2 --- Target Pool Selection --- 2021/05/26 16:56:05
Option ==> Scroll ==> PAGE

Line Commands: I - Enter  D - Delete

-----
Creator: PDBISC      Name: IAA FLASH                      SSID: IAA
Share Option: U    (Upd,View,No)  Description: IAA FLASHCOPY
----- Target Range Options -----

Enter by Unit or Stogroup ==> U (Unit/Stogroup)

----- Enter Target Ranges ----- Row 1 of 3
  Start  End
Cmd Unit  Unit
  ABE0   ABE7
  ABE8   ABEF

```

Figure 70. **Target Pool Selection** panel (BSY\$POOL)

2. On the **Target Pool Selection** panel, specify a range of units or a list of SMS storage groups to use as targets for each source volume. The specified units or storage groups are used at backup time to map each source volume to a target unit.
3. In the **Cmd** column, specify the I line command to specify a Target Range or Stogroup, or specify D to delete a Target Range or Stogroup.
4. Specify one or more of the following fields

Creator

The profile creator.

Name

The profile name.

SSID

The subsystem for this profile.

Share Option

How users other than the profile creator can use the profile. This field is read only.

Description

The description as defined when the profile was created. This field is read only.

Enter by

The targets can be specified as either Unit or SMS stogroups. Specify U to specify targets by units, or S to specify targets by SMS stogroups.

5. Specify the target range using one or more of the **Enter Target Ranges** fields:

Start Unit

If specifying by units, this is the starting UCB address to use as a target. This field can only contain valid hexadecimal characters.

End Unit

If specifying by units, this is the ending UCB address to use as a target. The **End Unit** number must be greater than the **Start Unit** number. Ranges are not allowed to overlap. This field can only contain valid hexadecimal characters.

Note: IMS Recovery Expert attempts to use all devices in the specified range. If you do not want specific devices included in the target pool, you must specify multiple ranges that omit the volumes to exclude.

Stogroup

If specifying by stogroup, you can specify SMS stogroups in this field. Each SMS stogroup is checked to ensure that it exists; a message is displayed if it does not exist. If you press Enter after the message is displayed, the SMS stogroup is accepted, but you must ensure that the SMS stogroup is created before the backup runs.

Message Area messages

The messages that are displayed in the **Message Area** of the **Update Backup Profile** panel are listed in this table with actions you can take to resolve them. In some cases, no further action is required.

Message	Explanation	Action
Source Volume not online or not found	The listed source volume is either offline or not a valid volume.	Bring the volume online or check with your systems programmer to ensure that the specified volume is valid.

Table 20. Message Area messages and explanations (continued)

Message	Explanation	Action
Source Volume cannot be a BCV Device	For a BCV backup, the source volumes cannot be BCV devices.	If the specified volume is not valid, specify a valid volume. If the source volume is a BCV device, you must move the data from the BCV device to a non-BCV device.
Source Volume is not on a Symmetrix	The listed source volume is not on a Symmetrix array.	The source volume must be on a Symmetrix. Move the source volume to a Symmetrix array.
Target Unit not found	The specified target unit does not exist.	If the specified target unit is not valid, specify a valid unit. Otherwise, check with your systems programmer to ensure that the specified target unit is valid. If you plan to add the target units to the Symmetrix before running the backup, you can disregard this message.
Target Unit specified is not a BCV Device	The specified target unit is not a BCV device. For a BCV backup, all specified target units must be BCV devices.	Select a target unit that is a BCV device.
Target Unit is not on a Symmetrix	Each target unit must be on a Symmetrix.	Select a target unit that is located on a Symmetrix array.
Target BCV <i>target_unit</i> is established to <i>source_volume</i>	For BCV backups, this informational message lists the source volume to which the target unit is established.	None required.
Target Unit is paired to <i>source_volume</i>	For SNAP type backups, this message is displayed if the target is a BCV unit and is currently paired to a source volume.	None required.
Source volume has <i>BCV unit_name</i> established	For BCV backups, this informational message displays the target unit to which the source volume is established.	None required.
Source Volume is not Flash capable	The source volume does not reside in a storage subsystem that is FlashCopy capable.	If the specified source volume is not valid, specify a valid volume. Or, move the source volume to a FlashCopy capable storage system. Otherwise, check with your systems programmer to ensure that the specified source volume is FlashCopy capable.

Table 20. Message Area messages and explanations (continued)

Message	Explanation	Action
Target Unit is not Flash capable	For FlashCopy backups, the target volume cannot use FlashCopy to copy the volume.	If the specified target unit is not valid, specify a valid unit. Otherwise, check with your systems programmer to ensure that the specified target unit is FlashCopy capable.

Managing profiles

Perform these tasks when managing your profiles.

Updating a profile

You can update your own backup profile or one created by another user if the **Update option** field on the **Enter New Backup Profile Options** panel was set to U (Update) when the profile was created.

About this task

You can update a backup profile at any time to add or delete source or target volumes, change the number of generations, and change other settings. However, after setup runs successfully on a profile, you cannot change the IMS SSID or Group name, or the backup method when you update the profile.

Procedure

1. Access the **System Backup Profile Display** panel.
2. Specify U on the **Cmd** line next to the profile you want to update, and press Enter.
3. On the **Update Backup Profile** panel, you can make changes to the profile.
4. Press PF3 to save your changes. To cancel and exit without making changes, specify CAN on the **Option** line and press Enter.

Viewing a profile

You can view your own backup profile or one created by another user if the **Update option** field on the **Enter New Backup Profile Options** panel was set to V (View) or U (Update) when the profile was created.

Procedure

1. Access the **System Backup Profile Display** panel.
2. Specify V on the **Cmd** line next to the profile you want to view.
3. Press Enter.

What to do next

On the **View Backup Profile** panel, you can view profile details but you cannot make any changes.

Renaming a profile

You can specify the R (Rename) line command to change the name, creator, or description of a backup profile.

About this task

You can rename profiles that you created, regardless of the value assigned to the **Update option** field on the **Enter New Backup Profile Options** panel. You can also rename a profile created by another user if

the **Update option** field on the **Enter New Backup Profile Options** panel was set to U (Update) when the profile was created.

Procedure

1. Access the **System Backup Profile Display** panel.
2. Specify R on the **Cmd** line next to the profile you want to rename, and press Enter.

```
                                Rename Backup Profile
BSY$PRFR
Existing Profile:

  Creator      PDMONA
  Profile Name PDMONA
  Description

New Profile:

  Creator      PDMONA
  Profile Name PDMONA
  Description
```

Figure 71. **Rename Backup Profile** panel (BSY\$PRFR)

3. On the **Rename Backup Profile** panel, specify the new profile name in the **Profile Name** field to rename the profile. You can also specify a new description in the **Profile Description** field. The profile creator cannot be modified.
4. Press Enter when you have finished.
To cancel the rename, press PF3 on the **Rename Backup Profile** panel.

Deleting a profile

You can specify the D (Delete) line command to delete a backup profile.

About this task

You can delete profiles that you created, regardless of the value assigned to the **Update option** field on the **Enter New Backup Profile Options** panel. You can also delete a profile created by another user if the **Update option** field on the **Enter New Backup Profile Options** panel was set to U (Update) when the profile was created.

Note: If you delete a backup profile, you will also delete all backups associated with the profile.

Procedure

1. Access the **System Backup Profile Display** panel.
2. Specify D on the **Cmd** line next to the profile you want to delete, and press Enter.

```
                                Confirm Deletion of Profile
BSY$PRFD
*****
****                               ****
**** Warning Deleting this Profile will also delete all ****
**** Backups associated with this profile.                ****
****                               ****
*****
Confirm delete of profile PDMONA.PDMONA

Delete N (Yes/No)
```

Figure 72. **Confirm Deletion of Profile** panel (BSY\$PRFD)

- On the **Confirm Deletion of Profile** panel, you can confirm profile deletion. To delete the profile, specify Y in the **Delete** field and press Enter.

A message is displayed to confirm deletion. To cancel deletion, press PF3.

Considerations when using copy blades

The following table lists the advantages and disadvantages of using the various types of copy blades for your System Level Backup or offload method.

System Level Backup method

System Level Backup Method	Vendor	Advantages	Disadvantages
FlashCopy	IBM (EMC, HDS, or any vendor that supports FlashCopy emulation)	With FlashCopy emulation, IMS can be across several vendors DASD. Technology to drive FlashCopy in IMS Recovery Expert is very fast. (Very small amount of time to issue the FlashCopy commands) DFSMSdss can be used to drive fast-replication data set restore of IMS object data sets. Users can specify target ranges so there is no need to update a profile when IMS expands to new volumes. Does not require SMS.	Log suspend required. Older EMC FlashCopy emulation (pre 72 microcode) is somewhat slower. HDS FC emulation is quite slow also elongating the log suspend time. Not an incremental copy - all tracks are copied in the background on each backup. Fast database restore (through DFSMSdss) will use host based IO (slow copy) if the background copy is not complete. Volumes must be clipped and brought online to offload to tape.
TimeFinder Mirror (BCVs)	EMC	Uses EMC Consistency. No log suspend needed. Backup is completely done and usable at split time. Restores can be done right away. Snap data set can be used for almost instantaneous restore of IMS database data sets. Does not require SMS. Fast database restore can be performed through Snap data set without clipping and bringing the volumes online.	Two phase backup. Establish BCV (wait for sync), then split BCV to make backup. If you have <i>N</i> generations of backup disks, you only get <i>N-1</i> backups on disk because one generation is always mirroring the source volumes. IMS must be completely on EMC DASD. When IMS expands to new volumes, profile must be updated to add new BCV target units. Volumes must be clipped and brought online to offload to tape.

System Level Backup Method	Vendor	Advantages	Disadvantages
TimeFinder Clone (Full volume snap to target volume)	EMC	Uses EMC Consistency. No log suspend needed. Can be performed in phases (phased snap) so performance implications to source volumes can be timed and mitigated. Snap is differential; only changed tracks are copied since the last backup. Snap data set can be used for almost instantaneous restore of IMS database data sets. Users can specify target ranges so there is no need to update a profile when IMS expands to new volumes. Does not require SMS. Fast database restore can be performed through Snap data set without clipping and bringing the volumes online.	Full system restore must wait until background copy is complete. Fast database restore (Snap data set) must wait until background copy is also complete. IMS system must be completely on EMC DASD.
TimeFinder Snap (Virtual Device Snap - VDEV) (V2.2)	EMC	Uses EMC Consistency. No log suspend. Space efficient snap. Does not need a full backup volume for each source IMS volume. Many backup points can be saved on fast-replication disk. Uses a "SAVE POOL" to store changes to source device after the backup is taken. Users can specify target ranges so there is no need to update a profile when IMS expands to new volumes. Does not require SMS.	Must monitor the save pool to ensure it does not fill up. Also, a true disk backup never exists; only the changed tracks are stored in the save pool. Cannot perform a Snap data set restore from this type of backup. IMS system must be completely on EMC DASD.

Offload method

Offload Method (Archive Method)	Vendor	Advantages	Disadvantages
DFSMSdss	IBM	Can be used for any backup method. Users have finer control over data set name used to hold the volume dump. All options to offload each profile are contained in one product (no need to go to HSM to configure dump classes).	All DFSMSdss tasks are run in one address space, limiting the number of simultaneous tape dumps you can run concurrently. If the backup disks are offline, they need to be clipped and brought online before they can be copied to tape.

Offload Method (Archive Method)	Vendor	Advantages	Disadvantages
Fast Dump and Restore (FDR)	Innovation	Can be used for any backup method. FDR generally considered faster than DFSMSdss. Users have finer control over data set name used to hold the volume dump. All options to offload each profile are contained in one product (no need to go to HSM to configure dump classes).	All FDR tasks are run in one address space, limiting the number of simultaneous tape dumps you can run concurrently. If the backup disks are offline, they must be clipped and brought online before they can be copied to tape.
FDR Instant	Innovation	Can be used for any backup method but real advantages come when using in conjunction with a backup method that leaves target units offline. FDR Instant eliminates the need to clip the target unit and bring it online. It can copy the volume while it is offline.	

Chapter 7. Creating a System Level Backup

IMS Recovery Expert builds a backup job from a backup profile and then submits the backup job to create a System Level Backup.

Topics:

- [“Building and submitting backup jobs” on page 149](#)
- [“Sample build JCL for the profile setup process” on page 150](#)
- [“Sample build JCL for a backup” on page 151](#)
- [“Adding keywords to a System Level Backup job” on page 153](#)
- [“Sample build JCL for the offload process” on page 154](#)
- [“Reviewing output from an IBM FlashCopy backup” on page 155](#)
- [“Reviewing output from an EMC BCV backup” on page 157](#)
- [“Reviewing output from an EMC SNAP backup” on page 158](#)
- [“Reviewing output from a DFSMSdss backup” on page 162](#)
- [“Reviewing output from offloading a backup” on page 164](#)

Building and submitting backup jobs

After you create a IMS Recovery Expert backup profile, you build a backup job. Based on the values that were specified in the backup profile, IMS Recovery Expert generates the JCL for the backup job.

About this task

When you build the JCL for the backup job, you can specify whether you will:

- Edit the JCL that is created
- Automatically run a System Level Backup after the JCL is created
- Offload the backup after it was taken
- Backup the IMS Recovery Expert repository

Note: After you create the backup job, you can put the job into a scheduler to create regular backups of your IMS system.

Procedure

1. Specify **1** (System Operations) on the IMS Recovery Expert main menu panel (BSY\$MAIN) and press Enter.
2. On the **System Operations Menu** panel (BSY\$SYMN), specify **2** (System Backup Profiles) and press Enter.
3. On the **Enter System Backup Profile Selection Criteria** panel (BSY\$BPLK), specify criteria and press Enter. For more information about specifying this criteria, see [“Accessing the backup profile list” on page 114](#).
4. On the **System Backup Profile Display** panel (BSY\$BPRD), specify **B** on the **Cmd** line next to the profile for which you want to build the JCL, and press Enter.

Adding keywords to a System Level Backup job

IMS Recovery Expert allows you to edit the System Level Backup job by adding one or more keywords. Each keyword adds unique functionality that otherwise would not be present in the generated JCL.

Procedure

1. To find the JCL where you can add keywords to the System Level Backup job:
 - a) Specify **1** (System Operations) on the IMS Recovery Expert main menu panel (BSY\$MAIN) and press Enter.
 - b) On the **System Operations Menu** panel (BSY\$SYMN), specify **2** (System Backup Profiles) and press Enter.
 - c) On the **Enter System Backup Profile Selection Criteria** panel (BSY\$BPLK), specify criteria and press Enter. For more information about specifying this criteria, see [“Accessing the backup profile list”](#) on page 114.
 - d) On the **System Backup Profile Display** panel (BSY\$BPRD), specify B on the **Cmd** line next to the profile for which you want to build the JCL, and press Enter.
 - e) On the **Build Backup Job** panel (BSY\$BLDB), specify Y in the **Edit Generated Job** field. Specify information in any other fields that are applicable. For more information about specifying options on this panel, see [“Building and submitting backup jobs”](#) on page 149.
 - f) Press Enter. The JCL for the System Level Backup job displays in an ISPF edit session.
2. Add one or more of the following keywords to the JCL in the BSYIN DD * statement. Specify keywords at the end of the keyword cards generated by IMS Recovery Expert:

DEBUG

This keyword produces extra debugging information. Add this keyword only when directed to by Technical Support.

SETUP

This keyword is automatically added by IMS Recovery Expert when it is needed. This keyword is needed the first time a backup profile is run, or after a backup profile is edited. The presence of this keyword triggers a “setup” check to ensure that a backup profile is valid. A backup is not taken when the SETUP card is present. You can add the SETUP keyword if you want additional checking to be performed.

PROMPT

This keyword is used for BCV type backups. Adding the keyword overrides the current setting in BSY#PARM. If the current generation of BCVs has not synchronized with the source volumes, a WTOR prompts the operator and asks what to do.

SNAP-TARGET-ONLINE

This keyword is used only for SNAP type backups. Adding the keyword allows the target UCBs to be online during the backup. They also remain online with unique volume serial numbers after the backup.

VALIDATE-IMS-VOLS

This keyword overrides the **Validate IMS Volumes** setting in the backup profile. This causes IMS Recovery Expert to always validate that the IMS volumes are all backed up regardless of the setting in the profile.

MAX-TASKS

This keyword controls the number of tasks that are started when completing the backup processing for multi-tasked operations. You can specify a number from 1 to 8. The default is 4.

Reviewing output from an IBM FlashCopy backup

During an IBM FlashCopy backup, IMS Recovery Expert writes messages to the job's DD statements. Access and review these DD statements to determine if the backup was successful.

BSYOUT DD (BSYBACK step)

This DD contains the backup profile information, control cards, and IMS Recovery Expert messages. The following figure shows a sample BSYOUT DD.

```
12:02:33 BSY0001I - IMS Recovery Expert for z/OS Starting. Version 02.02.001
0003I - Control Cards:
0004I -     BACKUP "PDBISC"."IAA"
0004I -
0013I - Backup profile PDBISC.IAA was read from the repository.
0398I - IMS System IAA3 Version 00.0 currently not active
0398I - IMS System IAA4 Version 00.0 currently not active
0398I - IMS System IAX3 Version 00.0 currently not active
0039I - Volume map validation complete.
0137I - Varying volumes offline.
0081I - Backup with timestamp 2021/01/07-16:20:56, generation 02 was removed from
        the repository.
0240I - Performing fast replication to create backup...
0241I - Backup via flash volume from source volser SIRB43 to unit ABEB has completed.
0241I - Backup via flash volume from source volser SIRB45 to unit ABED has completed.
0241I - Backup via flash volume from source volser SIRB47 to unit ABEF has completed.
0241I - Backup via flash volume from source volser SIRB42 to unit ABEA has completed.
0241I - Backup via flash volume from source volser SIRB46 to unit ABEE has completed.
0241I - Backup via flash volume from source volser SIRB44 to unit ABEC has completed.
0241I - Backup via flash volume from source volser SIRB40 to unit ABE8 has completed.
0241I - Backup via flash volume from source volser SIRB41 to unit ABE9 has completed.
0084I - Backup of profile PDBISC.IAA has been created.
0004I - Collecting data set information for object level recovery...
0004I - Data set information collection complete.
0080I - Backup with timestamp 2021/01/12-12:02:39, generation 02 was saved in the
        repository.
0002I - IMS Recovery Expert for z/OS complete. RC=000.
```

BSY#REPT DD (BSYBACK step)

This DD contains a summary report that describes the details of the backup. This report includes the standard and FlashCopy volume information, and the data types found on the backup volumes. The following figure shows a sample BSY#REPT DD from an IBM FlashCopy backup.

IMS Recovery Expert for z/OS
Backup Summary Report

```
Utility Executed:..... Backup
Profile Name:..... PDBISC.IAA
IMS Subsystem:..... IAA
IMS Version:..... 15.1
Backup Type:..... FlashCopy
Backup Contains:..... Database Data and Log Data
Partial Backup:..... No
Nbr of Volumes:..... 0008
Backup Date:..... 01/12/2021
Backup Time:..... 12:11:07
Consistency Method:..... IMS Log Suspend
Supports Database Restore:.. Yes
I/O Suspend Time:..... 2021-01-12-12.11.07.906278
I/O Resume Time:..... 2021-01-12-12.11.08.249973
Backup Elapsed:..... 00.34 Seconds
```

IMS Recovery Expert for z/OS
Backup Volume Detail Report

<-Source Volumes->			<-Flash->	<-----Data Types----->					
Volser	Ucb#	Devtyp	Ucb#	Data	DCat	ALog	ACat	RLog	RCat
SIRB40	AB40	3390-1	ABE0	No	No	Yes	No	No	No
SIRB41	AB41	3390-1	ABE1	No	No	No	No	No	No
SIRB42	AB42	3390-1	ABE2	No	No	Yes	No	No	No
SIRB43	AB43	3390-1	ABE3	No	No	Yes	Yes	No	No
SIRB44	AB44	3390-1	ABE4	No	No	Yes	No	No	No
SIRB45	AB45	3390-1	ABE5	No	No	Yes	No	No	No
SIRB46	AB46	3390-1	ABE6	Yes	Yes	No	No	No	No
SIRB47	AB47	3390-1	ABE7	Yes	No	No	No	No	No

The Source Volumes and Flash sections of this report list the target units that now contain the backup of the associated IMS standard volumes. The **Data Types** section of the report contains the following information:

Data

Yes indicates that the volume contains database data.

DCat

Yes indicates that volume contains a user catalog that contains the z/OS catalog information for database data sets.

ALog

Yes indicates that the volume contains one or more active log data set(s).

ACat

Yes indicates that the volume contains a user catalog that contains z/OS catalog information for an active log data set.

RLog

Yes indicates that the volume contains one or more archive log data set(s).

RCat

Yes indicates that the volume contains a user catalog that contains z/OS catalog information for an archive log data set.

If a volume contains a mix of database data or catalogs, and log data or catalogs, then IMS Recovery Expert issues a message stating that the database and log data are not separated, and a full system restore is required.

Reviewing output from an EMC BCV backup

During an EMC BCV backup, IMS Recovery Expert writes messages to several DD statements. Access and review these DD statements to determine if the backup was successful.

SYSPRINT DD

This DD contains the backup profile information, control cards, and IMS Recovery Expert messages. The following figure shows a sample SYSPRINT DD.

```
14:34:53 BSY0001I - IMS Recovery Expert for z/OS Starting.
0003I - Control Cards:
0004I - BACKUP TWUSR."B81D BCV BACKUP"
0162I - Parnlib used for this execution
0013I - Backup profile TWUSR.B81D BCV BACKUP was read from the repository.
0039I - Volume map validation complete.
0075I - Performing IMS source volume validation... 0190W - Volume NSP104 is not
        included in this backup. It contains only ARCHIVE log data.
0190W - Volume NSP105 is not included in this backup.
        It contains only ARCHIVE log data.
0190W - Volume NSP106 is not included in this backup.
        It contains only ARCHIVE log data.
0190W - Volume NSP107 is not included in this backup.
        It contains only ARCHIVE log data.
0076I - IMS source volume validation complete. All IMS volumes are in this profile.
0137I - Varying volumes offline.
0082I - Performing BCV splits to create backup...
0084I - Backup of profile TWUSR.B81D BCV BACKUP has been created.
0080I - Backup with timestamp 2021/03/16-14:34:58
        Generation 01 was in this profile.
0126I - Waiting 06 seconds for background splits to complete...
0085I - Performing BCV establish on next generation of BCVs.
0002I - IMS Recovery Expert for z/OS complete. RC=004.
```

BSY#REPT DD

This DD contains a summary report that describes the details of the backup. This report includes the standard volume and split device volume information and mappings, and the data types found on the backup volumes. The following figure shows a sample BSY#REPT DD for an EMC BCV backup.

```
IMS Recovery Expert for z/OS Summary Report
Utility Executed:..... Backup
Profile Name:..... TWUSR.B81D BCV BACKUP
IMS Subsystem:..... B81D
IMS Version:..... 1510
Backup Type:..... BCV
Backup Contains:..... Database Data and Log Data
Partial Backup:..... No
Nbr of Controllers:..... 01
Lowest Microcode Level:... 5x71
Nbr of Volumes:..... 0002
Consistency Method:..... EMC Consistency Assist
I/O Suspend Time:..... 2021-03-16-14.34.59.184453
I/O Resume Time:..... 2021-03-16-14.34.59.803769
Backup Elapsed:..... 00.61 Seconds
IMS Recovery Expert for z/OS Volume Detail Report
<-----Standard-----> <-Split-> <-Estab-> <-----Data Types----->
Volser Ucb# Sym# Devtyp Ucb# Sym# Ucb# Sym# Data DCat ALog ACat RLog RCat
-----
ARY700 3000 0000 3390-7 301D 001D 301E 001E No No Yes Yes No Yes
ARY900 3002 0002 3390-9 302A 002A 302B 002B Yes Yes No No No No
```

The **Split** section of this report lists the BCV units that mirrored the standard volumes; these volumes now contain this backup. The **Estab** (Establish) section of the report lists the next generation BCV units that are now established to the IMS standard volumes.

The **Data Types** section of the report contains the following information:

Data

Yes indicates that the volume contains database data.

DCat

Yes indicates that the volume contains a user catalog that contains the z/OS catalog information for database data sets.

ALog

Yes indicates that the volume contains one or more active log data sets.

ACat

Yes indicates that the volume contains a user catalog that contains z/OS catalog information for an active log data set.

RLog

Yes indicates that the volume contains one or more archive log data sets.

RCat

Yes indicates that the volume contains a user catalog that contains z/OS catalog information for an archive log data set.

If a volume contains a mix of database data or catalogs, and log data or catalogs, then IMS Recovery Expert issues a message stating that the database and log data are not separated, and a full system restore is required.

Reviewing output from an EMC SNAP backup

During an EMC SNAP backup, IMS Recovery Expert writes messages to the job's SYSPRINT DD and other DD statements. Access and review these DD statements to determine if the backup was successful.

SYSPRINT DD

The SYSPRINT DD contains the backup profile information, control cards, and IMS Recovery Expert messages. The following figure shows a sample SYSPRINT DD.


```

21:18:42 BSY0001I - IMS Recovery Expert for z/OS Starting.
0003I - Control Cards:
0004I - BACKUP TWUSR."B71D SNAP BACKUP"
0162I - Parmlib used for this execution
0013I - Backup profile TWUSR.B71D SNAP BACKUP was read from
        the repository.
0039I - Volume map validation complete.
0075I - Performing IMS source volume validation...
0102W - Source volume BSY301 contains both object data and active
        log usercat data.
0102W - Source volume BSY301 contains both object usercat data
        and active log usercat data.
0103W - All recoveries of this backup must include log recovery.
0190W - Volume NSP101 is not included in this backup.
        It contains only ARCHIVE log data.
0190W - Volume NSP102 is not included in this backup.
        It contains only ARCHIVE log data.
0190W - Volume NSP103 is not included in this backup.
        It contains only ARCHIVE log data.
0190W - Volume NSP104 is not included in this backup.
        It contains only ARCHIVE log data.
0190W - Volume NSP105 is not included in this backup.
        It contains only ARCHIVE log data.
0190W - Volume NSP106 is not included in this backup.
        It contains only ARCHIVE log data.
0190W - Volume NSP107 is not included in this backup.
        It contains only ARCHIVE log data.
0076I - IMS source volume validation complete.
        All IMS volumes are in this profile.
0137I - Varying volumes offline.
0083I - Performing Snap Volumes to create backup...
0201I - Parmlib Override on Snap Volume Global command -
        WAITforsessions - Value: Y
0201I - Parmlib Override on Snap Volume Global command -
        WAITforsessions_HOURS - Value: 00
0201I - Parmlib Override on Snap Volume Global command -
        WAITforsessions_MINUTES - Value: 02
0201I - Parmlib Override on Snap Volume Global command -
        WAITforsessions_SECONDS - Value: 30
0201I - Parmlib Override on Snap Volume Global command -
        TOLERATE_ENQ_FAILURES - Value: Y
0201I - Parmlib Override on Snap Volume Global command -
        COPY_VOLUME_ID - Value: Y
0201I - Parmlib Override on Snap Volume Global command -
        BUILD_VTOC_INDEX - Value: Y
0201I - Parmlib Override on Snap Volume Global command -
        Snap Differential - Value: Y
0198I - Backup via Snap Volume Std Vol BSY300 Dev 3004 to Dev 3040
BSY0198I - Backup via Snap Volume Std Vol BSY301 Dev 3005 to Dev 3041
0198I - Backup via Snap Volume Std Vol BSY302 Dev 3006 to Dev 3042
0198I - Backup via Snap Volume Std Vol BSY303 Dev 3007 to Dev 3043
BSY0198I - Backup via Snap Volume Std Vol BSY304 Dev 3008 to Dev 3044
0084I - Backup of profile TWUSR.B71D SNAP BACKUP has been created.
0080I - Backup with timestamp 2021/03/16-21:18:45,
        generation 01 was saved in the repository.
0002I - IMS Recovery Expert for z/OS complete. RC=004.

```

BSY#REPT DD

This DD contains a summary report that describes the details of the backup. This report includes the standard and SNAP volume information and the data types found on the backup volumes. The following figure shows a sample BSY#REPT DD from a SNAP backup.

```

IMS Recovery Expert for z/OS Summary Report
Utility Executed:..... Backup
Profile Name:..... TWUSR.B71D SNAP BACKUP
IMS Subsystem:..... B71D
IMS Version:..... 1510
Backup Type:..... Snap
Backup Contains:..... Database Data and Log Data (Mixed)
Partial Backup:..... No
Nbr of Controllers:..... 01
Lowest Microcode Level:... 5x71
Nbr of Volumes:..... 0005
Consistency Method:..... EMC Consistent Snap

```

```

IMS Recovery Expert for z/OS
Volume Detail Report
<-----Standard-----> <-Snap--> <-----Data Types----->
Volser Ucb# Sym# Devtyp Ucb# Sym# Data DCat ALog ACat RLog RCat
-----
BSY300 3004 0004 3390-3 3040 0040 No No Yes No No No
BSY301 3005 0005 3390-3 3041 0041 Yes Yes No Yes No Yes
BSY302 3006 0006 3390-3 3042 0042 Yes No No No No No
BSY303 3007 0007 3390-3 3043 0043 Yes No No No No No
BSY304 3008 0008 3390-3 3044 0044 Yes No No No No No

```

The **Snap** section of this report lists the target units that now contain the backup of the associated IMS standard volumes. The **Data Types** section of the report contains the following information:

Data

Yes indicates that the volume contains database data.

DCat

Yes indicates that volume contains a user catalog that contains the z/OS catalog information for database data sets.

ALog

Yes indicates that the volume contains one or more active log data set(s).

ACat

Yes indicates that the volume contains a user catalog that contains z/OS catalog information for an active log data set.

RLog

Yes indicates that the volume contains one or more archive log data set(s).

RCat

Yes indicates that the volume contains a user catalog that contains z/OS catalog information for an archive log data set.

If a volume contains a mix of database data or catalogs, and log data or catalogs, then IMS Recovery Expert issues a message stating that the database and log data are not separated, and a full system restore is required.

BSYSNAPO DD

This DD contains messages generated by the EMC SNAP Volume and TimeFinder utilities. For information on these messages, refer to the EMC documentation. The following figure shows a sample BSYSNAPO DD.

```

BSY@SNPV - EMC Snap Volume Messages:
21:18:45 *** TIMEFINDER MF SNAP V5.5.0 (018) ***
21:18:45 ESNP020I IBM SNAPSHOT SUPPORT DETECTED AND ENABLED
21:18:45 ESNP023I IBM FLASHCOPY SUPPORT DETECTED AND ENABLED
21:18:45 ESNP024I IBM FLASHCOPY V2 SUPPORT DETECTED AND ENABLED
21:18:45 ESNP010I BEGINNING COMMAND PARSE
21:18:45 ESNP011I PARSING STATEMENT #1
21:18:45 ESNPD00I API GLOBAL REQUEST PROCESSED
21:18:45 ESNP011I PARSING STATEMENT #2
21:18:45 ESNPD40I API SNAP VOLUME REQUEST PROCESSED
21:18:46 ESNP500I UNIT 3004 WAS REQUESTED, FOUND WITH VOLUME BSY300 MOUNTED
21:18:46 ESNP504I UNIT 3040 WAS REQUESTED, FOUND OFFLINE
21:18:46 ESNP011I PARSING STATEMENT #3
21:18:46 ESNPD40I API SNAP VOLUME REQUEST PROCESSED
21:18:46 ESNP500I UNIT 3005 WAS REQUESTED, FOUND WITH VOLUME BSY301 MOUNTED
21:18:46 ESNP504I UNIT 3041 WAS REQUESTED, FOUND OFFLINE
21:18:46 ESNP011I PARSING STATEMENT #4
21:18:46 ESNPD40I API SNAP VOLUME REQUEST PROCESSED
21:18:46 ESNP500I UNIT 3006 WAS REQUESTED, FOUND WITH VOLUME BSY302 MOUNTED
21:18:46 ESNP504I UNIT 3042 WAS REQUESTED, FOUND OFFLINE
21:18:46 ESNP011I PARSING STATEMENT #5
21:18:46 ESNPD40I API SNAP VOLUME REQUEST PROCESSED
21:18:46 ESNP500I UNIT 3007 WAS REQUESTED, FOUND WITH VOLUME BSY303 MOUNTED
21:18:46 ESNP504I UNIT 3043 WAS REQUESTED, FOUND OFFLINE
21:18:46 ESNP011I PARSING STATEMENT #6
21:18:46 ESNPD40I API SNAP VOLUME REQUEST PROCESSED
21:18:46 ESNP500I UNIT 3008 WAS REQUESTED, FOUND WITH VOLUME BSY304 MOUNTED
21:18:46 ESNP504I UNIT 3044 WAS REQUESTED, FOUND OFFLINE
21:18:46 ESNP011I PARSING STATEMENT #7
21:18:46 ESNPF20I API ACTIVATE REQUEST PROCESSED
21:18:46 ESNP011I PARSING STATEMENT #8
21:18:46 ESNPK31I A MAXIMUM OF 11 SUBTASKS WILL BE SCHEDULED
21:18:46 ESNP040I PROCESSING REQUESTS
21:18:46 ESNP460I PROCESSING FOR STATEMENT #2 BEGINNING, COPY FROM VOLUME BSY300
TO VOLUME *3040*
21:18:46 ESNPJ31I PROCESSING FOR STATEMENT #2 SUSPENDED FOR PENDING ACTIVATE
21:18:46 ESNP460I PROCESSING FOR STATEMENT #3 BEGINNING, COPY FROM VOLUME BSY301
TO VOLUME *3041*
21:18:46 ESNPJ31I PROCESSING FOR STATEMENT #3 SUSPENDED FOR PENDING ACTIVATE
21:18:46 ESNP460I PROCESSING FOR STATEMENT #4 BEGINNING, COPY FROM VOLUME BSY302
TO VOLUME *3042*
21:18:46 ESNPJ31I PROCESSING FOR STATEMENT #4 SUSPENDED FOR PENDING ACTIVATE
21:18:46 ESNP460I PROCESSING FOR STATEMENT #5 BEGINNING, COPY FROM VOLUME BSY303
TO VOLUME *3043*
21:18:46 ESNPJ31I PROCESSING FOR STATEMENT #5 SUSPENDED FOR PENDING ACTIVATE
21:18:46 ESNP460I PROCESSING FOR STATEMENT #6 BEGINNING, COPY FROM VOLUME BSY304
TO VOLUME *3044*
21:18:46 ESNPJ31I PROCESSING FOR STATEMENT #6 SUSPENDED FOR PENDING ACTIVATE
21:18:46 ESNPF50I PROCESSING FOR STATEMENT #7 BEGINNING, ACTIVATE SNAP
21:18:51 ESNP112I COPY HAS BEEN INITIATED FOR 1 EXTENT(S) - 50085 TRACK(S)
21:18:51 - FROM VOLUME BSY300 (S/N 0001874-30562/0004)
TO VOLUME *3040* (S/N 0001874-30562/0040)
21:18:51 ESNP112I COPY HAS BEEN INITIATED FOR 1 EXTENT(S) - 50085 TRACK(S)
21:18:51 - FROM VOLUME BSY301 (S/N 0001874-30562/0005)
TO VOLUME *3041* (S/N 0001874-30562/0041)
21:18:51 ESNP112I COPY HAS BEEN INITIATED FOR 1 EXTENT(S) - 50085 TRACK(S)
21:18:51 - FROM VOLUME BSY302 (S/N 0001874-30562/0006)
TO VOLUME *3042* (S/N 0001874-30562/0042)
21:18:51 ESNP112I COPY HAS BEEN INITIATED FOR 1 EXTENT(S) - 50085 TRACK(S)
21:18:51 - FROM VOLUME BSY303 (S/N 0001874-30562/0007)
TO VOLUME *3043* (S/N 0001874-30562/0043)
21:18:51 ESNP112I COPY HAS BEEN INITIATED FOR 1 EXTENT(S) - 50085 TRACK(S)
21:18:51 - FROM VOLUME BSY304 (S/N 0001874-30562/0008)
TO VOLUME *3044* (S/N 0001874-30562/0044)
21:18:51 ESNPJ30I PROCESSING FOR STATEMENT #2 RESUMED, COPY FROM VOLUME
21:18:51 ESNPI31I DEVICE IS ALREADY READY
21:18:51 ESNPJ30I PROCESSING FOR STATEMENT #3 RESUMED, COPY FROM VOLUME
21:18:51 ESNPI31I DEVICE IS ALREADY READY
21:18:52 *** TIMEFINDER MF SNAP V5.5.0 (018) ***
21:18:52 ESNPJ30I PROCESSING FOR STATEMENT #4 RESUMED, COPY FROM VOLUME
21:18:52 ESNPI31I DEVICE IS ALREADY READY
21:18:52 ESNPJ30I PROCESSING FOR STATEMENT #5 RESUMED, COPY FROM VOLUME
21:18:52 ESNPI31I DEVICE IS ALREADY READY
21:18:53 ESNPJ30I PROCESSING FOR STATEMENT #6 RESUMED, COPY FROM VOLUME
21:18:53 ESNPI31I DEVICE IS ALREADY READY
21:18:53 ESNPF51I PROCESSING FOR STATEMENT #7 COMPLETED, HIGHEST RETURN CODE ENC
21:18:53 ESNP440I PROCESSING COMPLETED, HIGHEST RETURN CODE ENCOUNTERED IS 0
21:18:53 *** TIMEFINDER MF SNAP V5.5.0 (018) ***
21:18:53 RQST RC SOURCE TARGET
21:18:53 2 00 SNAP VOLUME BSY300 *3040*
21:18:53 3 00 SNAP VOLUME BSY301 *3041*
21:18:53 4 00 SNAP VOLUME BSY302 *3042*
21:18:53 5 00 SNAP VOLUME BSY303 *3043*
21:18:53 6 00 SNAP VOLUME BSY304 *3044*
21:18:53 7 00 ACTIVATE - CONSISTENT(YES)
21:18:53 ESNPL80I 5 INTRA-REQUEST LEVEL SUBTASKS WERE ATTACHED
21:18:53 ESNPL81I 2 INTER-REQUEST LEVEL SUBTASKS WERE ATTACHED

```

Reviewing output from a DFSMSdss backup

During a DFSMSdss backup, IMS Recovery Expert writes messages to several of the job's DD statements. Access and review these DD statements to determine if the backup was successful.

BSYOUT DD

This DD contains the backup profile information, control cards, and IMS Recovery Expert messages. The following figure shows a sample BSYOUT DD.

Note: Some lines that generally appear as single lines appear as two lines in this sample for display purposes.

```
15:12:43 BSY0001I - IMS Recovery Expert for z/OS Starting. Version 02.02.001
15:12:43 BSY0003I - Control Cards:
15:12:43 BSY0004I -     BACKUP "PDBISC"."IAA - DFSMSDSS"
15:12:43 BSY0004I -
15:12:44 BSY0013I - Backup profile PDBISC.IAA
                    DFSMSDSS was read from the repository.
15:12:44 BSY0075I - Performing subsystem source volume validation...
15:13:03 BSY0076I - Subsystem source volume validation complete.
                    All source volumes are in this profile.
15:13:03 BSY0039I - Volume map validation complete.
15:13:03 BSY0339I - Backup PDBISC.IAA timestamp 2021/01/13-13:51:53
                    was marked as no longer on disk.
15:13:06 BSYI407I - IMS Sub-System IAA3 is INACTIVE
15:13:06 BSYI407I - IMS Sub-System IAA4 is INACTIVE
15:13:06 BSYI407I - IMS Sub-System IAX3 is INACTIVE
15:13:06 BSY0004I - Performing disk copy process...
15:13:06 BSY0356I - Task 01 - Copying source volser SIRB40
                    to target volser SIRBE0.
15:13:06 BSY0356I - Task 02 - Copying source volser SIRB41
                    to target volser SIRBE1.
15:13:06 BSY0356I - Task 04 - Copying source volser SIRB43
                    to target volser SIRBE3.
15:13:06 BSY0356I - Task 03 - Copying source volser SIRB42
                    to target volser SIRBE2.
15:13:08 BSY0356I - Task 04 - Copying source volser SIRB47
                    to target volser SIRBE7.
15:13:08 BSY0356I - Task 01 - Copying source volser SIRB44
                    to target volser SIRBE4.
15:13:08 BSY0356I - Task 03 - Copying source volser SIRB46
                    to target volser SIRBE6.
15:13:08 BSY0356I - Task 02 - Copying source volser SIRB45
                    to target volser SIRBE5.
15:13:08 BSY0084I - Backup of profile PDBISC.IAA - DFSMSDSS has been created.
15:13:08 BSY0004I - Collecting data set information for object level recovery..
15:13:30 BSY0004I - Data set information collection complete.
15:13:31 BSY0080I - Backup with timestamp 2021/01/13-15:13:06,
                    generation 01 was saved in the repository.
15:13:31 BSY0002I - IMS Recovery Expert for z/OS complete. RC=000.
```

BSY#REPT DD

This DD contains a summary report that describes the details of the backup. This report includes the source and target volume information, and the data types found on the backup volumes. The following figure shows a sample BSY#REPT DD from an IMS backup.

IMS Recovery Expert for z/OS
Backup Summary Report

Utility Executed:..... Backup
 Profile Name:..... PDBISC.IAA - DFSMSDSS
 IMS Subsystem:..... IAA
 IMS Version:..... 15.1
 Backup Type:..... DFSMSdss Disk Copy
 Backup Contains:..... Database Data and Log Data
 Partial Backup:..... No
 Nbr of Volumes:..... 0008
 Backup Date:..... 01/13/2021
 Backup Time:..... 15:13:06
 Consistency Method:..... IMS Log Suspend
 Supports Database Restore:.. Yes
 I/O Suspend Time:..... 2021-01-13-15.13.06.662766
 I/O Resume Time:..... 2021-01-13-15.13.08.475211
 Backup Elapsed:..... 01.81 Seconds

IMS Recovery Expert for z/OS
Backup Volume Detail Report

<---IMS Volume--->			<-Target-->		<-----Data Types----->					
Volser	Ucb#	Devtyp	Volser	Ucb#	Data	DCat	ALog	ACat	RLog	RCat
SIRB40	AB40	3390-1	SIRBE0	ABE0	No	No	Yes	No	No	No
SIRB41	AB41	3390-1	SIRBE1	ABE1	No	No	No	No	No	No
SIRB42	AB42	3390-1	SIRBE2	ABE2	No	No	Yes	No	No	No
SIRB43	AB43	3390-1	SIRBE3	ABE3	No	No	Yes	Yes	No	No
SIRB44	AB44	3390-1	SIRBE4	ABE4	No	No	Yes	No	No	No
SIRB45	AB45	3390-1	SIRBE5	ABE5	No	No	Yes	No	No	No
SIRB46	AB46	3390-1	SIRBE6	ABE6	Yes	Yes	No	No	No	No
SIRB47	AB47	3390-1	SIRBE7	ABE7	Yes	No	No	No	No	No

The **Source Volumes** and **Target** sections of this report list the target units that now contain the backup of the associated DFSMSdss volumes. The **Data Types** section of the report contains the following information:

Data

Yes indicates that the volume contains database data.

DCat

Yes indicates that volume contains a user catalog that contains the z/OS catalog information for database data sets.

ALog

Yes indicates that the volume contains one or more active log data set(s).

ACat

Yes indicates that the volume contains a user catalog that contains z/OS catalog information for an active log data set.

RLog

Yes indicates that the volume contains one or more archive log data set(s).

RCat

Yes indicates that the volume contains a user catalog that contains z/OS catalog information for an archive log data set.

If a volume contains a mix of database data or catalogs, and log data or catalogs, then IMS Recovery Expert issues a message stating that the database and log data are not separated, and a full system restore is required.

Reviewing output from offloading a backup

When offloading a backup, IMS Recovery Expert writes messages to the offload job's DD statements. Access and review these DD statements to determine if the offload was successful.

BSYOUT DD (BSYOFFL step)

This DD contains the backup profile information, control cards, and IMS Recovery Expert messages. The following figure shows a sample BSYOUT DD.

Note: Some lines that generally appear as single lines appear as two lines in this sample for display purposes.

```
13:52:32 BSY0001I - IMS Recovery Expert for z/OS Starting. Version 02.02.001
0003I - Control Cards:
0004I - OFFLOAD "PDBISC". "IAA"
0004I - GENERATION LAST-BACKUP
0004I -
0123I - Backup PDBISC.IAA
           generation 001 was read from the repository.
0004I - Performing full volume offload.
0249I - Task 01 - Offload process starting for unit ABE0 (Source volser SIRB40).
0249I - Task 02 - Offload process starting for unit ABE1 (Source volser SIRB41).
0279I - Task 01 - Unit ABE0 with old volser SIRB40 was clipped to volser ZZR40.
0279I - Task 02 - Unit ABE1 with old volser SIRB41 was clipped to volser ZZR41.
0263I - Task 02 - Unit ABE1 offloaded to local primary data set
           SIRRTE.OFFLOAD.IAA.SIRB41
0254I - Task 02 - Offload process for unit ABE1 (Source volser SIRB41) complete.
0279I - Task 02 - Unit ABE1 with old volser ZZR41 was clipped to volser SIRB41.
0249I - Task 02 - Offload process starting for unit ABE3 (Source volser SIRB43).
0279I - Task 02 - Unit ABE3 with old volser SIRB43 was clipped to volser ZZR43.
0263I - Task 02 - Unit ABE3 offloaded to local primary data set
           SIRRTE.OFFLOAD.IAA.SIRB43
0254I - Task 02 - Offload process for unit ABE3 (Source volser SIRB43) complete.
0279I - Task 02 - Unit ABE3 with old volser ZZR43 was clipped to volser SIRB43.
0249I - Task 02 - Offload process starting for unit ABE5 (Source volser SIRB45).
0279I - Task 02 - Unit ABE5 with old volser SIRB45 was clipped to volser ZZR45.
0263I - Task 01 - Unit ABE0 offloaded to local primary data set
           SIRRTE.OFFLOAD.IAA.SIRB40
0254I - Task 01 - Offload process for unit ABE0 (Source volser SIRB40) complete.
0279I - Task 01 - Unit ABE0 with old volser ZZR40 was clipped to volser SIRB40.
0249I - Task 01 - Offload process starting for unit ABE2 (Source volser SIRB42).
0279I - Task 01 - Unit ABE2 with old volser SIRB42 was clipped to volser ZZR42.
0263I - Task 02 - Unit ABE5 offloaded to local primary data set
           SIRRTE.OFFLOAD.IAA.SIRB45
0254I - Task 02 - Offload process for unit ABE5 (Source volser SIRB45) complete.
0279I - Task 02 - Unit ABE5 with old volser ZZR45 was clipped to volser SIRB45.
0249I - Task 02 - Offload process starting for unit ABE7 (Source volser SIRB47).
0279I - Task 02 - Unit ABE7 with old volser SIRB47 was clipped to volser ZZR47.
0263I - Task 01 - Unit ABE2 offloaded to local primary data set
           SIRRTE.OFFLOAD.IAA.SIRB42
0254I - Task 01 - Offload process for unit ABE2 (Source volser SIRB42) complete.
0263I - Task 02 - Unit ABE7 offloaded to local primary data set
           SIRRTE.OFFLOAD.IAA.SIRB47
0254I - Task 02 - Offload process for unit ABE7 (Source volser SIRB47) complete.
0279I - Task 01 - Unit ABE2 with old volser ZZR42 was clipped to volser SIRB42.
0249I - Task 01 - Offload process starting for unit ABE4 (Source volser SIRB44).
0279I - Task 02 - Unit ABE7 with old volser ZZR47 was clipped to volser SIRB47.
0279I - Task 01 - Unit ABE4 with old volser SIRB44 was clipped to volser ZZR44.
0263I - Task 01 - Unit ABE4 offloaded to local primary data set
           SIRRTE.OFFLOAD.IAA.SIRB44
0254I - Task 01 - Offload process for unit ABE4 (Source volser SIRB44) complete.
0279I - Task 01 - Unit ABE4 with old volser ZZR44 was clipped to volser SIRB44.
0249I - Task 01 - Offload process starting for unit ABE6 (Source volser SIRB46).
0279I - Task 01 - Unit ABE6 with old volser SIRB46 was clipped to volser ZZR46.
0263I - Task 01 - Unit ABE6 offloaded to local primary data set
           SIRRTE.OFFLOAD.IAA.SIRB46
0254I - Task 01 - Offload process for unit ABE6 (Source volser SIRB46) complete.
0279I - Task 01 - Unit ABE6 with old volser ZZR46 was clipped to volser SIRB46.
0216I - Offloaded Backup with timestamp 2021/01/07-16:27:53
           was removed from the repository.
0002I - IMS Recovery Expert for z/OS complete. RC=000.
```

BSY#REPT DD (BSYOFFL step)

This DD contains a summary report that describes the details of the offload, original and target volume information and the offloaded file names. The following figure shows a sample BSY#REPT DD from an offload.

```

                                IMS Recovery Expert for z/OS
                                Volume Offload Summary Report

Utility Executed:..... Offload
Profile Name:..... PDBISC.IAA
Offload Date:..... 01/13/2021
Offload Time:..... 13:52:33
Data Mover:..... DFSMSdss
Compress:..... Yes
Encrypted..... No
Encryption Method..... RSA CLRAES128
Generation:..... 0001
Nbr Of Volumes:..... 0008

                                IMS Recovery Expert for z/OS
                                Volume Offload Detail Report

<---IMS--->
Volser Ucb# Type Offloaded to Filename
-----
SIRB40 AB40 LP SIRRTE.OFFLOAD.IAA.SIRB40
SIRB41 AB41 LP SIRRTE.OFFLOAD.IAA.SIRB41
SIRB42 AB42 LP SIRRTE.OFFLOAD.IAA.SIRB42
SIRB43 AB43 LP SIRRTE.OFFLOAD.IAA.SIRB43
SIRB44 AB44 LP SIRRTE.OFFLOAD.IAA.SIRB44
SIRB45 AB45 LP SIRRTE.OFFLOAD.IAA.SIRB45
SIRB46 AB46 LP SIRRTE.OFFLOAD.IAA.SIRB46
SIRB47 AB47 LP SIRRTE.OFFLOAD.IAA.SIRB47

<---Tape--->
FileSeq Volser
-----
Disk
Disk
Disk
Disk
Disk
Disk
Disk
Disk
Disk
```

This report contains the following information:

IMS Volser/Ucb#

The IMS volume serial and UCB of the backup before offload.

Type

The backup type: LP is local primary; LB is local backup; RP is remote primary; RB is remote backup.

Offloaded to Filename

The data set name of the offloaded backup.

FileSeq

The data set's file sequence number.

Volser

The data set volume serial number.

Chapter 8. Recovery using application operations

Using the IMS Recovery Expert ISPF interface, you can build jobs to recover individual databases or groups of databases to a specific point in time.

Specify 2 (Application Operations) on the IMS Recovery Expert main menu panel (BSY\$MAIN) and press Enter to access the **Application Operations Menu** panel.

```
IMS RE  V2R2  ----- Application Operations Menu -----  
Option  ===>  
  
2021/04/17 09:11:40  
User: TS**** - BSY  
  
-----  
1. On-Demand Operations  
2. Object Profiles  
3. Utility Profiles  
4. Job Profiles  
5. Coordinated Application Profiles
```

Figure 74. **Application Operations Menu** panel

On-demand operations

On-demand operations allow you to build recovery jobs, create recovery points, perform quiet time analysis, and perform a health check dynamically, without needing a pre-defined profile to work from.

From the On-Demand Operations Menu, you may take the following actions:

- Build Recovery Job
- Build Create Recovery Point Job
- Build Quiet Time Analysis Job
- Build Health Check Job

When an option is selected from the menu, the user is led through the panels to dynamically create the input needed for the function. A list of objects is required for every function, but Recovery Options are required only when building recovery JCL.

Profiles

Profiles are reusable and editable, and are created on a per system or group basis. You can easily edit, rename, view, and delete profiles using line commands. The following profiles are available from the **Application Operations Menu** panel:

- Object profiles allow the user to create and maintain profiles that contain only the list of IMS objects (databases, indexes, DBRC groups) that the user wants to take action against, and to perform functions against those profiles.
- Utility Profiles allows the user to create and maintain profiles that specify only the Recovery Options to use for an action, and to perform functions against those profiles.
- Job Profiles allow the user to create and maintain profiles that contain both an Object and Utility Profile, and to perform functions against those pairings. This is useful in maintaining an object-option

relationship over an extended period of time. Users may also specify only one component profile, and dynamically add the required information for the other.

- Coordinated application profiles allow the user to recover Db2 objects and IMS databases used in an application to the same consistent point in time. Besides recovery, coordinated application profiles also allow for creating a common quiesce point, and creating a report of common quiet times.

Coordinated application profiles will not be discussed in this chapter. For more information, see [Chapter 9, “Recovering Db2 and IMS applications,” on page 205](#).

Topics:

- [“Upgrading application profiles” on page 168](#)
- [“Creating object profiles” on page 168](#)
- [“Creating utility profiles” on page 172](#)
- [“Creating job profiles” on page 180](#)
- [“Using profiles” on page 181](#)
- [“On-demand operations” on page 194](#)

Upgrading application profiles

To prevent customers from having to completely recreate existing profiles, existing Application Profiles are automatically upgraded into Object, Utility, and Job Profiles by specifying U from the list of Job Profiles.

Profiles which have not been upgraded will be highlighted in red, and a message will indicate profiles are in need of upgrading. Upgrading creates the following:

- An Object Profile with the objects from the source Application Profile, with an identical name and description to that of the source Application Profile
- A Utility Profile with the Recovery Options from the source Application Profile, with an identical and description to that of the source Application Profile
- A Job Profile comprised of the just-created Object and Utility Profiles

Note: A message will be displayed to confirm the Profile has been upgraded. Any action other than Delete, Update, or Create on an old-style Application Profile will issue a message indicating that the profile must be upgraded first.

Creating object profiles

An object profile allows you to specify only the objects to be processed for an Application Operation.

About this task

Complete the following steps to create an object profile:

Procedure

1. Specify 2 on the **Application Operations Menu** panel (BSY\$APMN) and press Enter.

```
Enter Profile Selection Criteria
Profile Like *-----
Creator Like *-----
SSID Like *____
```

Figure 75. **Enter Profile Selection Criteria** panel

On the **Enter Profile Selection Criteria** panel, you can limit the profiles that are listed. Specify a profile name, profile creator name, or SSID to do so. You can use the asterisk (*) as a wildcard character for any and all fields. Press Enter when finished. The **Object Profile Display** panel will be displayed.

- Specify C on the **Cmd** line and press Enter.
- On the **Enter New Object Profile Data** panel specify a **Profile Name**, **Description**, and **IMS System**.

```

Enter New Object Profile Data
Creator      -----
Profile Name -----
Description  -----
IMS System   ____  (? for system list)
Share Option U (Update, View only, No access)

```

Figure 76. **Enter New Object Profile Data** panel

You may also control access to this profile using the **Share Option** field. Specify U to allow other users access to update the profile. Specify V to allow others to only view the profile. Specify N to deny any other users access to the profile.

- Press Enter.
- In the **Add Objects** panel, specify Y in the **Add Databases**, **Add Indexes**, or **Add Groups** field and press Enter.

```

Add Objects
Add Databases      N   (Yes/No)
Add Indexes        N   (Yes/No)
Add Groups         N   (Yes/No)
Press ENTER to process or PF3 to Cancel

```

Figure 77. **Add Objects** panel

- To continue adding objects to object profiles, see one of the following topics:
 - “Adding databases” on page 169
 - “Adding indexes” on page 170
 - “Adding groups” on page 171

Adding databases

You can specify one or more databases to be recovered by adding them to an object profile.

About this task

Complete the following steps to add databases to an object profile:

Procedure

- On the **Add Objects** panel, specify Y in the **Add Databases** field and press Enter.
- On the **Enter Databases Like to Display** panel, specify the following information to filter the list from which you may select databases:

```

Enter Databases Like to Display
Database Like *      Wildcard N (Y or N)
                   Exclude I (E or I)

Process Dependent Indexes Y (Y or N)
Process Logical Relations Y (Y or N)

```

Figure 78. **Enter Databases Like to Display** panel

- Specify a filter in the **Database Like** field to filter search results.
 - Specify Y in the **Wildcard** field to automatically add all objects that meet your criteria into the profile. An object list will not be presented. When the profile is used, IMS Recovery Expert dynamically expands the added name.
 - Specify I to include databases you select in the subsequent panel, or specify E to exclude them.
 - Specify Y in the **Process Dependent Indexes** field to dynamically include indexes that are dependent on the selected databases.
 - Specify Y in the **Process Logical Relations** field to dynamically include databases that are logically related to the selected databases.
3. Press Enter.
 4. On the **Include Database Selection** panel, enter S in the **Cmd** line next to databases you would like to include or exclude, depending on what was specified on the **Enter Databases Like to Display** panel, and press Enter.

```

IMS RE      V2R2 ----   Include Database Selection ---   2021/04/17  09:50:54

      Commands: SEL mask - Select all groups matching the mask
Line Commands: S - Include or exclude database from profile

-----
Database   Like *                                     Row 1 of 158   +
-----

Cmd  DBNAME   TYPE
     AAAAAAA FULL
     AUTODB  FULL
     BACPOC  FULL
     BAMPOC  FULL
     BATPOC  FULL
Option ==> ----- Scroll ==> PAGE

```

Figure 79. **Include Database Selection** panel

5. Press PF3 to return to the **Update Object Profile Display** panel. The selected databases will be listed in the order that they were added to the object profile.

Adding indexes

You can specify one or more indexes to be recovered by adding them to an object profile.

About this task

Complete the following steps to add indexes to an object profile:

Procedure

1. On the **Add Objects** panel, specify Y in the **Add Indexes** field and press Enter.
2. On the **Enter Databases Like to Display** panel, specify the following information to filter the list from which you may select databases:

```

                Enter Indexes Like to Display

Index Like *           Wildcard N (Y or N)
                       Exclude I

```

Figure 80. **Enter Indexes Like to Display** panel

- Specify a filter in the **Index Like** field to filter search results.

- Specify Y in the **Wildcard** field to automatically add all objects that meet your criteria into the profile. An object list will not be presented. When the profile is used, IMS Recovery Expert dynamically expands the added name.
 - Specify I to include databases you select in the subsequent panel, or specify E to exclude them.
3. Press Enter.
 4. On the **Include Database Selection** panel, enter S in the **Cmd** line next to indexes you would like to include or exclude, depending on what was specified on the **Enter Indexes Like to Display** panel, and press Enter.

```

IMS RE      V2R2 ----   Include Database Selection ---   2021/04/17 09:50:54

      Commands: SEL mask - Select all groups matching the mask
Line Commands: S - Include or exclude database from profile

-----
Database   Like *                                     Row 1 of 158   +
-----

Cmd  DBNAME   TYPE
     AAAAAAA FULL
     AUTODB  FULL
     BACPOC  FULL
     BAMPOC  FULL
     BATPOC  FULL
Option ==> ----- Scroll ==> PAGE

```

Figure 81. **Include Database Selection** panel

5. Press PF3 to return to the **Update Object Profile Display** panel. The selected indexes will be listed in the order that they were added to the object profile.

Adding groups

You can specify one or more DBRC groups by adding them to an object profile.

About this task

Complete the following steps to add DBRC groups to an object profile:

Procedure

1. On the **Add Objects** panel, specify Y in the **Add Groups** field and press Enter.
2. On the **Enter Groups Like to Display** panel, specify a filter in the **Group Like** field to filter search results.

On the **Enter Groups Like to Display** panel you may also specify whether to dynamically include dependent indexes or logical relations for the selected groups.

```

                Enter Groups Like to Display

Group Like *

Process Dependent Indexes _ (Y or N)
Process Logical Relations _ (Y or N)

```

Figure 82. **Enter Groups Like to Display** panel

3. On the **Include Database Selection** panel, enter S in the **Cmd** line next to groups you would like to include and press Enter.

```

IMS RE      V2R2 ----   Include Database Selection ---   2021/04/17  11:45:16
      Commands: SEL mask - Select all groups matching the mask
Line Commands: S - Include a group in a profile
-----
      Group Like *
-----
      Row 1 of 1
-----
Cmd  Group      Type
     H1V3P1     DBGRP
***** Bottom of Data *****

```

Figure 83. **Include Database Selection** panel

4. Press PF3 to return to the **Update Object Profile Display** panel. The selected groups will be listed in the order that they were added to the object profile.

Creating utility profiles

A utility profile allows you to specify only the recovery options used when a recovery operation is performed.

About this task

Complete the following steps to create a utility profile:

Procedure

1. Specify 3 on the **Application Operations Menu** panel (BSY\$APMN) and press Enter.

```

      Enter Profile Selection Criteria
Profile Like *-----
Creator Like *-----
SSID Like *____

```

Figure 84. **Enter Profile Selection Criteria** panel

On the **Enter Profile Selection Criteria** panel, you can limit the profiles that are listed. Specify a profile name, profile creator name, or SSID to do so. You can use the asterisk (*) as a wildcard character for any and all fields. Press Enter when finished. The **Utility Profile Display** panel will be displayed.

2. Specify C on the **Cmd** line and press Enter.
3. On the **Enter New Recovery Options Profile Data** panel specify a **Profile Name**, **Description**, and **IMS System**.

```

      Enter New Utility Profile Data
Creator      -----
Profile Name -----
Description  -----
IMS System   ____  (? for system list)
Share Option U (Update, View only, No access)

```

Figure 85. **Enter New Utility Profile Data** panel

You may also control access to this profile using the **Share Option** field. Specify U to allow other users access to update the profile. Specify V to allow others to only view the profile. Specify N to deny any other users access to the profile.

4. Press Enter.

5. On the **Recovery Options** panel, specify the following information:

```

IMS RE  V2R2 ----- Recovery Options ----- Top of data
Option  ==>
-----
Creator: *****      Name: *****      SSID: IDA
Share Option: U  (Upd,View,No)      Description: *****
-----
Enter the Recovery options:

Recovery Resources          ==> A (All/Slb/Ic/Uic)          Edit Options  N  (Yes/No)
Execute Recovery           ==> Y (Yes)                Edit Options  N  (Yes/No)
Execute Index Rebuild     ==> N (Yes/No/Rcvutil)    Edit Options  N  (Yes/No)
Execute Change Accum      ==> N (Yes/No)           Edit Options  N  (Yes/No)
Create Post Recovery IC   ==> N (Yes/No/Rcvutil)    Edit Options  N  (Yes/No)

Update Spawned Job Options ==> N (Yes/No)

Action on Warnings        ==> C (Continue/Wtor/Abort)
GENJCL Defaults Member    ==> IERQ

Datasets for GENJCL      ==> TSMXD.BSY.DEMO.JCLPDS

Create Post Recovery IC   ==> N (Yes/No)          Edit Options  N  (Yes/No)

Update Spawned Job Options ==> N (Yes/No)

Action on Warnings        ==> C (Continue/Wtor/Abort)
GENJCL Defaults Member    ==> -----

Datasets for GENJCL      ==> -----
                        ==> -----
                        ==> -----
                        ==> -----
                        ==> -----

```

Figure 86. **Recovery Options** panel

Recovery Resources

Specify which recovery resources to consider for recovery. Specify A for all resources (System Level Backups and image copies), S for System Level Backups only, I for image copies only, or U for User Image Copies only.

Caution: U (User Image Copies) is not included in A (All). If U is specified, IMS Recovery Expert does not restore DBDS from User Image Copy. You must restore DBDS by yourself. If U is specified, the **UIC Timestamp** panel (BSY\$UICT) is displayed when building a recovery job. You must enter the **UIC RUN timestamp** and **UIC STOP timestamp** values, and then restore DBDS from User Image Copy prior to submitting a recovery JCL. See also [“User Image Copy”](#) on page 435.

Specify Y in the **Edit Options** field to specify SLB-only parameters for recovery. For more information, see [“Setting SLB parameters”](#) on page 174.

Execute Recovery

The only valid value for this field is Y.

Specify Y in the **Edit Options** field to specify recovery utility options.

Execute Index Rebuild

Specify Y (Yes) or N (No) to indicate whether you want to perform index rebuild.

You may also specify R (Rcvutil) to perform index rebuild as an integrated utility. This allows the restart code to process correctly if some related indexes were not rebuilt.

Specify Y in the **Edit Options** field to specify index rebuild options. For more information, see [“Setting index rebuild options”](#) on page 176.

Execute Change Accum

Specify Y (Yes) or N (No) to indicate whether you want to execute change accumulation prior to executing the recovery utility.

Specify Y in the **Edit Options** field to specify change accumulation options. For more information, see [“Setting change accumulation options” on page 178](#).

Create Post Recovery IC

Specify Y (Yes) or N (No) to indicate whether you want to create image copies for recovered databases.

You may also specify R (Rcvutil) to create image copies for recovered databases as an integrated utility. This allows the restart code to process correctly if an image copy does not exist after recovery.

Specify Y in the **Edit Options** field to specify Post Recovery Image Copy options. For more information, see [“Setting post recovery image copy options” on page 178](#).

Update Spawnd Job Options

Specify Y (Yes) to specify Spawnd Job options or N (No) to use the default method for generating the jobcard and/or jobname. For more information, see [“Setting spawnd job options” on page 179](#).

Action on Warnings

Specify how you want to process warnings that are issued during recovery. Specify C to continue, W to issue a WTOR, or A to abort.

GENJCL defaults member

Specify a member to be used as the GENJCL defaults when GENJCL is executed. If specified, this member will be included on the GENJCL command using the DEFAULTS() keyword.

This member can be used to pass system-specific keywords and values to the GENJCL process when creating the JCL needed to perform recovery and other recovery-related processes.

Datasets for GENJCL

Specify up to 5 data sets for GENJCL skeletons. The data sets are concatenated in the specified order. The GENJCL members and GENJCL defaults member specified in the Recovery Options must exist in one of these data sets.

Note: When Recovery Options are created the values on the prior panels are pre-populated with the default values found in the BSY#PARM or BSY#SSID members as described in [“IMS recovery process parameters” on page 50](#).

6. Press PF3 to proceed, or enter CAN in the **Option** line to cancel the action.

Setting SLB parameters

If you specify Y in the **Edit Options** field adjacent to the **Recovery Resources** field, you can customize SLB parameters for recovery.

About this task

Complete the following steps to edit SLB parameters for recovery:

Procedure

1. On the **Recovery Options** panel, specify Y in the **Edit Options** field next to **Recovery Resources**, and press Enter.
This function is only enabled if you specify A or S in the **Recovery Resources** field.
2. On the **SLB Recovery Options** panel, you can specify the following information:


```

IMS RE   V2R2 ----- SLB Recovery Options ----- 2021/04/17 12:41:4
Option   ==>
-----
Creator: *****      Name: *****      SSID: IDA
Share Option: U (Upd,View,No)  Description: TEST
-----
Enter the options for using SLB for recovery:

SLB Processing Only      ==> N (Yes/No)
From Offload             ==> N (Yes/No)
Parallel Tasks           ==> 04 (01-99)
Number of Tape units     ==> 02 (01-99)

```

Figure 87. **SLB Recovery Options** panel

SLB Processing Only

Specify Y (Yes) or N (No) to indicate whether or not you want to perform SLB-only processing during the recovery operation.

From Offload

Specify Y (Yes) to indicate that any data sets that need to be restored from a System Level Backup should be done using an offload copy of the System Level Backup. Specify N (No) to have the data sets restored using the System Level Backup on disk.

Parallel Tasks

Specify a number in the range 01-99 to indicate the maximum number of parallel tasks that can be used when restoring multiple data sets from an SLB or SLB offload.

Number of Tape units

Specify a number in the range 01-99 to indicate the maximum number of tape drives that can be used when restoring multiple data sets from an SLB offload that is on tape.

3. Press Enter, or specify END on the **Option** line to return to the **Recovery Options** panel, or specify CAN to cancel.

Setting recovery utility options

If you specify Y in the **Edit Options** field adjacent to the **Execute Recovery** field, you can customize recovery utility options.

About this task

Complete the following steps to edit recovery utility options:

Procedure

1. On the **Recovery Options** panel, specify Y in the **Edit Options** field next to **Execute Recovery**, and press Enter.
2. On the **Recovery Utility Options** panel, you can specify the following information:

```

IMS RE   V2R2 ----- Recovery Utility Options ----- 2021/05/01 14:22:4
Option   ==>
-----
Creator: *****      Name: BSYDEMO                      SSID: IDA
Share Option: U   (Upd,View,No)  Description: DOC TEST
-----
Enter the options for the recovery utility:

RECOV GENJCL member name ==> BSYDRF
Delete/Define PDS DSN    ==> IMS.DELDEF

Include indexes in recovery list ==> N

Datasets for GENJCL      ==> TSMXD.BSY.DEMO.JCLPDS
                        ==> IMSQA.BSY220.DATA.JCLPDS
                        ==>
                        ==>
                        ==>

```

Figure 88. **Recovery Utility Options** panel

RECOV GENJCL member name

Define a skeletal member name to be used for the recovery utility.

Delete/Define PDS DSN

Define the data set name of a PDS that contains IDCAMS statements in order to delete and redefine the data sets being recovered prior to running the recovery utility. The PDS should contain a member matching the DD or ADS name associated with each data set.

Include indexes in recovery list

Specify Y if you want indexes to be included in the recovery list, or specify N if you do not want indexes to be included in the recovery list.

If Y is specified, then a GENJCL.USER GENTYPE=DATASET GENPHAS=SYSIN will be made for each index. If N is specified, then these calls are not made.

For example, if you are using the IMS Database Recovery Facility for recovery, it has the ability to perform an integrated index rebuild of associated indexes. To do this, the indexes are not included in the recovery list, and instead the associated IB() control statements need to be specified to drive an index rebuild.

Datasets for GENJCL

The data set concatenation for skeleton JCL search are displayed here. This field is not updatable on this panel.

3. Press Enter, or specify END on the **Option** line to return to the **Recovery Options** panel, or specify CAN to cancel.

Setting index rebuild options

If you specify Y in the **Execute Index Rebuild** field, you can also specify Y in the **Edit Options** field to further customize Index Rebuild options.

About this task

Complete the following steps to edit index rebuild options:

Procedure

1. On the **Recovery Options** panel, specify Y in the **Edit Options** field next to **Execute Index Rebuild**, and press Enter.
2. On the **Index Rebuild Utility Options** panel, you can specify the following information:

```

IMS RE   V2R2 ----- Index Rebuild Utility Options ----- 2021/04/17 12:43:0
Option   ==>
-----
Creator: *****      Name: *****      SSID: IDA
Share Option: U (Upd,View,No)  Description: TEST
-----
Enter the options for the index rebuild utility:

FF GENJCL member name      ==> BSYIIB
Use FF for HALDB          ==> Y          (Yes/No)
HALDB GENJCL member name  ==> BSYPREC0
FP GENJCL member name     ==> BSYFPSI

Rebuild even if recoverable ==> Y          (Yes/No)
Rebuild HALDB on recover to current ==> Y      (Yes/No)

Delete/Define PDS DSN     ==> IMS.DELDEF

Datasets for GENJCL      ==> TSMXD.BSY.DEMO.JCLPDS
                        ==> IMSQA.BSY220.DATA.JCLPDS
                        ==>
                        ==>
                        ==>

Enter END command to return to the previous screen

```

Figure 89. *Index Rebuild Utility Options panel*

FF GENJCL member name

Specify the skeleton member name to be used for the index rebuild utility when rebuilding indexes associated with full function and HALDB indexes. If the **Use FF for HALDB** option is set to Y, then this member is also used for HALDB ILDS and PINDEX processing.

Use FF for HALDB

Specify Y if you want to use the FF GENJCL skeleton member for processing HALDB ILDS and PINDEX; specify N if you do not want to do this.

HALDB GENJCL member name

Specify the skeleton member name to be used for processing HALDB ILDS or PINDEX. If the **Use FF for HALDB** option is set to Y, then you must leave this field blank.

FP GENJCL member name

Specify the skeleton member name to be used for Fast Path secondary indexes. If you do not want FP secondary indexes processed, leave this field blank.

Rebuild even if recoverable

Specify whether you always want indexes rebuilt after the recovery of the target database. Specify Y to always rebuilt indexes. Specify N to rebuild indexes only if they cannot be recovered.

Rebuild HALDB on recover to current

Specify whether you want the HALDB ILDS and PINDEX rebuilt even when the partition is being recovered to current. Usually, the ILDS and PINDEX do not need to be rebuilt in this situation. Specify Y to rebuild the HALDB ILDS and PINDEX on recovery to current. Specify N to rebuild the HALDB ILDS and PINDEX only when indicated.

Delete/Define PDS DSN

Specify the name of a PDS data set that contains IDCAMS statements. These statements are used to delete and redefine the data sets being recovered before running the recovery utility.

Leave this field blank if you do not want IMS Recovery Expert to build the steps to delete and define indexes prior to a rebuild.

Datasets for GENJCL

Displays the concatenation of data sets for GENJCL member selection.

3. Press Enter, or specify END on the **Option** line to return to the **Recovery Options** panel, or specify CAN to cancel.

Setting change accumulation options

If you specify Y in the **Execute Change Accum** field, you can also specify Y in the **Edit Options** field to further customize change accumulation options.

About this task

Complete the following steps to edit index rebuild options:

Procedure

1. On the **Recovery Options** panel, specify Y in the **Edit Options** field next to **Execute Change Accum**, and press Enter.
2. On the **Change Accumulation Utility Options** panel, specify the following information:

```
IMS RE   V2R2 ----- Change Accum Utility Options ----- 2021/04/17 12:45:0
Option   ==>
-----
Creator: *****      Name: BSY.DEMO                      SSID: IDA
Share Option: U      (Upd,View,No)      Description: TEST
-----
Enter the options for the change accumulation utility:

GENJCL member name      ==> BSYHPCA
Run CA                   ==> A (Always/as Needed)

Datasets for GENJCL     ==> TSMXD.BSY.DEMO.JCLPDS
                        ==> IMSQA.BSY220.DATA.JCLPDS
                        ==> -----
                        ==> -----
                        ==> -----
```

Figure 90. **Change Accum Utility Options** panel

GENJCL member name

Specify a skeleton member name to use for Change Accumulation JCL generation.

Run CA

Specify whether or not you want to run change accumulation before database recovery. Specify A to always run change accumulation. Specify N if you want IMS Recovery Expert to run change accumulation only if it is required for recovery.

Datasets for GENJCL

Displays the concatenation of data sets for GENJCL member selection.

3. Press Enter, or specify END on the **Option** line to return to the **Recovery Options** panel, or specify CAN to cancel.

Setting post recovery image copy options

If you specify Y in the **Create Post Recovery IC** field, you can also specify Y in the **Edit Options** field to edit image copy utility options.

About this task

Complete the following steps to edit image copy utility options:

Procedure

1. On the **Recovery Options** panel, specify Y in the **Edit Options** field next to **Create Post Recovery IC**, and press Enter.
2. On the **Image Copy Utility Options** panel, specify the following information:

```

IMS RE   V2R2 ----- Image Copy Utility Options ----- 2021/04/17 12:46:1
Option   ===>
-----
Creator: TS5866      Name: FS.TEST                      SSID: IDA
Share Option: U    (Upd,View,No)  Description: TEST
-----
Enter the options for the image copy utility:

GENJCL member name    ==> BSYHPIC

Datasets for GENJCL   ==> TSMXD.BSY.DEMO.JCLPDS
                      ==> IMSQA.BSY220.DATA.JCLPDS
                      ==> -----
                      ==> -----
                      ==> -----

```

Figure 91. **Image Copy Utility Options** panel

GENJCL member name

Specify a skeleton member name to use for the post recovery IC JCL generation.

Datasets for GENJCL

Displays the concatenation of data sets for GENJCL member selection.

- Press Enter, or specify END on the **Option** line to return to the **Recovery Options** panel, or specify CAN to cancel.

Setting spawned job options

If you specify Y in the **Update Spawned Job Options** field, you will be taken to the **Spawned Job Options** panel.

By default, the names of created jobs are the associated TSO userid plus a 1 character alphanumeric suffix (A-Z or 0-9) that is incremented with each new job. The jobcard is dynamically created using internal control blocks within the IMS Recovery Expert job. Use the **Spawned Job Options** panel to override the default methods for jobname and jobcard generation.

On the **Spawned Job Options** panel, you can specify the following information:

```

IMS RE   V2R2 ----- Spawned Job Options ----- 2021/04/17 12:47:4
Option   ===>
-----
Creator: *****   Name: BSY.DEMO                      SSID: IDA
Share Option: U    (Upd,View,No)  Description: TEST
-----
Enter the options for spawned jobs:

Jobname Mask:
==> -----

Press PF1 for help on the Jobname Mask field and valid symbols.

Job Cards:
==> -----
==> -----
==> -----
==> -----

Press PF1 for help on the Job Card fields.

```

Figure 92. **Spawned Job Options** panel

Jobname Mask

Allows the user to control the jobname used for any jobs spawned during the recovery process. This field accepts the following data:

- Literal: Any string valid for a jobname from 1-8 characters in length.
- &USER: The TSO userid of the submitter. If specified, minimal validation is done on the mask.

- &SSID: The IMS subsystem or group id associated with the job. If specified, minimal validation is done on the mask.
- &#: Substitute a single characters (A-Z) in the jobname. Can only be used once in the mask.
- &%: Substitute a single character (0-9) in the jobname. Can only be used once in the mask.

Note:

- &# and &% are mutually exclusive
- All symbols must be terminated with a period (.)

Job Cards

Allows the user to specify the a jobcard used for any jobs spawned during the recovery process. If the first line, the jobname portion of the jobcard, is left blank then the jobname is created dynamically for each spawned job using either the default method or value from the **Jobname Mask** field, otherwise the jobname will take the value from this line.

Note: Limited validation is done on these fields, so for the most part the specified jobcard will be used as is.

Press PF3 when you've finished, or enter CAN on the **Option** line to cancel.

Creating job profiles

Job profiles combine the functionality of object profiles and utility profiles. Job profiles allow you to specify an Object Profile and Utility Profile. Job profiles are functionally identical to application profiles from earlier releases of IMS Recovery Expert.

About this task

Complete the following steps to create a job profile:

Procedure

1. Specify 4 on the **Application Operations Menu** panel (BSY\$APMN) and press Enter.

```

Enter Profile Selection Criteria
Profile Like *_____
Creator Like *_____
SSID Like *____

```

Figure 93. **Enter Profile Selection Criteria** panel

On the **Enter Profile Selection Criteria** panel, you can limit the profiles that are listed. Specify a profile name, profile creator name, or SSID to do so. You can use the asterisk (*) as a wildcard character for any and all fields. Press Enter when finished. The **Job Profile Display** panel will be displayed.

2. Specify C on the **Cmd** line and press Enter.

The **Job Profile Display** panel may be pre-populated by old application profiles. You must update these profiles by specifying U on the **Cmd** line to upgrade them before they are usable.

3. On the **Enter New Application Profile Data** panel specify a **Profile Name**, **Description**, and **IMS System**.

```

Enter New Application Profile Data
Creator      -----
Profile Name -----
Description  -----
IMS System   ____  (? for system list)
Share Option U (Update, View only, No access)

```

Figure 94. **Enter New Object Profile Data** panel

You may also control access to this profile using the **Share Option** field. Specify U to allow other users access to update the profile. Specify V to allow others to only view the profile. Specify N to deny any other users access to the profile.

4. Press Enter.
5. On the **Object Profile Select** panel, select an object profile by specifying S in the **Cmd** line.
6. Press Enter.
7. On the **Recovery Options Profile Select** panel, select a recovery option (utility) profile by specifying S in the **Cmd** line.
8. Press Enter. The following panel will be displayed:

```

IMS RE   V2R2 ----- Job Profile ----- 2021/04/17 12:54:4
Option  ===>

Profile Name/SSID . . . . . *****
Creator/Last Updated/Timestamp ***** TSMGM 02/02/2021 06:40:52

Description: BSY.DEMO
Share Option: U (U-Update, V-View, N-None)
-----
Line Commands: U - Update V - View
-----

Cmd  Profile Type   Name/Description           Creator
-----
OBJECT
-----
UTILITY
-----

```

Figure 95. **Job Profile** panel

On the **Job Profile** panel you can view or update the profile components that make up your job profile by specifying V or U respectively on the **Cmd** line.

Using profiles

Once your profile is created you can undertake a variety of actions with it, including:

- Building a Recovery Job
- Creating a Recovery Point
- Quiet Time Analysis
- Performing a Health Check

You can also complete several management actions on your profiles, including:

- Updating
- Viewing
- Deleting

Object Profiles and Utility profiles have a new line command **W**, which represents Where Used, that will show the user any Job Profiles that a Object or Utility Profile used for when entered on the **Cmd** line.

Using a profile to build a recovery job

Recovery jobs can be built from object profiles, utility profiles, and job profiles.

About this task

Complete the following steps to build a recovery job:

Procedure

1. Specify B in the **Cmd** line next to the object or job profile you want to build a recovery job for.
2. On the **Build Job** panel, specify the following information:

```
Build Job for TSKGE.TEST

Recovery Point          1 ( 1 Current, 2 Timestamp, 3 PIT, 4 RPID)
Recovery Timestamp

Edit Generated Job      Y          (Yes/No)
Utility Options         E          (Edit/Select)
Build Recovery JCL Only N          (Yes/No)

Build job in Dataset    BSY.TST0220.SAMPLIB
Member                  BSY#IERQ

Job Cards:
==> //OBJREST JOB TS5866,CLASS=A,NOTIFY=&SYSUID
==> //*
==> //*
==> //*
```

Figure 96. **Build Job for Profile** panel

Recovery Point

Specify 1 to recover the objects to the current point in time. Specify 2 to recover the objects to a selected timestamp. Specify 3 to recover the objects to a selected point in time. Specify 4 for a list of quiet times to recover the application.

Recovery Timestamp

If you specified 2 or 3 in the **Recovery Point** field, specify a timestamp in the **Recovery Timestamp** field.

Time timestamp can be specified in a local timestamp format (*yydddhhmmssthmiju* or *yydddhhmmsst*) or in a UTC timestamp format (*yydddhhmmsstShhmm*), where *Shhmm* is a numeric offset that, when added, gives local time. For *S*, specify a plus (+) or minus (-) sign. For *hh*, specify a numeric value between 00 and 14. For *mm*, specify a value from the set [00, 15, 30, 45] such that *Shhmm* is a value between **-1100** and **+1400**.

Edit Generated Job

Specify Y to view the job in an ISPF edit session after generation. If you specify N, you will return to the previous panel after the job is generated.

Utility Options

(Available when building from Object Profile) Specify E to edit the utility options for recovery prior to building the JCL. Specify S to select a Utility Profile to set utility options with.

Objects Option

(Available when building from Utility Profile) Specify E to edit the objects to be recovered. Specify S to select an Object Profile to designate the objects for recovery.

Edit Recovery Options

(Available when building from Job Profile) Specify Y to edit or review recovery options before building the JCL. Upon pressing Enter, the **Recovery Options** panel is displayed.

Build Recovery JCL Only

Specify Y if you want the generated job to build the JCL required to perform database recovery, but to not submit the jobs.

Build job in Dataset member

Specify the fully qualified data set name (without quotes) where you want to save the generated job. This data set must exist and can be sequential or a PDS. If the data set is a PDS, specify a member name. If the member does not exist, IMS Recovery Expert will create it.

Job Cards

Specify a valid job card for your site.

3. Press Enter to continue, or PF3 to cancel.
4. Specify the UIC timestamp (only if **Recovery Resources** is set to U).

If **Recovery Resources** is set to U on the *Recovery utility profile*, the *UIC Timestamp panel (BSY\$UICT)* is displayed. You must enter the **UIC RUN timestamp** and **UIC STOP timestamp** values, and then restore DBDS from User Image Copy prior to submitting a recovery JCL.

```
UIC Timestamp for TSKGE.TEST

U (UIC) has been set for Recovery Resource type. For this recovery
resource type, you must do the following:

(1) Input accurate timestamp for the UIC.

    UIC RUN Timestamp      23071223644000000
    UIC STOP Timestamp     23071223644500000

(2) Restore DBDS from UIC by yourself before submitting recovery JCL.

Warning: If either (1) or (2) is not done correctly, DB recovery
process may cause unpredictable result.

Press ENTER to process of PF3 to Cancel
```

Figure 97. **UIC Timestamp panel (BSY\$UICT)**

UIC RUN Timestamp

Specify the start time of User Image Copy creation. The input format is the same as **Recovery Timestamp**.

UIC STOP Timestamp

Specify the stop time of User Image Copy creation. The input format is the same as **Recovery Timestamp**.

Time timestamp can be specified in a local timestamp format (*yydddhhmmssthmiju* or *yydddhhmmsst*) or in a UTC timestamp format (*yydddhhmmsstShhmm*), where *Shhmm* is a numeric offset that, when added, gives local time. For *S*, specify a plus (+) or minus (-) sign. For *hh*, specify a numeric value between 00 and 14. For *mm*, specify a value from the set [00, 15, 30, 45] such that *Shhmm* is a value between **-1100** and **+1400**. The values for **UIC RUN Timestamp**, **UIC STOP Timestamp (BSY\$UICT)**, and **Recovery Timestamp (BSYPRCBD)** must satisfy the following condition:

```
UIC RUN Timestamp < UIC STOP Timestamp < Recovery Timestamp
```

Caution: Although you can create User Image Copy at any time, not all User Image Copies are eligible for database recovery. With the **Build Recovery JCL Only** option, you can check whether the User Image Copy is eligible prior to restoring DBDS from User Image Copy. See also [“Eligible User Image Copy”](#) on page 436.

5. Submit the JCL.

Using RPID to specify a timestamp for recovery

The RPID option allows you to retrieve all quiet times within a selected time range for an application. You can use these times for a point in time recovery.

About this task

Complete the following steps to use RPID to specify a timestamp for recovery:


```

//*
//* Desc:      This job will generate the JCL for application profile
//*           PDBISC.EMC IVPDB1 in a batch mode.
//*
//* Return Codes:
//*
//* (00) - Application Recovery Jobs built successfully
//* (12) - Problem occurred during the recovery build process
//*
/** * * * * *
//* Create temp data set to bypass enqueue failure in ISPF
/** * * * * *
//PROFILE EXEC PGM=IEFBR14
//TEMP DD DSN=&&TEMP,DISP=(NEW,PASS,DELETE),
//      UNIT=SYSALLDA,SPACE=(TRK,(1,1,5)),
//      DCB=ISP.SISPTENU
//
/** * * * * *
//* Run BSY Batch Build
/** * * * * *
//BSY@BULD EXEC PGM=IKJEFT1A,REGION=006M,COND=(4,LT)
//
//STEPLIB DD DISP=SHR,DSN=BSY.WRK0220.LOADLIB
// DD DISP=SHR,DSN=DEV RTE.EMC.SSCF580.LINKLIB
// DD DISP=SHR,DSN=RSRTE.VENDOR.FDR5467.LOAD
//Db2PARMS DD DISP=SHR,DSN=RSQA.BSY0220.CONTROL
//BSYBPROF DD DISP=SHR,DSN=RSQA.BSY0220.PROFILES
//BSYBOFFL DD DISP=SHR,DSN=RSQA.BSY0220.OFFOPTS
//BSYBPMAP DD DISP=SHR,DSN=RSQA.BSY0220.PROFILE.MAPS
//BSYBPCAT DD DISP=SHR,DSN=RSQA.BSY0220.PROFILE.CATS
//BSYSBACK DD DISP=SHR,DSN=RSQA.BSY0220.SYSBACK
//BSYSBOBJ DD DISP=SHR,DSN=RSQA.BSY0220.SYSBACK.OBJS
//BSYSBVOL DD DISP=SHR,DSN=RSQA.BSY0220.SYSBACK.VOLS
//BSYSBSSD DD DISP=SHR,DSN=RSQA.BSY0220.SYSBACK.SSIDS
//BSYPOBJS DD DISP=SHR,DSN=RSQA.BSY0220.OBJECTS
//BSYBREPT DD DISP=SHR,DSN=RSQA.BSY0220.BREPORT
//BSYARCH DD DISP=SHR,DSN=RSQA.BSY0220.ARCHIVES
//BSYPOBJS DD DISP=SHR,DSN=RSQA.BSY0220.OBJECTS
//BSY#PARM DD DSN=BSY.WRK0220.SAMPLIB(BSY#PARM),DISP=SHR
//BSYRVRPT DD SYSOUT=*
//ISPLLIB DD DISP=SHR,DSN=BSY.WRK0220.LOADLIB
//ISPPLIB DD DISP=SHR,DSN=BSY.WRK0220.ISPPLIB
//ISPTLIB DD DSN=&&TEMP,DISP=(OLD,DELETE,DELETE)
// DD DISP=SHR,DSN=ISP.SISPTENU
//ISPMLIB DD DISP=SHR,DSN=BSY.WRK0220.ISPMLIB
// DD DISP=SHR,DSN=ISP.SISPMENU
//ISPPLIB DD DISP=SHR,DSN=BSY.WRK0220.ISPPLIB
//ISPPROF DD DSN=&&PROF,DISP=(NEW,DELETE),
//      UNIT=SYSALLDA,SPACE=(TRK,(2,1,2)),
//      DCB=(RECFM=FB,LRECL=80,BLKSIZE=800)
//BSYERROR DD SYSOUT=*
//SYSTSPRT DD SYSOUT=*
//SYSOUT DD SYSOUT=*
//SYSTSIN DD *
//      PROFILE NOPREFIX
//      ISPSTART PGM(BSY@BULD)
//
//BSY#DATA DD *
//      OBJECT_RECOVERY ( -
//      IMS_SUBSYSTEM EMC -
//      USER_INDICATOR BSY -
//      PROFILE_NAME 'EMC IVPDB1' -
//      PROFILE_CREATOR PDBISC -
//      EXECUTION_LIB_1 BSY.WRK0220.LOADLIB -
//      BPROF_DSN RSQA.BSY0220.PROFILES -
//      BOFFL_DSN RSQA.BSY0220.OFFOPTS -
//      BMAP_DSN RSQA.BSY0220.PROFILE.MAPS -
//      BPCAT_DSN RSQA.BSY0220.PROFILE.CATS -
//      SBACK_DSN RSQA.BSY0220.SYSBACK -
//      SBOBJ_DSN RSQA.BSY0220.SYSBACK.OBJS -
//      SBVOL_DSN RSQA.BSY0220.SYSBACK.VOLS -
//      SBSSD_DSN RSQA.BSY0220.SYSBACK.SSIDS -
//      BREPT_DSN RSQA.BSY0220.BREPORT -
//      POBJS_DSN RSQA.BSY0220.OBJECTS -
//      ARCH_DSN RSQA.BSY0220.ARCHIVES -
//      PARML_DSN BSY.WRK0220.SAMPLIB -
//      PARML_MEMBER BSY#PARM -
//      Db2CNTL_DSN RSQA.BSY0220.CONTROL -
//      EMCLOAD1 DEV RTE.EMC.SSCF580.LINKLIB -
//      FDRLOAD1 RSRTE.VENDOR.FDR5467.LOAD -

```

```
//*
```

```
)
```

DD statement considerations

You can manually add the following DD statements to the recovery job that is generated by IMS Recovery Expert:

BSYJCLO

If you add this DD statement to the recovery job, IMS Recovery Expert will output any JCL that is generated to run the underlying recovery process. These processes include a recovery utility to restore image copies and apply logs, an index rebuild utility, a change accumulation utility, and a post-recovery image copy and point checker utility. If this DD statement is specified, it must point to a data set with LRECL=80, and RECFM=F or RECFM=FB.

JCLONLY DD DUMMY

If you add this DD statement to the recovery job, IMS Recovery Expert will only provide the recovery analysis report (BSYRVRPT), and generate the JCL for the underlying recovery utilities into BSYJCLO. No underlying recovery process will be run. If this DD statement is specified, BSYJCLO must also be specified.

Note: If you specify the BSYJCLO and JCLONLY DD statements indicating that you only want the JCL generated and do not want any recovery actions to be taken, then the job might fail, especially if the job is processing FP DEDBs because the DBs are not DBRd, nor are any DBRC commands executed to put the DBs in a recoverable state. In this situation, GENJCL commands might also fail.

Recovery output example

IMS Recovery Expert produces several different reports when objects are restored.

These reports are output to the DD statements of each job. IMS Recovery Expert DD statements are prefaced with BSY. Other DD statements might be displayed in the job output. These non-BSY DD statements, such as SYS* or UT*, might be generated by IMS utilities IDCAMS or TSO. The following figures show examples of these reports:

BSYERROR DD statement

The BSYERROR DD statement of the job contains information about the profiles for which the recovery is being performed, control cards, and IMS Recovery Expert messages. The following figure shows an example of the BSYERROR DD statement:

```

15:08:21 BSY0001I - IMS Recovery Expert Starting. Version 02.02.00115:08:21 BSY0004I
15:08:21 BSY0004I - Control card stream processed by BSY
15:08:21 BSY0004I - OBJECT_RECOVERY
15:08:21 BSY0004I - (
15:08:21 BSY0004I - IMS_SUBSYSTEM
15:08:21 BSY0004I - EMC
15:08:21 BSY0004I - USER_INDICATOR
15:08:21 BSY0004I - BSY
15:08:21 BSY0004I - PROFILE_NAME
15:08:21 BSY0004I - 'EMC IVPDB1'
15:08:21 BSY0004I - PROFILE_CREATOR
15:08:21 BSY0004I - PDBISC
15:08:21 BSY0004I - EXECUTION_LIB_1
15:08:21 BSY0004I - BSY.WRK0220.LOADLIB
15:08:21 BSY0004I - BPROF_DSN
15:08:21 BSY0004I - RSQA.BSY0220.PROFILES
15:08:21 BSY0004I - BOFFL_DSN
15:08:21 BSY0004I - RSQA.BSY0220.OFFOPTS
15:08:21 BSY0004I - BPMAP_DSN
15:08:21 BSY0004I - RSQA.BSY0220.PROFILE.MAPS
15:08:21 BSY0004I - BPCAT_DSN
15:08:21 BSY0004I - RSQA.BSY0220.PROFILE.CATS
15:08:21 BSY0004I - SBACK_DSN
15:08:21 BSY0004I - RSQA.BSY0220.SYSBACK
15:08:21 BSY0004I - SBOBJ_DSN
15:08:21 BSY0004I - RSQA.BSY0220.SYSBACK.OBJS
15:08:21 BSY0004I - SBVOL_DSN 15:08:21 BSY0004I - RSQA.BSY0220.SYSBACK.VOLS
15:08:21 BSY0004I - SBSSD_DSN
15:08:21 BSY0004I - RSQA.BSY0220.SYSBACK.SSIDS
15:08:21 BSY0004I - BREPT_DSN
15:08:21 BSY0004I - RSQA.BSY0220.BREPORT
15:08:21 BSY0004I - POBJS_DSN
15:08:21 BSY0004I - RSQA.BSY0220.OBJECTS
15:08:21 BSY0004I - ARCH_DSN
15:08:21 BSY0004I - RSQA.BSY0220.ARCHIVES
15:08:21 BSY0004I - PARML_DSN
15:08:21 BSY0004I - BSY.WRK00220.SAMPLIB
15:08:21 BSY0004I - PARML_MEMBER
15:08:21 BSY0004I - BSY#PARM

15:08:21 BSY0004I - Db2CNTL_DSN
15:08:21 BSY0004I - RSQA.BSY0220.CONTROL
15:08:21 BSY0004I - EMCLOAD1
15:08:21 BSY0004I - DEVRTE.EMC.SSCF580.LINKLIB
15:08:21 BSY0004I - FDRLOAD1
15:08:21 BSY0004I - RSRTE.VENDOR.FDR5467.LOAD
15:08:21 BSY0004I - )
15:08:21 BSY0004I -
15:08:27 BSY0004I - BSY#VOBJ - Validating recovery
15:08:27 BSY0004I - Object validation completed successfully
15:08:27 BSY0004I - Generating recovery report into BSYRVRPT
15:08:27 BSY0004I - Recovery report created successfully
15:08:27 BSY0004I - BSY#GRCV - Generating Recovery jobs
15:08:28 BSY0004I - Building JCL to perform IMS Recovery Expert commands
15:08:28 BSY0004I - No data sets will be restored from SLB
15:08:28 BSY0004I - Submitting job
15:08:34 BSY0004I - JOB PDBISCA (J0784325)Spawned to z/OS Image RS25 completed
with a RC 0000
15:08:34 BSY0004I - Job PDBISCA completed successfully
15:08:34 BSY0004I - Building JCL to perform IMS recoveries
15:08:38 BSY0004I - Recovery job generation completed successfully
15:08:39 BSY0004I - Building JCL to perform Image Copies
15:08:43 BSY0004I - Image copy job generation completed successfully
15:08:43 BSY0004I - Building JCL to perform /STA commands
15:08:43 BSY0004I - Submitting job
15:08:50 BSY0004I - (BSYI421I)- JOB PDBISCB (J0784326)Spawned to
z/OS Image RS25 completed with a RC 0000
15:08:50 BSY0004I - Job PDBISCB completed successfully

```

Note: The BSYERROR output lists the jobs that were built by IMS Recovery Expert to perform steps in the recovery. The BSYERROR output list provides jobname, job number, the system where the job was created, and the resulting condition or abend code.

The created jobs will also have additional output related to the recovery tasks that are performed. In addition, these created jobs might also invoke recovery utilities such as DRF, that will also create auxiliary address spaces.

BSYRVRPT DD statement

The BSYRVRPT DD statement includes recovery options specified in the profile, information about the IMS environment where the recoveries will occur, and information about how each object will be recovered. The following figure is an example of the recovery report generated by IMS Recovery Expert:

```

IBM IMS Recovery Expert for z/OS Recovery Report

Execution Date/Time: 2021.135 08:52:09
z/OS System Name   : RSI1      Userid: TSMXDA
Recovery Timestamp : Current

Application Recovery Information:
Profile Name      :
Description      :
Creator ID       :

DBRC Information :
DBRC Release     : V14.R1
DBRC RECON1 DSN : IMS.IER1.RECON1
DBRC RECON2 DSN : IMS.IER1.RECON2
DBRC RECON3 DSN : IMS.IER1.RECON3

Recovery Utility Information :
GENJCL JCLPDS Datasets: TSMXD.BSY.DEMO.JCLPDS
GENJCL JCLPDS Datasets: IMSQA.BSY220.DATA.DEFAULTS
GENJCL JCLPDS Datasets: IMSQA.BSY220.DATA.JCLPDS
GENJCL Defaults Member: IERQ

Recovery Resources Used      : All
Execute Recovery             : YES  GENJCL Member : DEMODRF   IncIX
Execute Rebuild - FF        : NO   GENJCL Member : N/A
Execute Rebuild - FP        : NO   GENJCL Member : N/A
Execute Rebuild - HALDB     : NO   GENJCL Member : N/A
Execute Change Accum        : NO   GENJCL Member : N/A
Create Post Recovery IC     : NO   GENJCL Member : N/A

Database Information :
Database Name   : F101PM   DSG : F101PM1   Type: DL/I
Dataset Name    : IMSQA.IRP.IER1.F101PM.F101PM1
Recoverable     : YES
Chg Accum Gp    : F101MXD1
No Change Accumulation is needed
Recovery will be attempted using the DB Recovery Utility
I/C Type       : STD      I/C Start Time (UTC) : 2021.115 185246534
I/C COPY 1 DSN: IMSQA.IRP.IER1.F101PM.F101PM1.IC1
+++++

Database Name   : F101XM   DSG : F101XM1   Type: Primary Index
Dataset Name    : IMSQA.IRP.IER1.F101XM.F101XM1
Recoverable     : YES
Chg Accum Gp    : N/A
Primary DBD     : F101PM
**** Recovery utility must rebuild this index ****
+++++

```

Using a profile to create Recovery Point

You can build a job that will create a consistent recovery point for all databases in an object profile or job profile.

About this task

Complete the following steps to create a recovery point:

Procedure

1. Specify P in the **Cmd** line next to the object or job profile you want to create a recovery point for.
2. Specify the following information on the **Build Create Recovery Point Job** panel:

```
Build Create Recovery Point Job for BSY.DEMO

Edit Generated Job      Y          (Yes/No)

Build job in Dataset    BSY.TST0220.SAMPLIB
Member                 BSY#IERQ

Job Cards:
==> //OBJREST JOB TS5866,CLASS=A,NOTIFY=&SYSUID
==> //*-----
==> //*-----
==> //*-----

Press ENTER to process or PF3 to Cancel
```

Figure 99. **Build Create Recovery Point Job for Profile** panel

Edit Generated Job

Specify Y to view the job in an ISPF edit session after generation. If you specify N, you will return to the previous panel after the job is generated.

Build job in Dataset member

Specify the fully qualified data set name (without quotes) where you want to save the generated job. This data set must exist and can be sequential or a PDS. If the data set is a PDS, specify a member name. If the member does not exist, IMS Recovery Expert will create it.

Job Cards

Specify a valid job card for your site.

3. Press Enter to continue, or PF3 to cancel.
4. Submit the JCL.

Using a profile for Quiet Time Analysis

Quiet time analysis can be run on an object profile or job profile.

About this task

Complete the following steps to build a quiet time analysis job:

Procedure

1. Specify Q in the **Cmd** line next to the object or job profile you want to run quiet time analysis on.
2. On the **Quiet Time Analysis Parameters** panel, specify the following information:

```

IMS RE V2R2 ----- Quiet Time Analysis Parameters ----- 2021/04/17 13:12:02
Command ==>
-----
Creator: TEST      Name: BSYDEMO                                     SSID: IDA
-----
Log Range Type          ==> P (Preceding/Timestamp)
Preceding Options:
  Preceding Type        ==> H (Hours/Minutes)
  Preceding Value       ==> 01 (00-99)
Timestamp Options:
  Beginning Timestamp    ==> - - - : :
  End Timestamp          ==> - - - : :
DBRC Only               ==> N (Yes/No)
Minimum Quiet Time      ==> 00 : 00 : 05 (hh:mm:ss)

```

Figure 100. **Quiet Time Analysis Parameters** panel

Log Range Type

Specify a time range within which the search for an object's quiet time will occur.

Specify P (Preceding) to indicate that a specific time span preceding the current time will be used to specify where to begin and where to stop reading the log to find a quiet time. If you select this option, you must specify the time span details in **Preceding Type** and **Preceding Value** fields. By default, the time range is set to P by 1 hour using the local client time.

Specify T (Timestamp) to indicate that specific time values will be used to specify where to begin and where to stop reading the log to find a quiet time. If you select this option, you must specify the start and end time in the **Beginning Timestamp** and **End Timestamp** fields.

Preceding Type

Specify whether the preceding time is in hours (H) or in minutes (M).

Preceding Value

Specify the number of hours or minutes, as specified in the **Preceding Type** field. Valid values are 0-99.

Beginning Timestamp

Specify the beginning time for the range. Specify timestamp values in the following format: YYYY - MM - DD - HH - MM - SS.

End Timestamp

Specify the end time for the range. Specify timestamp values in the following format: YYYY - MM - DD - HH - MM - SS.

DBRC Only

Specify y if you want times that the databases were not allocated. Specify N if you want the archive logs read to determine a time where no updates occurred for the databases.

Minimum Quiet Time

Specify a time value that represents the minimum duration of quiet time for an object to be included in the output. The default value is 00 : 00 : 05 (5 seconds).

3. When you are finished, press Enter.
4. On the **Build Job** panel, specify the following information:


```

Build Job for BSYDEMO.TEST

Edit Generated Job      Y          (Yes/No)

Build job in Dataset   BSY.TST0220.SAMPLIB
Member                 BSY#IERQ

Job Cards:
==> //QUIETIME JOB TS5866,CLASS=A,NOTIFY=&SYSUID
==> //*-----
==> //*-----
==> //*-----

Press ENTER to process or PF3 to Cancel

```

Figure 101. **Build Job** for Profile panel

Edit Generated Job

Specify Y to view the job in an ISPF edit session after generation. If you specify N, you will return to the previous panel after the job is generated.

Build job in Dataset member

Specify the fully qualified data set name (without quotes) where you want to save the generated job. This data set must exist and can be sequential or a PDS. If the data set is a PDS, specify a member name. If the member does not exist, IMS Recovery Expert will create it.

Job Cards

Specify a valid job card for your site.

5. Press Enter to continue, or PF3 to cancel.
6. Submit the JCL.

Using a profile to perform a health check

You can run a Database Recovery Facility Extended Functions health check on an object profile or job profile.

About this task

Complete the following steps to build a health check job:

Procedure

1. Specify H in the **Cmd** line next to the object or job profile you want to run a health check on.
2. On the **Build Health Check Job** panel, specify the following information:

```

Build Health Check Job

Edit Generated Job      Y          (Yes/No)
Edit Health Check Options N       (Yes/No)

Build job in Dataset   BSY.TST0220.SAMPLIB
Member                 BSY#IERQ

Job Cards:
==> //IMGCOPY JOB TS5866,CLASS=A,NOTIFY=&SYSUID
==> //*
==> //*
==> //*

```

Figure 102. **Build Health Check Job** panel

Edit Generated Job

Specify Y to view the job in an ISPF edit session after generation. If you specify N, you will return to the previous panel after the job is generated.

Edit Health Check Options

Specify Y to view and update the existing health check options that will be used for this job execution. If you specify N, the default or previously-used options will be used.

Build job in Dataset member

Specify the fully qualified data set name (without quotes) where you want to save the generated job. This data set must exist and can be sequential or a PDS. If the data set is a PDS, specify a member name. If the member does not exist, IMS Recovery Expert will create it.

Job Cards

Specify a valid job card for your site.

3. Press Enter to continue, or PF3 to cancel.
4. Submit the JCL.

Managing a profile

Object, Utility, and Job profiles allow you to complete several common functions that may be performed from any perspective.

Updating a profile

You can update a profile at any time. Complete the following steps to update a profile:

1. Specify U on the **Cmd** line next to the profile you want to update, and press Enter.
2. Make changes to the profile.
3. Press PF3 to save your changes. To cancel and exit without saving changes, specify CAN on the **Option** line and press Enter.

Viewing a profile

You can view a profile created by you at any time, or a profile created by another user if the profile was created with the **Share** option set to View or Update. Complete the following steps to view a profile:

To view a profile, specify V on the **Cmd** line next to the profile you want to view, and press Enter.

When viewing an Object Profile, you may use the **EXPLODE** command to generate a list of all databases and indexes that meet the profile specifications and that are to be included when a job is built.

For more information, see [“The EXPLODE command” on page 193](#).

Deleting a profile

You can delete a profile create by you at any time, or a profile created by another user if the profile was created with the **Share** option set to Update.

Note: You cannot delete an Object Profile or Utility Profile which is referenced by a Job Profile without first deleting that Job Profile.

Complete the following steps to delete a profile:

1. Specify D in the **Cmd** line next to the profile you want to delete, and press Enter.
2. On the **Confirm Deletion** panel, specify Y in the delete field and press Enter, or press PF3 to cancel.

If you specify Y, a message will be displayed to confirm deletion.

Managing application recovery checkpoint restart

IMS Recovery Expert provides the capability to perform checkpoint restart of failed application recovery jobs. This is an optional feature that must be activated by allocating the BSYCHKPT repository and updating the BSYV220 clist to specify the data set in the RBRCHKPT variable.

For more information about this, see step “3” on page 33. If this repository is set up, when the application recovery JCL is created, the BSYCHKPT DD statement is included in the job, and that activates checkpoint restart. No additional tasks are required to activate this feature. When the application recovery job executes for the first time, information is recorded in this repository that can be used for subsequent executions if there are any errors.

If the application recovery job completes successfully, the information in the BSYCHKPT repository is deleted. If the same application recovery job is executed again, then it will attempt to perform the entire recovery process again. If any errors occur while performing any of the steps or jobs required to complete the application recovery for any databases, then the information remains unchanged in the repository. If the job is resubmitted, then IMS Recovery Expert will use the information in the BSYCHKPT repository as well as information in the RECON data sets to determine what processes failed on the prior execution and need to be rerun. After all processes complete for all databases, the information in the repository is deleted.

Note: If a failure occurs in an application recovery job and checkpoint restart is active, when the job is resubmitted, the execution environment is verified to ensure that changes were not made. You cannot change the type of recovery being performed with checkpoint restart.

The EXPLODE command

You can use the **EXPLODE** command on the **Update Object Profile Display** panel to generate a list of all databases and indexes that meet the profile specifications and that are to be included when a job is built.

The **EXPLODE** command offers an easy way to see the list of databases and indexes using wildcard characters, include/exclude logical relationships, and index processing specifications.

For example, if you use wildcard characters to include databases or indexes, the **EXPLODE** command lists all items that match the specified wildcard character. If databases or indexes were excluded in the profile, these objects are not displayed in the list. Also, if indexes or logically-related databases associated with a databases or databases were to be processes, each index or logically-related database is listed. If any DBRC groups are included in the object profile, the **EXPLODE** command lists all indexes and databases that are part of the DBRC group.

Note: Indexes and databases that are defined in a DBRC group included in the profile cannot be excluded. To exclude these from recovery, you must remove them from the DBRC group.

When viewing the **EXPLODE** list, you can select one or more databases or indexes to include or exclude from the profile using **X** and **I** on the **Cmd** line, respectively.

Note: The **EXPLODE** command does not work for databases or indexes that were originally included or excluded from the object profile with EXC specified in the **Include/Exclude** column.

There are two methods to implement the **EXPLODE** command:

EXPLODE as a line command

When you specify **E** in the **Cmd** line next to a databases, index, or group, all items that meet the wildcard character index processing selections are listed on the **Explode Profile Display** panel.

On the **Explode Profile Display** panel, specify **I** or **X** in the **Cmd** line next to an object to include or exclude that object, respectively.

When you return to the **Update Object Profile Display** panel, any databases you included or excluded are listed individually with the value INCL or EXCL in the **Include/Exclude** column, respectively.

EXPLODE as a primary option

When you specify **EXPLODE** on the **Option** line, all items in the object profile are listed individually. When the list is displayed you can use the **I** or **X** line commands in the **Cmd** line next to an object to include or exclude that object, respectively.

On-demand operations

On-demand operations allow you to build recovery jobs, create recovery points, perform quiet time analysis, and perform a health check dynamically, without needing a pre-defined profile to work from.

Specify 1 on the **Application Operations Menu** panel to access on-demand operations.

```
IMS RE   V2R2   ----- On-Demand Operations Menu -----  
Option  ==>  
  
2021/04/17 13:21:45  
User: TS5866 - BSY  
  
-----  
1. Build Recovery Job  
2. Build Create Recovery Point Job  
3. Build Quiet Time Analysis Job  
4. Build Health Check Job
```

Figure 103. *On-Demand Operations Menu* panel

On the **On-Demand Operations Menu** panel, you may take the following actions:

- Build Recovery Job
- Build Create Recovery Point Job
- Build Quiet Time Analysis Job
- Build Health Check Job

When an option is selected from the menu, the user is lead through the panels to dynamically create the input needed for the function. A list of objects is required for every function, but Recovery Options are required only when building recovery JCL.

For any of these functions, the first panel after selection prompts SSID selection. Specify the requested SSID and press Enter.

Building a recovery job

The On-demand Recovery job allows the user to dynamically create a recovery job without relying on pre-defined Object, Utility, or Job Profiles.

About this task

Complete the following steps to build an on-demand recovery job:

Procedure

1. Specify 1 on the **On-Demand Operations Menu** panel.
2. Specify an SSID on the **Enter SSID for On-Demand Processing** panel.
3. On the **Build Job for On-Demand Recovery** panel, specify the following information:

```

Build Job for On-Demand Recovery

Recovery Point      1 ( 1 Current, 2 Timestamp, 3 PIT, 4 RPID)
Recovery Timestamp

Edit Generated Job   Y          (Yes/No)
Build Recovery JCL Only N       (Yes/No)

Build job in Dataset BSY.TST0220.SAMPLIB
Member              BSY#IERQ

Job Cards:
==> //OBJREST JOB TS5866,CLASS=A,NOTIFY=&SYSUID
==> // *
==> // *
==> // *

Press ENTER to process or PF3 to Cancel

```

Figure 104. **Build Job for On-Demand Recovery** panel

Recovery Point

Specify 1 to recover the objects to the current point in time. Specify 2 to recover the objects to a selected timestamp. Specify 3 to recover the objects to a selected point in time. Specify 4 for a list of quiet times to recover the application.

Recovery Timestamp

If you specified 2 or 3 in the **Recovery Point** field, specify a timestamp in the **Recovery Timestamp** field.

Time timestamp can be specified in a local timestamp format (*yyddhhmmssthmiju* or *yyddhhmmsst*) or in a UTC timestamp format (*yyddhhmmsstShhmm*), where *Shhmm* is a numeric offset that, when added, gives local time. For *S*, specify a plus (+) or minus (-) sign. For *hh*, specify a numeric value between 00 and 14. For *mm*, specify a value from the set [00, 15, 30, 45] such that *Shhmm* is a value between **-1100** and **+1400**.

Edit Generated Job

Specify Y to view the job in an ISPF edit session after generation. If you specify N, you will return to the previous panel after the job is generated.

Build Recovery JCL Only

Specify Y if you want the generated job to build the JCL required to perform database recovery, but to not submit the jobs.

Build job in Dataset member

Specify the fully qualified data set name (without quotes) where you want to save the generated job. This data set must exist and can be sequential or a PDS. If the data set is a PDS, specify a member name. If the member does not exist, IMS Recovery Expert will create it.

Job Cards

Specify a valid job card for your site.

4. Press Enter, or PF3 to cancel.
5. On the **Add Objects** panel, specify whether you want to **Add Databases**, **Add Indexes**, or **Add Groups** by specifying Y in all the fields that apply.

```

Add Objects

Add Databases      N   (Yes/No)
Add Indexes       N   (Yes/No)
Add Groups        N   (Yes/No)

Press ENTER to process or PF3 to Cancel

```

Figure 105. **Add Objects** panel

6. In the **Enter Databases/Indexes/Groups Like to Display** panel, specify the following information:

- Specify a filter in the **Database Like** field to filter search results.
- Specify Y in the **Wildcard** field to automatically add all objects that meet your criteria into the profile. An object list will not be presented. When the profile is used, IMS Recovery Expert dynamically expands the added name.
- Specify I to include databases you select in the subsequent panel, or specify E to exclude them.
- Specify Y in the **Process Dependent Indexes** field to dynamically include indexes that are dependent on the selected databases.
- Specify Y in the **Process Logical Relations** field to dynamically include databases that are logically related to the selected databases.

Note: The options you are given will depend upon your selection on the **Add Objects** panel.

7. Press Enter.
8. If you specified to **Add Databases**, from the **Include Database Selection** panel, enter S in the **Cmd** line next to databases you would like to include or exclude, depending on what was specified on the **Enter Databases Like to Display** panel, and press Enter to confirm. Press PF3 when you've finished selecting databases.
9. If you specified to **Add Indexes**, from the **Include Database Selection** panel, enter S in the **Cmd** line next to the indexes you would like to include or exclude, depending on what was specified on the **Enter Indexes Like to Display** panel, and press Enter to confirm. Press PF3 when you've finished selecting indexes.
10. If you specified to **Add Groups**, from the **Include Database Selection** panel, enter S in the **Cmd** line next to the groups you would like to include to exclude, depending on what was specified in the **Enter Groups Like to Display** panel, and press Enter to confirm. Press PF3 when you've finished selecting groups.
11. Press Enter and then PF3 to return to the **Update Object Profile Display** panel. The selected databases will be listed in the order that they were added to the object profile.
From this panel, users can **EXPLODE** the list of objects to include or exclude, or Add and delete objects.
12. Once finished, press PF3 to display the **Recovery Options** panel. Specify the following information on the **Recovery Options** panel:

```

IMS RE   V2R2 ----- Recovery Options ----- Top of data
Option  ==>

-----
Creator: *****      Name: *****      SSID: IDA
Share Option: U (Upd,View,No)      Description: *****
-----
Enter the Recovery options:

Recovery Resources          ==> A (All/Slb/Ic)  Edit Options  N (Yes/No)
Execute Recovery            ==> Y (Yes)          Edit Options  N (Yes/No)
Execute Index Rebuild       ==> N (Yes/No)      Edit Options  N (Yes/No)
Execute Change Accum        ==> N (Yes/No)      Edit Options  N (Yes/No)
Create Post Recovery IC     ==> N (Yes/No)      Edit Options  N (Yes/No)

Update Spawned Job Options  ==> N (Yes/No)

Action on Warnings          ==> C (Continue/Wtor/Abort)
GENJCL Defaults Member      ==> IERQ

Datasets for GENJCL        ==> -----
                           ==> -----
                           ==> -----
                           ==> -----
                           ==> -----

```

Figure 106. **Recovery Options** panel

Recovery Resources

Specify which recovery resources to consider for recovery. Specify A for all resources (System Level Backups and image copies), S for System Level Backups only, or I for image copies only.

Specify Y in the **Edit Options** field to specify SLB-only parameters for recovery. For more information, see [“Setting SLB parameters” on page 174](#).

Execute Recovery

The only valid value for this field is Y.

Execute Index Rebuild

Specify Y (Yes) or N (No) to indicate whether you want to perform index rebuild.

Specify Y in the **Edit Options** field to specify index rebuild options. For more information, see [“Setting index rebuild options” on page 176](#).

Execute Change Accum

Specify Y (Yes) or N (No) to indicate whether you want to execute change accumulation prior to executing the recovery utility.

Specify Y in the **Edit Options** field to specify change accumulation options. For more information, see [“Setting change accumulation options” on page 178](#).

Create Post Recovery IC

Specify Y (Yes) or N (No) to indicate whether you want to create image copies for recovered databases.

Specify Y in the **Edit Options** field to specify Post Recovery Image Copy options. For more information, see [“Setting post recovery image copy options” on page 178](#).

Update Spawned Job Options

Specify Y (Yes) to specify Spawned Job options or N (No) to use the default method for generating the jobcard and/or jobname. For more information, see [“Setting spawned job options” on page 179](#).

Action on Warnings

Specify how you want to process warnings that are issued during recovery. Specify C to continue, W to issue a WTOR, or A to abort.

GENJCL defaults member

Specify a member to be used as the GENJCL defaults when GENJCL is executed. If specified, this member will be included in the DATASETS() keyword.

Datasets for GENJCL

Specify up to 5 data sets for GENJCL skeletons. The data sets are concatenated in the specified order.

13. Once finished, press PF3 to display the JCL that can be submitted to perform recovery.

The created JCL has two new DD statements that are needed for On-Demand processing, since there is no Object or Utility Profile being used.

- The BSY#OBJS DD statement includes a definition for each object being processed.
- The BSY#RECO DD statement includes parameters which define the set of recovery options to be used.

DD statement considerations

The JCL that is created after building a recovery job has two new DD statements that are needed for on-demand operations since there is no Object, Utility, or Job profile associated with the function:

BSY#OBJS

(This DD statement is also created after building a Create Recovery Point job) This DD statement includes a definition for each object being processed. In doing so it identifies which objects are to be recovered.

The following is a sample BSY#OBJS DD statement:

```
000159 //BSY#OBJS DD *
000160     OBJECTS_DEF      (
000161     TYPE                DB
```

```

000162 WILDCARD N
000163 INCLUDE_INDEX Y
000164 INCLUDE_LOGICAL Y
000165 INCLUDE_OR_EXCLUDE INC
000166 GROUP_OR_DB_NAME D2V1PM
000167 )
000168 OBJECT_DEF (
000169 TYPE DB
000170 WILDCARD N
000171 INCLUDE_INDEX Y
000172 INCLUDE_LOGICAL Y
000173 INCLUDE_OR_EXCLUDE INC
000174 GROUP_OR_DB_NAME D2V2PM
000175 )
000176 OBJECT_DEF (
000177 TYPE DB
000178 WILDCARD N

```

BSY#RECO

This DD statement includes parameters which define the set of recovery options to be used.

The following is a sample BSY#RECO DD statement:

```

000131 //BSY#RECO DD *
000132 RECOVERY_OPTIONS (
000133 RECOV_RESOURCES A
000134 SLB_OPTION N
000135 SLB_FROM_OFFLOAD N
000136 SLB_PARALLEL_TASKS 04
000137 SLB_NUM_TAPE_UNITS 02
000138 EXECUTE_RECOV Y
000139 RECOV_GENJCL_MBR DEMODRF
000140 RECOV_INCL_IX N
000141 EXECUTE_IX N
000142 IDCAMS_DELDEF_PDS ims.deldef
000143 IX_FF_GENJCL_MBR BSYIIB
000144 IX_HB_GENJCL_MBR BSYPRECO
000145 IX_FP_GENJCL_MBR BSYFPSI
000146 IX_USE_FF_FOR_HB Y
000147 IX_RBLD_IF_RECOV Y
000148 IX_RBLD_HB_RTC Y
000149 EXECUTE_CA N
000150 CA_GENJCL_MBR BSYHPCA

```

Creating a Recovery Point job

The On-demand Create Recovery Point job allows the user to dynamically create a recovery point without relying on pre-defined Object, Utility, or Job Profiles.

About this task

Complete the following steps to create a Recovery Point job:

Procedure

1. Specify 2 on the **On-Demand Operations Menu** panel.
2. Specify an SSID on the Enter SSID for **On-Demand Processing** panel.
3. On the **Add Objects** panel, specify whether you want to **Add Databases**, **Add Indexes**, or **Add Groups** by specifying Y in all the fields that apply.


```

                                Add Objects
Add Databases                N    (Yes/No)
Add Indexes                  N    (Yes/No)
Add Groups                   N    (Yes/No)
Press ENTER to process or PF3 to Cancel

```

Figure 107. **Add Objects** panel

4. In the **Enter Databases/Indexes/Groups Like to Display** panel, specify the following information depending on what is available:
 - Specify a filter in the **Database Like** field to filter search results.
 - Specify Y in the **Wildcard** field to automatically add all objects that meet your criteria into the profile. An object list will not be presented. When the profile is used, IMS Recovery Expert dynamically expands the added name.
 - Specify I to include databases you select in the subsequent panel, or specify E to exclude them.
 - Specify Y in the **Process Dependent Indexes** field to dynamically include indexes that are dependent on the selected databases.
 - Specify Y in the **Process Logical Relations** field to dynamically include databases that are logically related to the selected databases.

Note: The options you are given will depend upon your selection on the **Add Objects** panel.

5. If you specified to **Add Databases**, from the **Include Database Selection** panel, enter S in the **Cmd** line next to databases you would like to include or exclude, depending on what was specified on the **Enter Databases Like to Display** panel, and press Enter to confirm. Press PF3 when you've finished selecting databases.
6. If you specified to **Add Indexes**, from the **Include Database Selection** panel, enter S in the **Cmd** line next to the indexes you would like to include or exclude, depending on what was specified on the **Enter Indexes Like to Display** panel, and press Enter to confirm. Press PF3 when you've finished selecting indexes.
7. If you specified to **Add Groups**, from the **Include Database Selection** panel, enter S in the **Cmd** line next to the groups you would like to include to exclude, depending on what was specified in the **Enter Groups Like to Display** panel, and press Enter to confirm. Press PF3 when you've finished selecting groups.
8. On the **Object Profile** panel, use **EXPLODE** to include or exclude objects as needed, or use the **Cmd** line to add or delete objects as needed. Press PF3 when you are satisfied with the list.
9. On the **Build Create Recovery Point Job for \$MLC\$OND.\$ON-DEMAND OBJECT LIST** panel, specify the following information:

```

Build Create Recovery Point Job for $MLC$OND.$ON-DEMAND OBJECT LIST
Edit Generated Job      Y          (Yes/No)
Build job in Dataset    BSY.TST0220.SAMPLIB
Member                 BSY#IERQ

Job Cards:
==> //OBJREST JOB TS5866,CLASS=A,NOTIFY=&SYSUID
==> //*-----
==> //*-----
==> //*-----
Press ENTER to process or PF3 to Cancel

```

Figure 108. **Build Create Recovery Point Job for \$MLC\$OND.\$ON-DEMAND OBJECT LIST** panel

Edit Generated Job

Specify Y to view the job in an ISPF edit session after generation. If you specify N, you will return to the previous panel after the job is generated.

Build job in Dataset member

Specify the fully qualified data set name (without quotes) where you want to save the generated job. This data set must exist and can be sequential or a PDS. If the data set is a PDS, specify a member name. If the member does not exist, IMS Recovery Expert will create it.

Job Cards

Specify a valid job card for your site.

10. Press Enter to generate the Create Recovery Point JCL, or PF3 to cancel.

Results

The generated JCL contains the new BSY#OBJS member. For more information, see [“DD statement considerations”](#) on page 197.

Building a Quiet Time Analysis job

The On-demand Quiet Time Analysis job allows the user to dynamically perform quiet time analysis without relying on pre-defined Object, Utility, or Job Profiles.

About this task

Complete the following steps to build a Quiet Time Analysis job:

Procedure

1. Specify 3 on the **On-Demand Operations Menu** panel.
2. Specify an SSID on the **Enter SSID for On-Demand Processing** panel.
3. On the Quiet Time Analysis Parameters, specify the following information:

```
IMS RE  V2R2  ----- Quiet Time Analysis Parameters ----- 2021/04/17 13:12:02
Command ==>
-----
Creator: TEST      Name: BSYDEMO                                     SSID: IDA
-----

Log Range Type           ==> P  (Preceding/Timestamp)

Preceding Options:
  Preceding Type         ==> H  (Hours/Minutes)
  Preceding Value        ==> 01 (00-99)

Timestamp Options:
  Beginning Timestamp    ==>   -  -  -  :  :
  End Timestamp          ==>   -  -  -  :  :

DBRC Only                ==> N  (Yes/No)
Minimum Quiet Time       ==> 00 : 00 : 05 (hh:mm:ss)
```

Figure 109. **Quiet Time Analysis Parameters** panel

Log Range Type

Specify a time range within which the search for an object's quiet time will occur.

Specify P (Preceding) to indicate that a specific time span preceding the current time will be used to specify where to begin and where to stop reading the log to find a quiet time. If you select this option, you must specify the time span details in **Preceding Type** and **Preceding Value** fields. By default, the time range is set to P by 1 hour using the local client time.

Specify T (Timestamp) to indicate that specific time values will be used to specify where to begin and where to stop reading the log to find a quiet time. If you select this option, you must specify the start and end time in the **Beginning Timestamp** and **End Timestamp** fields.

Preceding Type

Specify whether the preceding time is in hours (H) or in minutes (M).

Preceding Value

Specify the number of hours or minutes, as specified in the **Preceding Type** field. Valid values are 0-99.

Beginning Timestamp

Specify the beginning time for the range. Specify timestamp values in the following format: YYYY - MM - DD - HH - MM - SS.

End Timestamp

Specify the end time for the range. Specify timestamp values in the following format: YYYY - MM - DD - HH - MM - SS.

DBRC Only

Specify Y if you want times that the databases were not allocated. Specify N if you want the archive logs read to determine a time where no updates occurred for the databases.

Minimum Quiet Time

Specify a time value that represents the minimum duration of quiet time for an object to be included in the output. The default value is 00:00:05 (5 seconds).

4. Press Enter. On the resulting **Add Objects** panel, specify whether you want to **Add Databases**, **Add Indexes**, or **Add Groups** by specifying Y in all the fields that apply.

Add Objects		
Add Databases	N	(Yes/No)
Add Indexes	N	(Yes/No)
Add Groups	N	(Yes/No)
Press ENTER to process or PF3 to Cancel		

Figure 110. **Add Objects** panel

5. In the **Enter Databases/Indexes/Groups Like to Display** panel, specify the following information depending on what is available:
 - Specify a filter in the **Database Like** field to filter search results.
 - Specify Y in the **Wildcard** field to automatically add all objects that meet your criteria into the profile. An object list will not be presented. When the profile is used, IMS Recovery Expert dynamically expands the added name.
 - Specify I to include databases you select in the subsequent panel, or specify E to exclude them.
 - Specify Y in the **Process Dependent Indexes** field to dynamically include indexes that are dependent on the selected databases.
 - Specify Y in the **Process Logical Relations** field to dynamically include databases that are logically related to the selected databases.

Note: The options you are given will depend upon your selection on the **Add Objects** panel.

6. If you specified to **Add Databases**, from the **Include Database Selection** panel, enter S in the **Cmd** line next to databases you would like to include or exclude, depending on what was specified on the **Enter Databases Like to Display** panel, and press Enter to confirm. Press PF3 when you've finished selecting databases.
7. If you specified to **Add Indexes**, from the **Include Database Selection** panel, enter S in the **Cmd** line next to the indexes you would like to include or exclude, depending on what was specified on the **Enter Indexes Like to Display** panel, and press Enter to confirm. Press PF3 when you've finished selecting indexes.
8. If you specified to **Add Groups**, from the **Include Database Selection** panel, enter S in the **Cmd** line next to the groups you would like to include to exclude, depending on what was specified in the **Enter**

- Groups Like to Display** panel, and press Enter to confirm. Press PF3 when you've finished selecting groups.
- On the **Object Profile** panel, use **EXPLODE** to include or exclude objects as needed, or use the **Cmd** line to add or delete objects as needed. Press PF3 when you are satisfied with the list.
 - On the **Build Job for \$MLC\$OND.\$ON-DEMAND OBJECT LIST** panel, specify the following information:

```

Build Job for $MLC$OND.$ON-DEMAND OBJECT LIST

Edit Generated Job      Y          (Yes/No)

Build job in Dataset    BSY.TST0220.SAMPLIB
Member                  BSY#IERQ

Job Cards:
==> //QUIETIME JOB TS5866,CLASS=A,NOTIFY=&SYSUID
==> //*_-----
==> //*_-----
==> //*_-----

Press ENTER to process or PF3 to Cancel

```

Figure 111. **Build Job for \$MLC\$OND.\$ON-DEMAND OBJECT LIST** panel

Edit Generated Job

Specify Y to view the job in an ISPF edit session after generation. If you specify N, you will return to the previous panel after the job is generated.

Build job in Dataset member

Specify the fully qualified data set name (without quotes) where you want to save the generated job. This data set must exist and can be sequential or a PDS. If the data set is a PDS, specify a member name. If the member does not exist, IMS Recovery Expert will create it.

Job Cards

Specify a valid job card for your site.

- Press Enter to generate the Quiet Time Analysis JCL, or PF3 to cancel.

Building a Health Check job

The On-demand Health Check job allows the user to dynamically perform a Database Recovery Facility Extended Functions health check without relying on pre-defined Object, Utility, or Job Profiles.

About this task

Complete the following steps to build a health check job:

Procedure

- Specify 4 on the **On-Demand Operations Menu** panel.
- Specify an SSID on the **Enter SSID for On-Demand Processing** panel.
- On the **Add Objects** panel, specify whether you want to **Add Databases**, **Add Indexes**, or **Add Groups** by specifying Y in all the fields that apply.

```

Add Objects

Add Databases          N    (Yes/No)

Add Indexes            N    (Yes/No)

Add Groups             N    (Yes/No)

Press ENTER to process or PF3 to Cancel

```

Figure 112. **Add Objects** panel

4. In the **Enter Databases/Indexes/Groups Like to Display** panel, specify the following information depending on what is available:
 - Specify a filter in the **Database Like** field to filter search results.
 - Specify Y in the **Wildcard** field to automatically add all objects that meet your criteria into the profile. An object list will not be presented. When the profile is used, IMS Recovery Expert dynamically expands the added name.
 - Specify I to include databases you select in the subsequent panel, or specify E to exclude them.
 - Specify Y in the **Process Dependent Indexes** field to dynamically include indexes that are dependent on the selected databases.
 - Specify Y in the **Process Logical Relations** field to dynamically include databases that are logically related to the selected databases.

Note: The options you are given will depend upon your selection on the **Add Objects** panel.

5. If you specified to **Add Databases**, from the **Include Database Selection** panel, enter S in the **Cmd** line next to databases you would like to include or exclude, depending on what was specified on the **Enter Databases Like to Display** panel, and press Enter to confirm. Press PF3 when you've finished selecting databases.
6. If you specified to **Add Indexes**, from the **Include Database Selection** panel, enter S in the **Cmd** line next to the indexes you would like to include or exclude, depending on what was specified on the **Enter Indexes Like to Display** panel, and press Enter to confirm. Press PF3 when you've finished selecting indexes.
7. If you specified to **Add Groups**, from the **Include Database Selection** panel, enter S in the **Cmd** line next to the groups you would like to include to exclude, depending on what was specified in the **Enter Groups Like to Display** panel, and press Enter to confirm. Press PF3 when you've finished selecting groups.
8. On the **Object Profile** panel, use **EXPLODE** to include or exclude objects as needed, or use the **Cmd** line to add or delete objects as needed. Press PF3 when you are satisfied with the list.
9. On the **Build Health Check Job** panel, specify the following information:

```

Build Health Check Job

Edit Generated Job          Y          (Yes/No)
Edit Health Check Options  N          (Yes/No)

Build job in Dataset      BSY.TST0220.SAMPLIB
Member                   BSY#IERQ

Job Cards:
==> //IMGCOPY JOB TS5866,CLASS=A,NOTIFY=&SYSUID
==> //*-----
==> //*-----
==> //*-----

```

Figure 113. **Build Health Check Job** panel

Edit Generated Job

Specify Y to view the job in an ISPF edit session after generation. If you specify N, you will return to the previous panel after the job is generated.

Edit Health Check Options

Specify Y to view and update the existing health check options that will be used for this job execution. If you specify N, the default or previously-used options will be used.

Build job in Dataset member

Specify the fully qualified data set name (without quotes) where you want to save the generated job. This data set must exist and can be sequential or a PDS. If the data set is a PDS, specify a member name. If the member does not exist, IMS Recovery Expert will create it.

Job Cards

Specify a valid job card for your site.

10. Press Enter to build the Health Check JCL, or press PF3 to cancel.

Chapter 9. Recovering Db2 and IMS applications

The coordinated application recovery feature of IMS Recovery Expert and Db2 Recovery Expert helps you to recover Db2 objects and IMS databases used in an application to the same consistent point in time.

Consistent in this case means that there are no updates or transactions in process to any object or database in the application. Identifying times that all Db2 objects and IMS databases used by the application are in a consistent state is a challenging task in a high-availability environment.

Coordinated application recovery streamlines the process of recovering applications that use both Db2 objects and IMS databases. You can use coordinated application recovery to analyze the logs in both Db2 and IMS to find quiet times for the objects and databases in an application, provide the times when the objects and databases are consistent across both IMS and Db2, and build the job that recovers the application.

Coordinated application recovery involves the following tasks:

- Connecting IMS Recovery Expert and Db2 Recovery Expert.
- Using IMS Recovery Expert to create a job profile that can be used to recover the IMS databases that are used in the application.
- Using Db2 Recovery Expert to create an object profile that can be used to recover the Db2 objects that are used in the application.
- Using either IMS Recovery Expert or Db2 Recovery Expert to create a coordinated recovery profile that references the Db2 object profile and the IMS job profile.
- Associating the IMS job profile with the coordinated recovery profile.
- Associating the Db2 object profile with the coordinated recovery profile.
- Running a log analysis job to discover intersecting quiet times for the IMS applications and the Db2 objects.
- Building the coordinated recovery job.

Topics:

- [“Connecting IMS Recovery Expert and Db2 Recovery Expert” on page 205](#)
- [“Managing the coordinated recovery process” on page 206](#)
- [“Creating coordinated recovery profiles” on page 209](#)
- [“Associating a Db2 object and an IMS job profile to the coordinated recovery profile” on page 210](#)
- [“Updating a coordinated recovery profile” on page 211](#)
- [“Viewing a coordinated recovery profile” on page 212](#)
- [“Renaming a coordinated recovery profile” on page 213](#)
- [“Deleting a coordinated recovery profile” on page 214](#)
- [“Performing quiet time analysis for a coordinated recovery profile” on page 215](#)
- [“Building the coordinated recovery jobs” on page 216](#)

Connecting IMS Recovery Expert and Db2 Recovery Expert

For each coordinated recovery profile that you build, you can specify that IMS Recovery Expert connect to a default or a specific instance of Db2 Recovery Expert.

About this task

IMS Recovery Expert links to Db2 Recovery Expert by using the CLIST information that is specified in the user settings option. A default value for the CLIST connection information to Db2 Recovery Expert is

specified during installation. If you want IMS Recovery Expert to connect to a different instance of Db2 Recovery Expert, you must specify overriding CLIST information for the current session.

To specify Db2 Recovery Expert CLIST information:

Procedure

1. Specify 0 (Administration) on the IMS Recovery Expert main menu panel (BSY\$MAIN) and press Enter.
2. On the **Administration Menu** panel (BSY\$PNLO), specify 4 on the **Option** line and press Enter.

```
BSY$PNL5 V2R2 ----- Db2 CLIST Information ----- 2021/06/30 13:58:01
Option ==>

Enter or Update Db2 Recovery Expert for z/OS clist information :

CLIST library name      ==> ROCKET.USER.CLIST
CLIST member name      ==> ARY@IB31
```

Figure 114. **Db2 CLIST Information** panel (BSY\$PNL5)

3. On the **Db2 CLIST Information** panel, in the **CLIST library name** field, specify the name of the library that contains the CLIST member for the specific version of Db2 Recovery Expert.
4. In the **CLIST member name** field, specify the CLIST member name for the specific version of Db2 Recovery Expert.
5. Press Enter.

For the duration of the current session, IMS Recovery Expert uses the specified CLIST information to connect to Db2 Recovery Expert.

Managing the coordinated recovery process

From the **Coordinated Recovery Profile Display** panel, you can perform all the functions that apply to IMS and Db2 coordinated application recovery.

About this task

IMS Recovery Expert and Db2 Recovery Expert use a coordinated recovery profile to identify the IMS applications and Db2 objects that need to be recovered. You identify the IMS databases to recover by associating an IMS job profile to the coordinated recovery profile. You identify the Db2 objects to recover by associating a Db2 object profile to the coordinated recovery profile.

The coordinated recovery profile information is saved into a VSAM repository (CPROFILE) that is shared between both products regardless of whether they share the other repository data sets. Each coordinated recovery profile can access the CPROFILE data set to read and update coordinated recovery profile information. The data set is allocated in both IMS and Db2 CLISTs and in the Db2 agents during customization.

All coordinated recovery profiles that have been created are listed on the **Coordinated Recovery Profile Display** panel. From this panel, you can perform the following functions:

- Update coordinated recovery profiles
- Create coordinated recovery profiles
- View existing coordinated recovery profiles
- Delete coordinated recovery profiles
- Rename coordinated recovery profiles
- Produce a report of Db2 object and IMS application quiet times
- Build a coordinated recovery job
- Create a coordinated recovery point

Procedure

1. Specify 2 (Application Operations) on the IMS Recovery Expert main menu panel (BSY\$MAIN) and press Enter.
2. Specify 2 (Coordinated Application Profiles) on the **Application Operations Menu** panel (BSY\$APMN) and press Enter.

```
Enter Coordinated Recovery Profile Selection Criteria
BSY$CRLK
Profile Like *
Creator Like *
```

Figure 115. **Enter Coordinated Recovery Profile Selection Criteria** panel

3. On the **Enter Coordinated Recovery Profile Selection Criteria** panel, identify the profiles to list on the **Coordinated Recovery Profile Display** panel. You can list all profiles by using wildcard characters in the **Profile Like** and **Creator Like** fields. Use the asterisk (*) wildcard character to return all profiles. You can use the asterisk (*) in one or both fields.

To limit the profiles that are listed, specify a profile name in the **Profile Like** field, a profile creator name in the **Creator Like** field, or both. When you are finished, press Enter.

When you access the **Coordinated Recovery Profile Display** panel for the first time, it is displayed as shown in the following figure:

```
BSY$CRMD V2R2 --- Coordinated Recovery Profile Display --- 2021/06/30 14:04:04
Option ===> Scroll ===> PAGE

Line Commands: U - Update C - Create V - View D - Delete
                R - Rename B - Build Recov Job Q - Quiet Time Report
                P - Create Recovery Point

-----
Profile Like *
Creator Like *                               Row 1 of 116  +>
-----

Cmd  Name                Creator      Updt
    ARY4628             CSKATE      U
    BAT                 CSKATEA     N
    BAT2                PDBAT       U
    BLABLA              CSKATE      U
    CAR DEMO            PDBISC      U
    CAR TESTKATE        PDBOBA      U
    CARIMS              CSKATE      U
    CARTEST             CSKATE      U
    CARTESTKA          CSKATEA     U
```

Figure 116. **Coordinated Recovery Profile Display** panel

Use the **UP** and **DOWN** commands (PF7 and PF8) to scroll through the list when there are more profiles than can be displayed on one panel. The following fields are displayed on the panel:

Profile Like

The coordinated recovery profile name or mask that you specified on the **Enter Coordinated Recovery Profile Selection Criteria** panel appears here. You can change the name or mask and then press Enter. The list of coordinated recovery profiles is updated based on the criteria that you specified.

Creator Like

The coordinated recovery profile creator name or mask that you specified on the **Enter Coordinated Recovery Profile Selection Criteria** panel appears here. You can change the name or

mask and press Enter. The list of coordinated recovery profiles is updated based on the criteria that you specified.

Row x of y

Displays the current row and the total number of rows in the profile list.

Cmd

On the **Cmd** line next to each profile, you can use the following line commands:

- U to update a coordinated recovery profile
- C to create a coordinated recovery profile
- V to view a coordinated recovery profile
- D to delete a coordinated recovery profile
- R to rename a coordinated recovery profile
- B to build a coordinated recovery job
- Q to run a log analysis job to discover Db2 object and IMS application quiet times
- P to create a coordinated recovery point

Name

The name of the coordinated recovery profile.

Creator

The user ID of the person who created the coordinated recovery profile.

Updt

This column indicates how users other than the profile creator can use the profile.

U(pdate)

Allows other users to update the profile.

V(iew)

Allows other users to view but not update the profile.

N(o access)

Prevents other users from viewing or updating the profile.

Description

An optional description that might have been specified when the coordinated recovery profile was created.

Last Upd Userid

The user ID of the person who last updated the coordinated recovery profile.

Last Updated Timestamp

The time that the coordinated recovery profile was last updated.

Created Userid

The user ID of the person who created the coordinated recovery profile.

Created Timestamp

The time that the coordinated recovery profile was created.

4. Specify one of the following commands on the **Cmd** line next to a profile:

- To create a coordinated recovery profile, specify C on the **Cmd** line next to a profile, and press Enter. If no profiles are listed, you can create a profile by pressing Enter. The **Create Coordinated Recovery Profile** panel opens. From this panel, you name the coordinated recovery profile, associate a Db2 object profile, and associate an IMS job profile. For more information about creating profiles, see [“Creating coordinated recovery profiles” on page 209](#).
- To update a coordinated recovery profile, specify U on the **Cmd** line next to the profile that you want to update, and press Enter. On the **Update Object Profile** panel, you can add a Db2 object profile or an IMS job profile if you have not done so already. You can also change the Db2 object profile or IMS job profile that have been associated with the coordinated recovery profile. For more information about updating profiles, see [“Updating a coordinated recovery profile” on page 211](#).

- To view the details of a coordinated recovery profile, specify V on the **Cmd** line next to the profile that you want to view, and press Enter. On the **View Coordinated Recovery Profile** panel, you can use this line command to view one of your own profiles or one that was created by another user if the profile has a share option of View or Update. For more information about viewing profiles, see [“Viewing a coordinated recovery profile” on page 212.](#)
- To delete a coordinated recovery profile, specify D on the **Cmd** line next to the profile that you want to delete, and press Enter. You can use this line command to delete one of your own coordinated recovery profiles, or one created by another user if the profile has a share option of Update. For more information about deleting profiles, see [“Deleting a coordinated recovery profile” on page 214.](#)
- To rename a coordinated recovery profile, specify R on the **Cmd** line next to the profile that you want to rename, and press Enter. On the **Rename Coordinated Recovery Profile** panel, you can use this line command to change the name or the description in one of your own coordinated recovery profiles, or one created by another user if the profile has a share option of Update. For more information about renaming profiles, see [“Renaming a coordinated recovery profile” on page 213.](#)
- To produce a quiet time analysis for the coordinated recovery profile, specify Q on the **Cmd** line next to the profile, and press Enter. On the **Log Analysis** panel, you can specify options. For more information about log analysis, see [“Performing quiet time analysis for a coordinated recovery profile” on page 215.](#)
- To build the coordinated recovery jobs, specify B on the **Cmd** line next to the profile, and press Enter. On the **Recovery Point Selection** panel, you can specify options. For more information about building coordinated recovery jobs, see [“Building the coordinated recovery jobs” on page 216.](#)
- To create a coordinated recovery point and create JCL, specify P on the **Cmd** line next to the profile, and press Enter. On the **Build Job** panel that appears, specify information in the **Edit Generated Job** field. Specify Y to view the job in an ISPF edit session after generation. If you specify N, you will return to the **Coordinated Recovery Profile Display** panel after the job is generated.

Creating coordinated recovery profiles

After you create a new IMS and Db2 coordinated recovery profile, you must then associate a Db2 object profile and an IMS job profile. This allows IMS Recovery Expert to recover the Db2 objects and IMS databases that are used within the application that you are recovering.

Procedure

1. Specify 2 (Application Operations) on the IMS Recovery Expert main menu panel (BSY\$MAIN) and press Enter.
2. Specify 2 (Coordinated Application Profiles) on the **Application Operations Menu** panel (BSY\$APMN) and press Enter.
3. On the **Enter Coordinated Recovery Profile Selection Criteria** panel, specify your filter criteria and press Enter. For more information about the options on this panel, see [“Managing the coordinated recovery process” on page 206.](#)
4. On the **Coordinated Recovery Profile Display** panel, specify C on the **Cmd** line next to your selection and press Enter.

```

BSY$CRMC      Enter New Coordinated Recovery Profile Options
  Creator      USERID
  Profile Name  TestIMSDb2
  Description
  Share Option  U (Update, View only, No access)

```

Figure 117. **Enter New Coordinated Recovery Profile Options** panel (BSY\$CRMC)

5. On the **Enter New Coordinated Recovery Profile Options** panel, specify a unique name in the **Profile Name** field.
6. In the **Description** field, specify a description of the profile.
7. In the **Share Option** field, specify the type of access that other users will have to this profile. Specify U to allow other users to update the profile. Specify V to allow other users to view but not update the profile. Specify N to deny other users access to the profile.
8. Press Enter. On the **Add Profiles to Coordinated Profile** panel, you can then associate the IMS job profile and the Db2 object profile with the coordinated recovery profile.

Associating a Db2 object and an IMS job profile to the coordinated recovery profile

You must associate one Db2 object profile and one IMS job profile with the coordinated recovery profile.

About this task

The Db2 object profile that you associate with the coordinated recovery profile contains the information required to recover the Db2 objects that are used by the application. The IMS job profile that you associate with the coordinated recovery profile contains the information required to recover the IMS databases that are used by the application.

You can associate only one Db2 object profile and one IMS job profile with any coordinated recovery profile. Each Db2 object profile or IMS job profile that is already associated with a coordinated recovery profile is not listed for selection in the respective product object or job profile selection panels.

Procedure

1. Access the **Add Profiles to Coordinated Profile** panel.

The **Add Profiles to Coordinated Profile** panel opens automatically as the second step of creating a coordinated recovery profile. Otherwise, from the **Update Coordinated Recovery Profile** panel, specify A on the **Cmd** line next to a coordinated recovery profile, and press Enter.

```
BSY$CRSP ----- Add Profiles to Coordinated Profile -----
Add Db2 Profile _ (Yes/No)
Add IMS Profile _ (Yes/No)
Press Enter to process or PF3 to cancel.
```

Figure 118. Add Profiles to Coordinated Profile panel (BSY\$CRSP) panel

2. To associate a Db2 object profile with the coordinated recovery profile, specify Y in the **Add Db2 profile** field and press Enter. If you have already associated a Db2 object recovery profile to this coordinated recovery profile, then this field is not available.

On the **Enter Object Profile Selection Criteria** panel:

- a) Specify the SSID location for the Db2 system where the objects reside.
- b) Use the **Name like** and **Creator Like** fields to filter the objects that are listed on the **Object Selection** panel. Press Enter.
- c) From the **Object Profile Selection** panel, select the Db2 object profile that you want to associate with the coordinated recovery profile. You can also create, delete, update, rename and view Db2 object profiles from this panel. Press Enter when you are finished.

You can only add one type of profile at a time to the coordinated recovery profile. After you add a Db2 object profile, you will return to the **Update Coordinated Recovery Profile** panel.

Refer to the *IBM Db2 Recovery Expert for z/OS User's Guide* for more information on how to perform these object profile functions.

3. On the **Add Profiles to Coordinated Profile** panel, to associate an IMS job profile with the coordinated recovery profile, specify Y on the **Add IMS profile** field. If you have already added an IMS object recovery profile to this coordinated recovery profile, this field is not available. Press Enter.

On the **Enter Applications Profile Like to Display** panel:

- a) Use the **Profile Like**, **Creator Like** and the **SSID Like** fields to filter the objects that are listed on the **Job Profile Selection** panel. Press Enter.
- b) On the **Job Profile Selection** panel, select the IMS job profile to associate with the coordinated recovery profile. You can also create, delete, update, rename and view IMS job profiles from this panel. Press Enter when you are finished. You can only add one type of profile at a time to the coordinated recovery profile. After you add an IMS job profile, you will return to the **Update Coordinated Recovery Profile** panel.

For more information, see [Chapter 8, "Recovery using application operations," on page 167](#).

4. Press F3 to return to the **Coordinated Recovery Profile Display** panel.

Updating a coordinated recovery profile

From the **Update Coordinated Recovery Profile** panel, you can associate, change or disassociate an IMS job profile or a Db2 object profile.

About this task

You can associate an IMS job profile or a Db2 object profile to the coordinated recovery profile if one has not already been assigned. From this panel, you can also change the IMS job profile or the Db2 object profile that is selected, or disassociate either of the profiles from the coordinated recovery profile.

Procedure

1. Access the **Update Coordinated Recovery Profile** panel.

The **Update Coordinated Recovery Profile** panel opens automatically after you add either a Db2 object profile or an IMS job profile. Otherwise, from the **Coordinated Recovery Display** panel, specify U on the **Cmd** line next to a coordinated recovery profile, and press Enter.

```
BSY$CRMU V2R2 ----- Coordinated Recovery Profile Display ----- 2021/01/13 12:56:12
Command ===> Scroll ===>

Line Commands: A - Add D - Delete
-----
Creator: USERID      NAME: TESTPROF
Share Option N (Upd, View, No)      Description:
-----

```

Cmd	Type	SSID	Profile Name	Profile Creator	LPAR
---	IMS	IBA2	ARYDB024	USERID	
---	Db2	EBA1	ARYDB025	USERID	RS27

Figure 119. **Coordinated Recovery Profile Display panel (BSY\$CRMU) panel**

The following fields are displayed for each profile:

Creator

Specifies the user ID of the person who created the coordinated recovery profile.

Name

Specifies the name of the coordinated recovery profile.

Type

Identifies whether the profile is an IMS job profile or a Db2 object profile.

SSID

The Db2 or IMS subsystem ID for which the IMS job or Db2 object profile was created.

Profile Name

Specifies the name of the IMS job profile or the Db2 object profile.

Profile Creator

Specifies the user ID of the person who created the IMS job profile or the Db2 object profile.

LPAR

Identifies the LPAR that is associated with the IMS or Db2 subsystem.

- Optional: Modify the **Share option** for the coordinated recovery profile. The current value is displayed.
- Specify A on the **Cmd** line to add either a Db2 object profile or an IMS job profile. Press Enter.
- On the **Add Profiles to Coordinated Profile** panel, follow the process of adding a Db2 object profile or an IMS job profile. When all selections are made, you will return to the **Update Object Profile** panel.
- Specify D on the **Cmd** line of the profile that you want to remove from the coordinated recovery profile. Press Enter.

The Db2 object profile or an IMS job profile is disassociated from the coordinated recovery profile. The delete command only disassociates the Db2 object profile or an IMS job profile from the coordinated recovery profile; it does not delete the profile from the repository. The disassociated profile will still be available from either the Db2 object profile or IMS job profile display.

- To change the Db2 object profile or IMS job profile, you must first delete the current profile from the coordinated recovery profile, then add the new profile.
- Press F3 to return to the **Coordinated Recovery Profile Display** panel.

Viewing a coordinated recovery profile

From the **View Coordinated Recovery Profile** panel you can view the IMS job profile and the Db2 object profile that are included in the coordinated recovery profile.

About this task

You can view profiles that you created, regardless of the share option. You can also view a profile created by another user if the profile has a share option of view or update.

Procedure

- Specify 2 (Application Operations) on the IMS Recovery Expert main menu panel (BSY\$MAIN) and press Enter.
- Specify 2 (Coordinated Application Profiles) on the **Application Operations Menu** panel (BSY\$APMN) and press Enter.
- On the **Enter Coordinated Recovery Profile Selection Criteria** panel, specify your filter criteria and press Enter. For more information about the options on this panel, see [“Managing the coordinated recovery process”](#) on page 206.
- On the **Coordinated Recovery Profile Display** panel, specify V on the **Cmd** line next to the coordinated recovery profile that you want to view, and press Enter.

4. On the **Coordinated Recovery Profile Display** panel, specify R on the **Cmd** line next to the coordinated recovery profile that you want to rename, and press Enter.

```
                                Rename Coordinated Recovery Profile

Existing Profile:

Creator          TUSER
Profile Name     TEST2
Description

New Profile:

Creator          TUSER
Profile Name     TEST2
Description
```

Figure 121. *Rename Coordinated Recovery Profile* panel

5. On the **Rename Coordinated Recovery Profile** panel, rename the profile by specifying the new profile name in the **New Profile Profile Name** field. You can also specify a new description in the **New Profile Description** field. The profile creator cannot be modified.

6. Press Enter.

The profile is renamed and the **Coordinated Recovery Profile Display** panel is displayed.

To cancel the rename, press PF3 on the **Rename Coordinated Recovery Profile** panel and return to the **Coordinated Recovery Profile Display** panel.

Deleting a coordinated recovery profile

You can delete coordinated recovery profiles created under your user ID, regardless of the share option. You can also delete a profile that was created by another user if the profile has a share option of update.

Procedure

1. Specify 2 (Application Operations) on the IMS Recovery Expert main menu panel (BSY\$MAIN) and press Enter.
2. Specify 2 (Coordinated Application Profiles) on the **Application Operations Menu** panel (BSY\$APMN) and press Enter.
3. On the **Enter Coordinated Recovery Profile Selection Criteria** panel, specify your filter criteria and press Enter. For more information about the options on this panel, see [“Managing the coordinated recovery process” on page 206](#).
4. On the **Coordinated Recovery Profile Display** panel, specify D on the **Cmd** line next to the coordinated recovery profile that you want to delete, and press Enter.

```
                                Confirm Deletion of Profile

Confirm delete of profile TWUSR.TEST2

Delete  N  (Yes/No)
```

Figure 122. *Confirm Deletion of Profile* panel

5. On the **Confirm Deletion of Profile** panel, confirm or cancel the deletion.

Specify Y in the **Delete** field to delete the profile and press Enter. A message appears to confirm the deletion, and you will return to the **Coordinated Recovery Profile Display** panel. Specify N in

the **Delete** field to cancel the deletion and press Enter or PF3. You will return to the **Coordinated Recovery Profile Display** panel.

Performing quiet time analysis for a coordinated recovery profile

From the **Log Analysis** panel, you can build and run a job that searches the IMS and Db2 logs for periods of time when both the IMS database and the Db2 objects have no activity.

About this task

The Log Analysis job coordinates and displays the quiet times that you can use to recover the IMS database and the Db2 objects to a consistent point in time.

Procedure

1. Specify 2 (Application Operations) on the IMS Recovery Expert main menu panel (BSY\$MAIN) and press Enter.
2. Specify 2 (Coordinated Application Profiles) on the **Application Operations Menu** panel (BSY\$APMN) and press Enter.
3. On the **Enter Coordinated Recovery Profile Selection Criteria** panel, specify your filter criteria and press Enter. For more information about the options on this panel, see [“Managing the coordinated recovery process”](#) on page 206.
4. On the **Coordinated Recovery Profile Display** panel, specify Q on the **Cmd** line next to the coordinated recovery profile for which you want to perform log analysis for Db2 object and IMS database quiet times. Press Enter.

```
BSY$ V2R2 ----- Log Analysis ----- 2021/01/13 12:56:12
Command ==>
-----
Creator: USERID      NAME: TESTPROF                               SSID EA1A
-----
Log Range Type              ==> T (Preceding/Timestamp)
Preceding Options:
  Preceding Type             ==> H (Hours/Minutes)
  Preceding Value           ==> 01 (00-99)
  Use database location time ==> Y (Yes/No)
Timestamp Options
  Beginning Timestamp       ==> 2021 - 11 - 23 - 14 : 50 : 56
  End Timestamp             ==> 2021 - 11 - 23 - 15 : 50 : 56
Minimum Quiet Time          ==> 00 : 02 : 00 (hh:mm:ss)
```

Figure 123. **Log Analysis** panel

5. On the **Log Analysis** panel, in the **Log Range Type** field, specify a time range within which IMS Recovery Expert and Db2 Recovery Expert will search the logs for the IMS database and Db2 objects quiet times. Specify P to indicate that a time span preceding the current time identifies the start and stop points in the log. Specify T to indicate that a time value identifies the start and stop points in the log. By default, the time range is set to **Preceding** by one hour based on the local client time.
6. In the **Minimum Quiet Time** field, specify the minimum duration for a quiet time to be included in the output or accept the default value, which is 00:02:00 (two minutes).
7. After specifying the time range for the analysis, press Enter. All the fields are validated and a **Build Job** panel opens. You can edit or run the log analysis job from the **Build Job** panel.

Building the quiet time analysis job

Use these steps to build a quiet time analysis job that will find quiet times for the objects in the Db2 object profile as well as for the databases that are in the IMS job profile.

Procedure

1. On the **Coordinated Recovery Profile Display** panel, specify Q next to the coordinated recovery profile that you want to perform a quiet time analysis. On the **Log Analysis** panel, specify the options to use for the quiet time analysis and press Enter.

```
Build Job for TUSER.K82B - TEST

Edit Generated Job      Y          (Yes/No)

Build job in Dataset   TUSER.CRPQT.TEST
Member                TESTCRP

Job Cards:
==> //OJOBGRD JOB TUSER,CLASS=A,NOTIFY=&SYSUID
==> //*
==> //*
==> //*

Press ENTER to process or PF3 to Cancel
```

Figure 124. **Build Job** panel

2. On the **Build Job** panel, in the **Edit Generated Job** field, specify whether you want to view the generated job JCL in an ISPF editor before saving and running the job. Specify Y to view the job in an ISPF edit session. Specify N to bypass viewing the generated job JCL.
3. In the **Build job in Dataset** field, specify the fully qualified data set name (without quotation marks) where you want to save the generated job. This data set must exist and can be sequential or a PDS. If the data set is a PDS, specify a member name in the **Member** field. If the member does not exist, IMS Recovery Expert creates it.
4. In the **Job Cards** field, specify a valid job card for your site.
5. When you have completed the fields, press Enter.
 - If you selected to view the job, an ISPF panel containing the job JCL opens. You can use the ISPF editor to make your required changes. When you finish editing, press Enter. The job is saved in the data set that you specified. Control returns to the **Coordinated Recovery Profile Display** panel.
 - If you selected not to view the job, it is placed directly in the data set that you specified, and control returns to the **Coordinated Recovery Profile Display** panel.

When the job is saved in the specified data set, you can run the job by submitting it from an edit session or inserting the job into your scheduler.

Building the coordinated recovery jobs

After creating the coordinated recovery profile that includes a Db2 object profile and an IMS job profile and optionally running a log analysis to find quiet times, you must build a Db2 object recovery job and an IMS application recovery job.

These jobs in conjunction will be used to perform the coordinated recovery.

To build the IMS and Db2 coordinated recovery jobs, you must complete the following steps:

- Select a common recovery point for both the Db2 objects and the IMS applications. See [“Selecting the recovery point” on page 217](#).
- Generate the Db2 recovery plans. See [“Generating the Db2 object recovery plans” on page 218](#).
- Select the Db2 recovery plan. See [“Selecting the Db2 object recovery plan” on page 218](#).

- Build and run the Db2 recovery job. See [“Submitting the recovery plan job”](#) on page 220.
- Build and run the IMS recovery job. See [“Building the coordinated recovery job for IMS objects”](#) on page 221.

Selecting the recovery point

The first step in building the coordinated recovery jobs is to select a consistent point in time for both the Db2 objects and the IMS databases that can be used as the recovery point.

Procedure

1. Specify 2 (Application Operations) on the IMS Recovery Expert main menu panel (BSY\$MAIN) and press Enter.
2. Specify 2 (Coordinated Application Profiles) on the **Application Operations Menu** panel (BSY\$APMN) and press Enter.
3. On the **Enter Coordinated Recovery Profile Selection Criteria** panel, specify your filter criteria and press Enter. For more information about the options on this panel, see [“Managing the coordinated recovery process”](#) on page 206.
4. On the **Coordinated Recovery Profile Display** panel, specify B on the **Cmd** line next to the coordinated recovery profile for which you want to build the recovery jobs.

```
BSY$V2R2  ----- Recovery Point Selection  ----- 2021/01/13 12:56:12
Option  ==>

Line Commands:  S - Select Recovery Point

-----
Creator: USERID      NAME: CRPROF
-----
Cmd  Start timestamp          End Timestamp
-   Current
-   User Timestamp
-   2021-09-21-03.12.57.000000  2021-09-21-03.13.37.000000
-   2021-09-21-03.14.03.000000  2021-09-21-03.14.43.000000
```

Figure 125. *Recovery Point Selection panel*

5. On the **Recovery Point Selection** panel, select a recovery timestamp by specifying S next to one of the following recovery point types:
 - Select **Current** to specify that recovery will be to the current point in time, or the time when the recovery jobs run. A confirmation panel opens. When a coordinated recovery to current is performed, the Db2 and IMS recovery jobs are generated, and the job step to start the Db2 and IMS databases after performing recovery is commented out. After completion of the Db2 and IMS recoveries, you will edit the JCL to remove the comments from the steps to start the Db2 and IMS databases, and resubmit the job to start the databases. Do not start the recovered databases until both recovery jobs complete successfully, to ensure that all of the Db2 objects and IMS databases are consistent. Specify Y in the **Confirm** field to indicate that you understand the message and you want to proceed with the build process. Specify N to return to the **Select Recovery Point** panel to choose another type of recovery point.
 - Select **User Timestamp** to specify a timestamp for the recovery. Press Enter. The **Select Recovery Timestamp** panel opens. Specify the timestamp to which you want to recover. The format of the timestamp that you specify is YYYY-MM-DD-HH:MM:SS:MMMMMM.
 - Quiet Time range: If you ran a log analysis for the coordinated recovery profile and any quiet times were identified, these ranges are available for selection. Each quiet time range that was discovered is displayed as a start timestamp YYYY-MM-DD-HH:MM:SS:MMMMMM and an end timestamp in the same format. If you did not run log analysis, no quiet time ranges are displayed.
6. Press Enter.

The **Generate Db2 Recovery Plans** panel opens.

Generating the Db2 object recovery plans

Db2 Recovery Expert generates one or more recovery plans that you can select from to recover the Db2 objects that have been included in the coordinated recovery profile.

About this task

Recovery jobs are generated differently for Db2 objects and IMS databases. Db2 Recovery Expert does all the analysis on the different recovery options from the user interface, and then generates the JCL for the plan that you select. IMS Recovery Expert determines the way to recover the databases at execution time based on the recovery options defined in the IMS job profile. For a coordinated recovery, you first generate the Db2 object recovery plans and select one to use to build the Db2 object recovery job. You then build the IMS application recovery job.

Procedure

1. The **Generate Recovery Plans** Panel opens automatically after you select a recovery point from the **Select Recovery Point** panel.

```
BSY$V2R2  ----- Generate Recovery Plans  ----- 2021/01/13 12:56:12
Command  ==>
-----
Creator: USERID      NAME: TESTPROF                      SSID EA1A
-----
Update Recovery Options ==> N (Yes/No)

The chosen coordinated recovery point is listed below. You can press
Enter to continue or enter "Y" for 'Update Recovery Options' to display
or change recovery options.

Recovery Point          ==> 1 (1-Current, 2-Timestamp)
Recovery Timestamp      ==> _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _
```

Figure 126. **Generate Recovery Plans** panel

2. To update the recovery options for the Db2 object profile, specify Y in the **Update Recovery Options** field and press Enter.
3. On the **Recovery Options** panel, edit the options that you want to change and press PF3 to return to the **Generate Recovery Plans** panel.
See the *IBM Db2 Recovery Expert for z/OS User's Guide* for more information on recovery options.
4. When you are ready to generate the recovery plans, press Enter. All the fields are validated and the recovery plans are generated. On the **Recovery Plans** panel, select the recovery plan.

Selecting the Db2 object recovery plan

Recovery plans can be used to recover the Db2 objects or set of objects that are included in the coordinated recovery job. You can select the plan that is most advantageous for your recovery environment.

Procedure

1. When at least one recovery plan can be generated, the **Recovery Plans** panel opens.

```

BSY$V2R2  ----- Recovery Plans ----- 2021/01/13 12:56:12
Command  ==>

Line Commands:  V - Validate  P - Properties  D - Details  B - Build JCL
-----
Creator:  USERID      NAME:  TESTPROF      SSID  EA1A
-----
Plan Name                                           Cost
_Using RECOVER                                     52.60
_Recovered objects                                n/a

```

Figure 127. **Recovery Plans** panel

On the **Recovery Plans** panel, the following fields are displayed:

Creator

Displays the ID of the user who created the Db2 object profile.

Name

Displays the name of the Db2 object profile.

SSID

Displays the assigned ID for the Db2 subsystem where the objects and the object profile reside.

Plan Name

Lists the recovery plans that can be used to recover the objects in the Db2 object profile. One of the plans listed is called the Recovered Objects plan. This plan lists the objects that can be recovered and each of the plans that can be used successfully to recover the object. Only the D command can be used with this plan.

Cost

Displays the recovery plan cost. Each generated recovery plan has an associated cost. The plan with the lowest cost appears first in the list of recovery plan. You can see the detailed information that is used to calculate the cost of the plan by specifying P next to the recovery plan.

2. Specify P next to a recovery plan to view the properties of the recovery plan. From the **Recovery Plan Properties** panel you can see the detailed information that is used to calculate the cost of a recovery plan. The P command is not a valid command for the Recovered Objects plan.
3. Specify D next to a recovery plan to view the details of the recovery plan. On the **Recovery Plan Details** panel, you can see each of the objects that are included in the object profile. You can also access property information for each of the objects.
4. Specify V next to a recovery plan to validate the recovery plan. You can select the validate option to check that the conditions of the plan still apply. If an error is found, the **Recovery Plan Validation Error** panel opens and provides more information about the error. When a successful validation completes, a message is issued that acknowledges the successful validation, but cautions that although no validation errors were discovered, the recovery plan could have unforeseen errors that would impact a successful recovery. Such errors might include missing resources or lack of authorizations to access resources. The V command is not a valid command for the Recovered Objects plan.
5. Specify B next to a recovery plan to build the JCL that can be used to recover the objects in the Db2 object profile according to the properties and details of the recovery plan. The B command is not a valid command for the Recovered Objects plan. Press Enter.

```

Build job in Dataset TEST.ARY.CNTL
      Member Prefix RCVRJB

Job Cards:
==> //ARYJOB JOB TEST,CLASS=A,NOTIFY=&SYSUID,MSGCLASS=X
==> //*
==> //

```

6. Specify the data set information.

The data set name must be a PDS with a valid member name. Press Enter. When the data has been verified, the Generate Recovery Plan JCL job is run. The **Recovery Plan Jobs** panel opens.

Submitting the recovery plan job

The **Recovery Plan Jobs** panel displays the recovery plan job or jobs that you can use to recover the objects in the object profile.

About this task

If the recovery option **Number of parallel jobs** is greater than 1, then multiple jobs are returned. A Serial job, followed by a Parallel Job Group, followed by a second Serial job will be returned. You must submit and run the serial and parallel jobs in the order that they are listed.

Procedure

1. On the **Recovery Plans** panel, select a recovery plan and specify B to build the job.

```
BSY$V2R1  ----- Recovery Plans Jobs ----- 2021/01/13 12:56:12
Command  ===>

Line Commands:  B - Browse      E - Edit      V - View      S - Submit

Plan Name: Using Recover
-----
Creator: USERID      NAME: TESTPROF                                     SSID EA1A
-----

_Recovery Job Group
- Serial Job 1 - Test.ARY.CNTL (ARYA01)
- Parallel Job Group
- Parallel Job 1 - Test.ARY.CNTL (ARYB01)
- Parallel Job 2 - Test.ARY.CNTL (ARYB02)
- Parallel Job 3 - Test.ARY.CNTL (ARYB03)
- Parallel Job 4 - Test.ARY.CNTL (ARYB04)
- Serial Job 2 - Test.ARY.CNTL (ARYC01)
```

Figure 128. **Recovery Plans Jobs** panel

2. On the **Recovery Plans Jobs** panel, the following fields are displayed:

Plan Name

The name of the recovery plans for one or more jobs that have been built.

Creator

The ID of the user who created the object profile.

Name

The name of the object profile.

SSID

The assigned ID for the Db2 subsystem where the objects and the object profile reside.

Recovery Plan jobs

The jobs that have been built for this plan.

3. To browse the recovery plan job JCL, specify B next to a recovery job. Using browse, you cannot edit or save the JCL.
4. To view and edit the recovery plan job JCL, specify V next to a recovery job. Using view you cannot save the JCL when you exit.
5. To edit the recovery plan job JCL and save your changes upon exit, specify E next to a recovery plan.
6. To run the recovery plan job JCL, specify S next to the recovery job. The job is submitted and run.
The results of the request are written to the specified data set. If there are serial and parallel jobs, it is important to submit the jobs in the order that they are listed.

- The next step in coordinated recovery is to generate the IMS application recovery job. Press PF3 on each panel until the **Build job for IMS.PROFILE** panel opens.

Building the coordinated recovery job for IMS objects

Build the JCL for the recovery of the IMS databases.

Procedure

- On the **Recovery Plans Jobs** panel, after you have built the coordinated recovery job for the Db2 objects, press PF3 to navigate back through several panels to the **Build job for IMS.PROFILE** panel.

```

BSY$V2R1 ----- Build Job for IMS.PROFILE ----- 2021/01/13 12:56:12

Recovery Point          1 (1 Current, 2 Timestamp, 3 PIT, 4 RPID)
Recovery Timestamp      -----

Edit Generated Job      Y (Yes/No)
Edit Recovery Options   N (Yes/No)

Build Job in Dataset    -----
Member                  -----

Job Cards
==> //OBJREST Job PDSUSC, CLASS=A, NOTIFY=&SYSUID -----
==> // -----
==> // -----
==> // -----

```

Figure 129. **Build job for IMS.PROFILE** panel

- The type of recovery point that you selected is listed in the **Recovery Point** field. If you selected to specify a timestamp, it is listed in the **Recovery Timestamp** field.
The **Recovery Point** and **Recovery Timestamp** values are the same as those specified for the recovery of the Db2 objects.
- Specify Y in the **Edit Generated Job** to view the job in an ISPF edit session after generation. If you specify N, you cannot edit the JCL before it is stored in the data set.
- To update the recovery options for the IMS job profile, specify Y in the **Update Recovery Options** field and press Enter.
On the **Recovery Options** panel, edit the options that you want to change and press PF3 to return to the Build IMS Coordinated Recovery Job panel. For more information about IMS recovery options, see Chapter 8, “Recovery using application operations,” on page 167.
- Specify a fully qualified data set name (without quotation marks) where you want to save the generated job in the **Build job in Dataset** field. This data set must exist and can be sequential or a PDS. If the data set is a PDS, specify a member name in the **Build job in Member** field. If the member does not exist, it will be created.
- Specify a valid job card for your site in the **Job Cards** field.
- When you are ready to generate the IMS recovery job, press Enter.

Results

All the fields are validated and the recovery job is built. The job is stored in the data set that you specified.

Chapter 10. Performing a Combined System Level Backup

The Combined System Level Backup (Combined SLB) is an optional feature of IMS Recovery Expert and Db2 Recovery Expert. With a single process, Combined SLB allows you to create a backup that includes one or more subsystems and is created at a consistent point in time for all subsystems in the backup.

Subsystems in the Combined SLB can consist of one or more IMS subsystem(s), one or more Db2 subsystem(s), or a combination of both. Data consistency for all volumes included in the Combined SLB is provided using storage-based consistency.

Note: Log suspend is not available for Combined SLB.

Combined SLB subsystems do not have to be in the same data sharing group. When the Combined SLB group contains only IMS subsystems, then only IMS Recovery Expert programs are run. When the Combined SLB group contains both IMS subsystems and Db2 subsystems, both IMS Recovery Expert and Db2 Recovery Expert programs are run.

Topics:

- [“Planning for Combined SLB” on page 223](#)
- [“Configuring Combined SLB” on page 224](#)
- [“Creating Combined SLB groups” on page 226](#)
- [“Creating System Level Backup profiles for Combined SLB groups” on page 229](#)
- [“Using System Restore and Offload with Combined SLB” on page 232](#)
- [“Using job profiles with Combined SLB” on page 233](#)
- [“Creating disaster recovery profiles for Combined SLB groups” on page 234](#)
- [“Performing IMS system analysis and configuration” on page 235](#)
- [“Using coordinated application profiles with Combined SLB” on page 235](#)

Planning for Combined SLB

A Combined SLB can contain multiple IMS subsystems, multiple Db2 subsystems, or a combination of both, so you can create a single backup that contains multiple, related subsystems. The subsystems included in a Combined SLB do not have to be in the same data sharing group.

Before configuring IMS Recovery Expert for Combined SLB, you must understand your environment and your intended use for creating a Combined SLB.

A Combined SLB can be used for the following purposes:

Disaster Recovery

- A Combined SLB can provide a coordinated and transactionally-consistent point of recovery for multiple subsystems at the disaster recovery site without requiring additional recovery assets (such as archive logs).
- Since a Combined SLB can contain both IMS subsystems and Db2 subsystems, you can more quickly recover related IMS and Db2 systems from a single backup without creating multiple backups and performing coordinated recovery between IMS and Db2.
- When a Combined SLB is used for disaster recovery, the recovery is done to the backup only. No forward or log recovery is performed.

Local Database Recovery

- A Combined SLB can be used with existing application profiles to perform local database recovery.

- By using a Combined SLB as the basis of database recovery, multiple databases across related subsystems (IMS and Db2) can be more quickly recovered to a consistent point in time.
- When a database is recovered, a Combined SLB will be used if it best meets the recovery criteria.

Local Subsystem Restore

- A Combined SLB can be used to perform local subsystem restore.
- All subsystems in the Combined SLB are recovered; no individual subsystem recovery is allowed.
- When a Combined SLB is used for local recovery, the recovery is done to the backup only. No forward or log recovery is performed.

Combined SLB can operate within IMS Recovery Expert or Db2 Recovery Expert independently, or across both products. A Combined SLB group can contain IMS subsystems, Db2 subsystems, or a combination of both. However, the ability to create Combined SLB groups that contain both IMS and Db2 subsystems depends upon the mode of operation for which the feature is installed. Before you configure the Combined SLB option, you must first choose between local or shared mode:

Local Mode

Combined SLB operates within IMS Recovery Expert or Db2 Recovery Expert independently. You can create Combined SLB groups that contain subsystems that are related to the product you are using (IMS or Db2). In this mode, you can use Combined SLB to back up multiple subsystems that are related but not limited to the same data sharing group.

Shared Mode

Combined SLB operates across IMS Recovery Expert and Db2 Recovery Expert. A Combined SLB group can contain a combination of IMS and Db2 subsystems. The Combined SLB profiles and backups are available from either product regardless of the product that was used to create them. A Combined SLB group can contain a combination of IMS and Db2 subsystems, IMS subsystems only, or Db2 subsystems only. In shared mode, the repository data sets used by IMS Recovery Expert and Db2 Recovery Expert must be shared. This allows access to information from both products. If repositories are not shared, then shared mode is not available.

If you use both IMS Recovery Expert and Db2 Recovery Expert, then it is recommended that you configure the Combined SLB option for shared mode, even if you do not currently intend to create Combined SLB groups that contain both IMS and Db2 subsystems. By choosing shared mode, you ensure that your environment is configured appropriately if you choose to create Combined SLB groups that contain both IMS and Db2 subsystems in the future.

Configuring Combined SLB

After you configure IMS Recovery Expert, you can activate the Combined SLB option.

About this task

Before you activate the Combined SLB option, you must perform the configuration steps in [Chapter 3, “Configuring IMS Recovery Expert,”](#) on page 33.

Procedure

1. Update the BSYSYSGR member in the SBSYSAMP library, and submit the job. This job creates the VSAM control file used by IMS Recovery Expert, which contains the Combined SLB group information. You can find instructions in the member.
2. Edit your IMS Recovery Expert invocation CLIST, member BSYV220 in SBSYSAMP, and specify the repository data set name created by BSYSYSGR in the RBRGROUP() variable. This variable identifies (to the ISPF interface) the name of the VSAM data set to use for storing Combined SLB groups, and activates the Combined SLB feature.

What to do next

After you perform these steps, the Combined SLB feature is active for IMS Recovery Expert in local mode. To enable Combined SLB in shared mode, perform these additional steps:

1. Perform the steps in [“Connecting IMS Recovery Expert and Db2 Recovery Expert”](#) on page 205 to connect the two products. If you do not perform these steps, then the Combined SLB shared mode will not be activated.
2. Edit your Db2 Recovery Expert invocation CLIST, member ARYV320 in SARYSAMP, and specify the same data set name in the RBRGROUP() variable as specified in BSYV220. The RBRGROUP repository must be shared between IMS Recovery Expert and Db2 Recovery Expert to activate shared mode.
3. The repository data set names used by IMS Recovery Expert and Db2 Recovery Expert must be shared. If you currently use both IMS Recovery Expert and Db2 Recovery Expert, and you are not using shared repositories, see [“Creating shared repositories”](#) on page 225. The following variables in the BSYV220 and ARYV320 CLISTs must specify the same data set names:
 - Db2CNTFL
 - RBRBPROF
 - RBRBPMAP
 - RBRBPCAT
 - RBRSSBACK
 - RBRSSVOL
 - RBRSSBSSD
 - RBRPOBJS
 - RBRBREPT
 - RBRBOFFL
 - RBRMOVER
 - RBRGROUP

The following variables and the related repositories are not shared:

- RBRSSBOBJ: This repository is used by both IMS Recovery Expert and Db2 Recovery Expert, but the structure of this repository is different; each product specifies its own unique repository data set.
- RBRARCH: This repository is used by IMS Recovery Expert only.
- RBRSSRBA: This repository is used by Db2 Recovery Expert only.
- RBRBCPRF: This repository is used by both IMS Recovery Expert and Db2 Recovery Expert, but it is specified only in the Db2 Recovery Expert ARYV320 CLIST.

Creating shared repositories

If IMS Recovery Expert and Db2 Recovery Expert are currently installed, and you are not sharing the repository data sets, then you must convert your repositories and share them between the two products to activate the Combined SLB option.

About this task

If both products are installed and you are already using shared repositories, or if you are currently only using IMS Recovery Expert, then you do not need to perform these steps.

To create a new shared set of repositories with non-shared repositories from IMS Recovery Expert and Db2 Recovery Expert:

Procedure

1. Edit and submit the BSYREPS1 member in the SBSYSAMP library. Instructions for editing this member are contained in the member. This job will back up your existing IMS Recovery Expert and Db2 Recovery Expert repositories into flat files so that they can be used in the next step to create the common set of shared repositories.
2. Edit and submit the BSYREPS2 member in the SBSYSAMP library. Instructions for editing this member are contained in the member. This job will allocate a new set of shared repositories and then use IDCAMS to reproduce the individual IMS Recovery Expert and Db2 Recovery Expert repositories into the new shared set of repositories.
3. Edit your BSYV220 and ARYV320 product invocation CLISTs, and change the variable names in the following list to the names of the newly created shared repository data sets created in step [“1”](#) on [page 226](#). The variables that reference the shared repositories are:
 - Db2CNTFL
 - RBRBPROF
 - RBRBPMAP
 - RBRBPCAT
 - RBRBACK
 - RBRBVBOL
 - RBRBSSD
 - RBRPOBJS
 - RBRBREPT
 - RBRBOFFL
 - RBRMOVER I
 - RBRGROUP

Creating Combined SLB groups

Before you can perform Combined SLB functions or create Combined SLB profiles, you must first create one or more Combined SLB groups.

About this task

A Combined SLB group contains one or more IMS subsystem(s), one or more Db2 subsystem(s), or a combination of both, that have already been defined to the product. For information on how to define subsystems to the product, see [“Providing IMS system information”](#) on [page 36](#).

When defining Combined SLB groups, you must follow these rules:

- The Combined SLB group name cannot duplicate an existing SSID or data sharing group name.
- An SSID (individual subsystem or data sharing group) can only be included in one Combined SLB group. When an SSID is included in a Combined SLB group, it is marked as selected and cannot be included in any other Combined SLB group.
- When the selected SSID is part of a data sharing group, the SSID associated with the data sharing group is used (not the individual SSIDs). However, the individual SSIDs that are part of the data sharing group are marked as a part of the Combined SLB group, and cannot be included in any other Combined SLB group.

Procedure

1. Specify 0 (Administration) on the **Option** line of the IMS Recovery Expert main menu panel (BSY\$MAIN) and press Enter.

```
BSY$PNL0 V2R2 ----- Administration Menu ----- 2021/06/30 13:53:39
Option ==>
```

```
2021/06/30 13:53:39
User: PDMONA - BSY
```

- ```

```
1. Set System Backup Profile Defaults
  2. Register IMS Systems
  3. Define IMS Groups
  4. Db2 Recovery Expert for z/OS Connection
  5. Define System Recovery Profiles
  6. Define Combined SLB Groups

Figure 130. **Administration Menu** panel (BSY\$PNL0): Combined SLB

2. On the **Administration Menu** panel, specify 6 (Define Combined SLB Groups) on the **Option** line and press Enter.

```
BSY$CG00 V2R2 ----- Combined SLB Group Display ----- 2021/06/30 13:58:48
Option ==> Scroll ==> PAGE
```

```
Line Commands: C - Create D - Delete U - Update V - View
```

```
CSLB Mode: Shared
```

```
----- Row 1 of 8 >
```

```
<----- L
Cmd Group Members Description Userid
EMCG 0001 EMC GROUP TSMGM
GRP1 0001 DATA SHARING SUBSYSTEMS1 TSMGM
GRP2 0002 MULTIPLE SUBSYSTEMS CSMESH
GRP3 0001 SINGLE SUBSYSTEM CSMESH
MIKE 0001 DESC TSMGM
MXD1 0001 TSMGM
TSLB 0001 TEST CSLB CSTSUK
123 0001 123 CSTSUK
***** Bottom of Data *****
```

Figure 131. **Combined SLB Group Display** panel (BSY\$CG00)

3. On the **Combined SLB Group Display** panel, specify C in the **Cmd** field to define a new group and press Enter.

```
BSY$CGAD V2R2 ----- Add Combined SLB Group ----- 2021/05/01 10:49:31
Option ==> Scroll ==> PAGE
```

```
Line Commands: A - Add D - Delete
```

```
Group: tslb
Description: test cslb group
```

```
----- Row 1 of 1
```

```
Cmd Member Type
A Press Enter to Add
***** Bottom of Data *****
```

Figure 132. **Add Combined SLB Group** panel (BSY\$CGAD)

4. On the **Add Combined SLB Group** panel, specify the name of the group and a description of the group. Press Enter to add SSIDs to this group.

```

BSY$CGSL V2R2 ----- Subsystem Selection ----- 2021/05/01 10:49:31
Option ==> Scroll ==> PAGE

Line Commands: S - Select Subsystem

----- Row 1 of 25 +

Cmd SSID Type CSLB DShare
 DBA7 Db2 Group Group
 DBB7 Db2
X DDS7 Db2 MXD1
 EA1B Db2
X EB1C Db2 MXD1
 EDS1 Db2
 E9A1 Db2
 IAA3 IMS
 IAA4 IMS
 IAA5 IMS
 IAA6 IMS
 IAA7 IMS
 *CMD

```

Figure 133. **Subsystem Selection** panel (BSY\$CGSL)

On the **Subsystem Selection** panel, all defined subsystems that are available for inclusion in the group are displayed. The following fields are displayed:

**Cmd**

Specify S on the **Cmd** line next to a subsystem to select it for inclusion in the group. Subsystems that are already part of a Combined SLB group are marked with **X** and cannot be selected.

**SSID**

The name of the defined subsystem.

**Type**

The type of subsystem. Values are either IMS or Db2.

**CSLB Group**

If the subsystem is already included in a Combined SLB group, this column indicates the Combined SLB group name.

**DShare Group**

If the subsystem is part of a data sharing group, this column indicates the data sharing group name. If the subsystem is Db2, this column only displays a value when one of the data sharing group members is active on the LPAR to which you are logged in.

- To select subsystems to include in the group, specify S on the **Cmd** line next to the subsystem(s) you want to include. You can page up and down the list to select multiple entries. When you have selected subsystems, press PF3 to process them.

```

BSY$CGAD V2R2 ----- Add Combined SLB Group ----- 2021/05/01 10:49:31
Option ==> Scroll ==> PAGE

Line Commands: A - Add D - Delete

Group: TSLB
Description: TEST CSLB GROUP

----- Row 1 of 3

Cmd Member Type
 EMC IMSGRP
 IAA IMSGRP
 IAAX IMS
***** Bottom of Data *****

```

Figure 134. **Add Combined SLB Group** panel (BSY\$CGAD): Subsystems in Group

On the **Add Combined SLB Group** panel, the subsystems that you selected are included in the group. If any of the subsystems were part of a data sharing group, the data sharing group **Member** name is included, and the **Type** is IMSGRP.

You can create as many Combined SLB groups as you need for your environment. When you have one or more Combined SLB groups created, you are ready to use the Combined SLB option.

## Creating System Level Backup profiles for Combined SLB groups

When you have one or more Combined SLB groups defined, you can create a System Level Backup Profile for the group.

### Procedure

1. Specify **1** (System Operations) on the **Option** line of the IMS Recovery Expert main menu panel (BSY\$MAIN) and press Enter.

```
BSY$SYMN V2R2 ----- System Operations Menu -----
Option ===>

 2021/06/30 13:53:57
 User: PDMONA - BSY

 1. IMS System Analysis and Configuration
 2. System Backup Profiles
 3. System Level Backup Operations
 4. Disaster Recovery Profiles
```

Figure 135. **System Operations Menu** panel (BSY\$SYMN)

2. On the **System Operations Menu** panel, specify **2** (System Backup Profiles) on the **Option** line and press Enter.

```
Enter System Backup Profile Selection Criteria
BSY$BPLK
Profile Like *
Creator Like *
SSID Like *
```

3. On the **Enter System Backup Profile Selection Criteria** panel, specify selection criteria and press Enter.

```

BSY$BPRD V2R2 ----- System Backup Profile Display ----- 2021/06/30 14:05:14
Option ===> Scroll ===> PAGE

Line Commands: B - Build U - Update C - Create V - View D - Delete
 R - Rename G - Group

Profile Like * SSID Like *
Creator Like * Row 1 of 61 +>

Cmd Name Creator SSID/ Group Updt
BAT BAT PDBATA EMC U
BATTRY BATTERY PDBATA EMC U
BAT1234 BAT1234 PDBATA EMC U
CSLB GRP2 CSLB GRP2 CSMESH GRP2 U
CSLB STOGROUP/TRGPOOL CSLB STOGROUP/TRGPOOL CSMESH GRP1 U
EMC EMC PDBISC EMC U
EMC-FC EMC-FC CSOSTR EMC U
EMC-L EMC-L CSOSTR EMC U
EMC-S EMC-S CSOSTR EMC U
EMC_TARGET_POOL EMC_TARGET_POOL CSOSTR EMC U

```

Figure 136. **System Backup Profile Display** panel (BSY\$BPRD): Combined SLB

- On the **System Backup Profile Display** panel, specify C in the **Cmd** field of any row to create a new Combined SLB Backup Profile. Press Enter.

```

Enter Backup Profile Type
BSY$BPTP
Backup Profile Type c (S=System, C=Combined SLB)

```

Figure 137. **Enter Backup Profile Type** panel (BSY\$BPTP): Combined SLB

- On the **Enter Backup Profile Type** panel, specify C in the **Backup Profile Type** field. Press Enter.

```

Enter New Backup Profile Options
BSY$CPC1
Creator TSMXD

Profile Name Combined SLB Profile
Description Combined SLB Profile
CSLB Group ? (? for group list)
Backup Method F (Bcv/Snap/Flash/dfmsdss(L))
Source/ Source/
Target Mapping S (Auto discover/pool mapping,
 Stogroup discover/pool mapping)
Update Option U (Update, View only, No access)

```

Figure 138. **Enter New Backup Profile Options** panel (BSY\$CPC1): Combined SLB

- On the **Enter New Backup Profile Options** panel, specify information in the **Profile Name**, **Description**, **CSLB Group**, **Backup Method**, **Source/Target Mapping**, and **Update Option** fields. Note that manual mapping is not available for Combined SLB.
  - If you do not know the name of the Combined SLB group you want to use, specify ? in the **CSLB Group** field. Press Enter.



```

BSY$CGGL V2R2 ----- Combined SLB Group Display ----- 2021/05/01 10:49:31
Option ==> Scroll ==> PAGE

Line Commands: S - Select V - View

----- Row 1 of 2

Cmd Group Members Description
 s MXD1 0003 CSLB GROUP
 s TSLB 0003 TEST CSLB GROUP
***** Bottom of Data *****

```

Figure 139. **Combined SLB Group Display** panel (BSY\$CGGL)

b) On the **Combined SLB Group Display** panel, specify S on the **Cmd** line next to the Combined SLB group you want. Press Enter.

The **Enter New Backup Profile Options** panel (BSY\$CPC1) is displayed again.

c) When you have specified all options on the **Enter New Backup Profile Options** panel, press Enter.

```

BSY$BPSU V2R2 ----- Update Backup Profile ----- 2021/05/01 12:10:52
Option ==> Scroll ==> PAGE

Commands: ? - Show all commands
Line Commands: I - Insert D - Delete X - Exclude U - Undo from exclude

Creator: TSMXD Name: COMBINED SLB PROFILE CSLB Group: IAA
Share Option: U (Upd,View,No) Description: COMBINED SLB PROFILE
----- Backup Options -----
Backup Method ==> F (B/S/F/L) Current Generation==> 00
Backup Scope ==> F (Full/Data) Setup Needed ==> Y
Backup Generations==> 03 (01 - 99) Issue Log Suspend ==> N (Yes/No)
Offload Options ==> N (Yes/No/Update) Validate IMS Vols ==> Y (Yes/No)
Source Stogroups ==> N (Yes/No/Update) Enable DB Restore ==> N (Yes/No)
Target Pool ==> N (Yes/No/Update) Issue NOTIFY.IC ==> N (Yes/No)

----- Volume Inclusions/Exclusions ----- Row 1 of 1
Source Dev Src Target
Cmd Volumes Type Unit Units Message Area
I PRESS ENTER FOR NEW LINE
***** Bottom of Data *****

```

Figure 140. **Update Backup Profile** panel (BSY\$BPSU): *Combined SLB*

7. When you return to the **Update Backup Profile** panel, you can define the Combined SLB backup profile as you would any other backup profile.

For more information about this process, see Chapter 6, “[Creating and maintaining System Level Backup profiles](#),” on page 113. Note that the **Issue Log Suspend** field is set to N and cannot be changed. The log suspend process is not available for a Combined SLB backup profile due to the probability of elongated system ENQ times while attempting to quiesce all subsystems to a consistent point in time.

8. When viewing backup profiles, if you have a profile associated with a Combined SLB group and want to know what subsystems are in the group, specify G on the **Cmd** line next to the profile, and press Enter.

```

BSY$CGXD V2R2
Option ==>

SSID Type
DDS7 Db2GRP
EB1C Db2
IBA2 IMS

***** Bottom of Data *****

```

Figure 141. Group subsystems (BSY\$CGXD)

## Results

On the BSY\$CGXD panel, all subsystems (currently defined to the Combined SLB group) and their types are displayed.

When you have created the Combined SLB backup profile, it can be processed like any other backup profile. For more information about using this profile to create a System Level Backup (SLB), see [Chapter 7, “Creating a System Level Backup,”](#) on page 149.

## Using System Restore and Offload with Combined SLB

When you have created a backup for a Combined SLB group, you can utilize the system restore and offload interface to manage the backup.

### Procedure

1. Specify **1** (System Operations) on the **Option** line of the IMS Recovery Expert main menu panel (BSY\$MAIN) and press Enter.
2. On the **System Operations Menu** panel (BSY\$SYMN), specify **3** (System Level Backup Operations) on the **Option** line and press Enter.

```

BSY$REST V2R2 ----- System Level Backup Display ----- 2021/08/18 15:43:14
Option ==> Scroll ==> PAGE

Line Commands: S - Select for Restore D - Delete V - View Reports O - Offload
 J - Object Report F - Free Backup Disks I - Image Copies
 G - Group Display

IMS Subsystem ID *

Select a row from the list of recovery points displayed below. To enter
a timestamp and have a recovery point automatically selected for you,
enter the RESTORE primary command followed by an IMS Subsystem/Group ID.

 Row 1 of 12 +>
Cmd Date Time Data Mixed On On Obj Partial
 07/03/2021 05:20:45 No No Yes No Yes No Backup Type
 SSID: IAA
 08/15/2021 11:17:24 No Yes Yes Yes Yes No Flash
 SSID: IBA2
 08/15/2021 04:13:40 No Yes Yes Yes Yes No Flash
 SSID: ICA2
 08/08/2021 00:25:47 No Yes Yes Yes Yes No DFdss

```

Figure 142. **System Level Backup Display** panel (BSY\$REST): Combined SLB

On the **System Level Backup Display** panel, you can perform the same functions that are available for a regular system level backup. For more information about these options, see [Chapter 6, “Creating and maintaining System Level Backup profiles,”](#) on page 113.

- On the **System Level Backup Display** panel, if you specify J (Object Report) or I (Image Copies) on the **Cmd** line next to a Combined SLB and press Enter, a list of subsystems in the backup is displayed.

```

BSY$CGSS V2R2
Option ==> Scroll ==> PAGE

Line Commands: S - Process SSID

Row 1 of 3

Cmd SSID Type RBA/LRSN
 DDS7 Db2 000000000000000000000000
 EB1C Db2 000000000000357CCF7D2
 IBA2 IMS
***** Bottom of Data *****

```

Figure 143. **Combined SLB SSID List** panel (BSY\$CGSS)

- On the **Combined SLB SSID List** panel, you can select one or more subsystems for processing and press Enter. The requested function is performed against those subsystems.

When you specify I (Image Copy), only IMS subsystems are available for selection. If the Combined SLB contains Db2 subsystems and you want to perform image copies for them, you must perform this from the Db2 Recovery Expert ISPF interface.

When you select a backup that is associated with a Combined SLB group, the only available option is to recover all subsystems in the backup to the time of the backup.

```

 Combined SLB Restore
BSY$RESC

A Combined System Level Backup (CSLB) was selected,
you will not be allowed to a select recover to point.
All subsystems in the backup will be restored.
Please press enter to Generate the Restore Job JCL.

```

Figure 144. **Combined SLB Restore** panel (BSY\$RESC)

- Press Enter. The **Build Restore Job** panel is displayed.

```

 Build Restore Job
BSY$BLDR
Edit Generated Job Y (Yes/No)
Edit Multijob Options N (Yes/No)
Build job in Dataset ISMXD.BSY.CNTL
Member mxdlrest Restore System Member

Job Cards:
==> //tsmxdx1 JOB TSMXD,CLASS=A,NOTIFY=&SYSUID
==> /**
==> /**
==> /**

```

Figure 145. **Build Restore Job** panel (BSY\$BLDR): Combined SLB

## Using job profiles with Combined SLB

To use existing or new job profiles with the Combined SLB feature, no changes are necessary.

Actions related to job profiles are performed at the individual subsystem (that is, SSID). If a recovery is performed and a Combined SLB best meets the recovery criteria, it will be used to recover the database.

## Creating disaster recovery profiles for Combined SLB groups

When you have defined one or more Combined SLB groups, you can create a disaster recovery profile for the group.

### Procedure

1. Specify **1** (System Operations) on the **Option** line of the IMS Recovery Expert main menu panel (BSY\$MAIN) and press Enter.
2. On the **System Operations Menu** panel (BSY\$SYMN), specify **4** (Disaster Recovery Profiles) on the **Option** line and press Enter.

```
Enter Disaster Recovery Profile Selection Criteria
BSY$XDRK
 Profile Like *
 Creator Like *
 SSID Like *
```

Figure 146. **Enter Disaster Recovery Profile Selection Criteria** panel (BSY\$XDRK): Combined SLB

3. On the **Enter Disaster Recovery Profile Selection Criteria** panel, specify disaster recovery profile selection criteria and press Enter.

```
BSY$XDRD V2R2 --- Disaster Recovery Profile Display --- 2021/06/30 14:04:43
Option ==> Scroll ==> PAGE

Line Commands: D - Delete U - Update B - Build P - Report
 C - Create R - Rename V - View G - Group

Profile Like * SSID Like *
Creator Like * Row 1 of 109 +>

Cmd Name Creator Group Updt
ABC ABC PDBATB IBA2 U
ABCDEF ABCDEFG PDBATA IAA U
BAT BAT PDBATA IAA U
BAT - IAA BAT - IAA PDBAT IAA U
BAT TRY BAT TRY PDBAT EMC V
BATTRY BATTRY PDBATA I9A2 U
BAT5 BAT5 PDBATA IAA U
COORDINATED DR COORDINATED DR PDBISC IBA2 U
CSLB TEST DR PROFILE CSLB TEST DR PROFILE CSTSUK TSLB U
EMC DR1/1 EMC DR1/1 CSOSTR EMC U
```

Figure 147. **Disaster Recovery Profile Display** panel (BSY\$XDRD): Combined SLB

4. On the **Disaster Recovery Profile Display** panel, specify C on the **Cmd** line of any row to create a new Combined SLB disaster recovery profile. Press Enter.

```
Enter DR Profile Type
BSY$DRTP
DR Profile Type c (S=System, C=Combined SLB)
```

Figure 148. **Enter DR Profile Type** panel (BSY\$DRTP): Combined SLB

5. On the **Enter DR Profile Type** panel, specify C in the **DR Profile Type** field and press Enter.

```

Enter New Disaster Recovery Profile Data
BSY$CDC1
 Creator TSMXD
 Profile Name CSLB DR Profile
 Description CSLB DR Profile
 CSLB Group mxdl (? for group list)
 Update Option U (Update, View only, No access)

```

Figure 149. **Enter New Disaster Recovery Profile Data** panel (BSY\$CDC1): Combined SLB

6. On the **Enter New Disaster Recovery Profile Data** panel, specify the information associated with this profile and press Enter.

```

BSY$CDRU V2R2 --- Update Disaster Recovery Profile --- 2021/05/01 11:45:17
Option ==>

Creator: TSMXD Name: CSLB DR PROFILE User: TSMXD
Share Option: U (Upd,View,No) Description: CSLB DR PROFILE
IMS System/Group: MXD1

DR Profile Options:
DR Site Recovery point ==> B (Backup)
SLB Used for DR ==> R (Localsite/Recoverysite)

Use Multijob for DR Restore ==> N (Yes/No/Update)

```

Figure 150. **Update Disaster Recovery Profile** panel (BSY\$CDRU): Combined SLB

On the **Update Disaster Recovery Profile** panel, when creating a disaster recovery profile for a Combined SLB group, the only recovery option is to recover all of the subsystems to the point of the backup. As a result, the profile only allows you to select whether you want to use the local or remote site backups for recovery, and whether you want to use the multijob option for performing the restore.

When a build is performed against a disaster recovery profile for a Combined SLB group, the #REPOJOB and xxxx#JC1 jobs are the only jobs created. The #REPOJOB redefines and reloads the repository data sets. The xxxx#JC1 job performs the restore of the Combined SLB. No other recovery processing is performed.

## Performing IMS system analysis and configuration

The System Analysis and Configuration option is not affected by the Combined SLB option. System analysis and configuration operates on the individual subsystem (that is, SSID). A Combined SLB group cannot be used as the target for this function.

## Using coordinated application profiles with Combined SLB

To use existing or new coordinated application profiles with the Combined SLB feature, no changes are required. Actions related to application profiles are performed at the individual subsystem (that is, SSID).

If a recovery is performed and a Combined SLB best meets the recovery criteria, it will be used to recover the IMS databases and Db2 objects.



---

# Chapter 11. Restoring an IMS system

IMS Recovery Expert allows you to successfully restore an IMS system that has been backed up by IMS Recovery Expert.

## Topics:

- [“Before you restore the system” on page 237](#)
- [“Viewing a list of backups” on page 237](#)
- [“Restoring a system: Data only” on page 241](#)
- [“Restoring a system: Data and logs” on page 244](#)
- [“Selecting a recovery timestamp” on page 246](#)
- [“Restarting a failed restore job ” on page 248](#)
- [“Reviewing restore reports” on page 248](#)

---

## Before you restore the system

IMS Recovery Expert maintains a list of valid system restore points from which you can choose in the event you need to restore a system.

When you restore a system, you will be restoring data and logs, or data only. The type of restore depends on the type of backup specified in the backup profile and whether IMS Recovery Expert detected mixed data during the backup. Mixed data occurs when IMS Recovery Expert detected that your IMS databases and the logs are located on the same volumes. If this happens, IMS Recovery Expert still makes the backup, but if you choose this backup as a recovery point, you must restore both the data and the logs. Note that any logging or transactions that were performed after that recovery point will be lost.

If the backup was a data only backup, you can restore the data only as long as IMS Recovery Expert did not detect mixed data.

If the backup was a data and log backup, you can restore both data and logs, or you can choose to restore data only as long as IMS Recovery Expert did not detect mixed data during the backup. If the logs were not mixed in with the data, you can restore the data to the restore point, and then apply logs to bring it up to current or (another later recovery point).

---

## Viewing a list of backups

IMS Recovery Expert only lists valid backups. If a backup failed and cannot be used to restore the system, it will not be displayed on the **System Level Backup Display** panel.

### Procedure

1. Specify 1 (System Operations) on the **Option** line of the IMS Recovery Expert main menu panel (BSY\$MAIN) and press Enter.
2. On the **System Operations Menu** panel (BSY\$SYMN), specify 3 (System Level Backup Operations) on the **Option** line and press Enter.

```

BSY$REST V2R2 ----- System Level Backup Display ----- 2021/08/18 15:43:14
Option ===> Scroll ==> PAGE

Line Commands: S - Select for Restore D - Delete V - View Reports O - Offload
 J - Object Report F - Free Backup Disks I - Image Copies
 H - Health Check G - Group Display

IMS Subsystem ID *

Select a row from the list of recovery points displayed below. To enter
a timestamp and have a recovery point automatically selected for you,
enter the RESTORE primary command followed by an IMS Subsystem/Group ID.

Row 1 of 12 +>
Cmd Date Time Data Mixed On On Obj Partial
 07/03/2021 05:20:45 No No Yes No Yes No Flash
 SSID: IAA
 08/15/2021 11:17:24 No Yes Yes Yes Yes No Flash
 SSID: IBA2
 08/15/2021 04:13:40 No Yes Yes Yes Yes No Flash
 SSID: ICA2
 08/08/2021 00:25:47 No Yes Yes Yes Yes No DFdss

```

Figure 151. **System Level Backup Display** panel (BSY\$REST)

On the **System Level Backup Display** panel, all subsystem IDs are listed by default. There is a two-line detail for each backup that contains the following information:

**IMS Subsystem ID**

The subsystem IDs being displayed. By default, all subsystems are listed. You can limit the display by specifying a subsystem name or mask in this field. Use the **RIGHT** and **LEFT** scroll commands (PF10 and PF11) to see all the available columns. Use the **UP** and **DOWN** commands (PF7 and PF8) to scroll through the list when there are more backups than can be displayed on one panel.

**Date**

The backup date.

**Time**

The time the backup was taken in *hh:mm:ss* format.

**Data Only**

If the backup profile specified a data only backup, then the value in this field is Yes. If backup scope was specified as *full*, then the value in this field is No.

**Mixed Data**

If IMS Recovery Expert detected log data sets on the same volume(s) as the data, then the value in this field is Yes and IMS Recovery Expert must restore both the logs and the data.

**On Disk**

If this backup has not been offloaded from its original location, then the value in this field is Yes and the restore will use the backup on disk.

**On Offload**

If the backup has been offloaded using the IMS Recovery Expert offload process, then the value in this field is Yes; for more information, see [Chapter 6, "Creating and maintaining System Level Backup profiles,"](#) on page 113. If the value in the **On Disk** field is No, then the restore will use the offloaded backup.

**Obj Rcvr**

If database restore was enabled for the backup, then the value in this field is Yes.

**Partial Backup**

If the backup taken was a partial backup, then the value in this field is Yes, and not all volumes associated with the IMS environment were included in the backup. This backup cannot be used for a system restore; however, it can be used for application restoration if the database restore function was enabled for the backup.

**Type**

The type of backup: BCV, SNAP, FlashCopy, or DFSMSdss.



**Nbr Vols**

The number of volumes that were backed up.

**Run by Userid**

The TSO user ID of the person that ran the backup job.

**Profile Name**

The profile name used to create the backup.

**Profile Creator**

The TSO user ID of the profile creator.

**Gen Nbr**

The generation number for this backup.

**Job Name**

The backup job name.

**Job Number**

The backup job number.

3. On the **Cmd** line next to each backup, you can use the following commands:

- S to select a backup for the system restore.
- D to delete a backup from the list.
- V to view a summary report produced when the backup was performed.
- O to offload a backup.
- J to produce a report showing all objects included in the System Level Backup.
- F to free the disks holding the System Level Backup.
- I to produce image copies of selected objects from the System Level Backup.
- H to run a System Level Backup health check.
- G to display Combined SLB group members in the backup.

## Viewing the summary report from the backup

Specify V next to a restore point to view the summary report produced when the backup was performed.

This is the same report from the BSY#REPT DD described in the topics about reviewing output from the various backup types.

## Offloading a backup

If offload options were set for the backup in the backup profile, you can offload a backup listed on the **Restore System Display** panel.

### Procedure

1. To offload a backup, specify O next to the backup and press Enter.

```

BSY$BLDO Build Offload Job
 Edit Generated Job Y (Yes/No)

 Build job in Data set PDMONA.BSY.JCLLIB
 Member Offload Job Member

 Job Cards:
==> //OFFLJOB JOB PDMONA,CLASS=A,NOTIFY=&SYSUID
==> //*
==> //*
==> //*
```

Figure 152. **Build Offload Job** panel (BSY\$BLDO): Offloading a Backup

2. On the **Build Offload Job** panel, specify information in the following fields:

**Edit Generated Job**

Specify Y to view the job in an ISPF edit session after generation. If you specify N, you will return to the **System Level Backup Display** panel after the job is generated.

**Build job in Data set/Member**

Specify the fully qualified data set name (without quotes) where you want to save the generated job. This data set must exist and can be sequential or a PDS. If the data set is a PDS, specify a member name. If the member does not exist, IMS Recovery Expert will create it.

**Job Cards**

Specify a valid job card for your site.

3. Press Enter, or PF3 to cancel.

## Performing an SLB health check

You can drive the Database Recovery Facility: Extended Functions health check feature against a System Level Backup.

### Procedure

1. Specify H next to the backup for which you want to create health check JCL, and press Enter.

```
BSY$BLDH Build Health Check Report Job

 Edit Generated Job Y (Yes/No)
 Edit Health Check Options N (Yes/No)

 Build job in Dataset TSMXD.BSY.CNTL
 Member IBA2HCHK Health Check Report Job Member

 Job Cards:
==> //TSMXDXX1 JOB TSMXDA,CLASS=A,NOTIFY=&SYSUID
==> //*
==> //*
==> //*
```

Figure 153. **Build Health Check Report Job** panel

2. On the **Build Health Check Report Job** panel, specify the following parameters:

**Edit Generated Job**

Specify Y to view the job in an ISPF edit session after generation. If you specify N, you will return to the **System Level Backup Display** panel after the job is generated.

**Edit Health Check Options**

Specify Y to view and update the existing health check options that will be used for this job execution. If you specify N then the default or previously used options will be used. For a description of the options and their values, see [Chapter 14, “Running a Health Check,”](#) on page 295.

**Build job in Dataset Member**

Specify the fully qualified data set name (without quotes) where you want to save the generated job. This data set must exist and can be sequential or a PDS. If the data set is a PDS, specify a member name. If the member does not exist, IMS Recovery Expert creates it.

**Job Cards**

Specify a valid job card for your site.

3. When you are finished, press Enter to generate the health check JCL.
4. Submit the JCL to execute Health Check with the specified options for the selected system.

## Deleting backups

Specify D next to a backup to delete it from the list. A confirmation panel is displayed; you must specify Y in the **Delete** field and press Enter to delete the backup.

## Restoring a system: Data only

If both data and logs were backed up, you can choose to restore only the data. If the backup was configured for data only, you can only restore the data.

### About this task

When restoring data only, IMS Recovery Expert generates three separate JCL members that must be executed in order.

To restore the system:

### Procedure

1. Build the restore job from the desired backup. For more information, see [“Building restore jobs - data only”](#) on page 241.
2. Submit the first job. This job will stop IMS, if not already stopped, and perform a system data restore.
3. Submit the second job to perform recovery for all IMS databases and indexes.
4. Submit the last job to restart IMS if it was originally active.

### Results

The IMS system is now restored to the selected point in time.

## Building restore jobs - data only

You can build a data only restore job.

### Procedure

1. From the **System Level Backup Display** panel, specify **S** in the **Cmd** line next to the backup that will be used for the restore.

```
BSY$RESD Restore Options
Restore Only Data Y (Yes/No)
Select a Recovery Point N (Yes/No)
Recover to Timestamp 09301113552740000
Update Recovery Options Y (Yes/No)

Select whether to Restore Data and Logs or Data only. If
restoring Data and Logs you will not be able to select a
Timestamp Recovery Point.
```

Figure 154. **Restore Options** panel (BSY\$RESD)

2. On the **Restore Options** panel, specify information in the following fields:

#### Restore Only Data

Specify Y in this field to restore only the data from the backup.

#### Select a Recovery Point

Specify Y in this field to select a recovery point based on a timestamp.

#### Recover to Timestamp

This field defaults to the recovery timestamp associated with the backup. If you are restoring data only, you can leave this field as is and the subsystem will recover to that point in time. You can also specify a timestamp greater than that of the backup; in that case, IMS Recovery Expert will

apply logs to bring the subsystem up to that point in time. The timestamp can be specified in a local timestamp format (*yydddhhmsssthmiju* or *yydddhhmssst*), or in a UTC timestamp format (*yydddhhmssstSnnnn*) where *Snnnn* is a numeric offset in the form *Shhmm*, that, when added to UTC, gives local time. *S* indicates the sign and must be + or -. *hh* is a numeric value between 00 and 14. *mm* is one of the following values: 00, 15, 30, 45. *Shhmm* is a value between -1100 and +1400.

### Update Recovery Options

Specify Y in this field to update recovery options.

- When your recovery point has been established, press Enter.

```

Build Restore Job
BSY$BLDR
Edit Generated Job Y (Yes/No)
Edit Recovery Options N (Yes/No)
Edit Multijob Options Y (Yes/No)
Build job in Dataset
 Member xxx Restore System Member
 Member xxx Restore Objects Member
 Member xxx Start IMS Member

Job Cards:
==> //RJOBBCRD JOB PDMONA,CLASS=A,NOTIFY=&SYSUID
==> //*
==> //*
==> //*

```

Figure 155. **Build Restore Job** panel (BSY\$BLDR)

- On the **Build Restore Job** panel, specify information in the following fields. Note that IMS Recovery Expert builds three members that contain JCL.

#### Edit Generated Job

Specify Y to view the job in an ISPF edit session after the job is generated, or specify N to return to the **Restore System Display** panel.

#### Edit Recovery Options

Specify Y to update recovery options for the Recover/Rebuild pending job.

#### Edit Multijob Options

When the offload was created, multijob options were saved with the backup profile. Specify Y to edit these options, or N to make no changes. For more information, see [“Editing multijob options for restore” on page 242](#).

#### Restore System Member

This job contains JCL to STOP the IMS system if it is active, and invoke the IMS Recovery Expert system restore utility to restore the data volumes.

#### Restore Objects Member

This job invokes the IMS Recovery Expert application recovery utilities to recover all IMS databases and indexes to the selected point in time.

#### Start IMS Member

This job restarts IMS if it was originally active.

## Editing multijob options for restore

On the **Multijob Options** panel (BSY\$MJOP), you can edit multijob processing options. If Multijob processing was not used for creating the offload, you can still use Multijob processing for restore processing.

### Procedure

- On the **Build Restore Job** panel, specify Y (Yes) in the **Edit Multijob Options** field and press Enter.

```

BSY$MJOP V2R2 ----- Multijob Options ----- 2021/01/16 1
Option ==>

Enter the options for performing Multijob processing:

Use Multijobs ==> Y (Y/N)
Multijob Prefix ==> TSMXDX (1-6 character job prefix)

Multijob LPAR list:
LPAR Name Max Jobs (1-99) Max Tasks (1-99)
RS22 02 02
RS23 02 02

```

Figure 156. **Multijob Options** panel (BSY\$MJOP)

2. Modify the following Multijob options to use for restore processing:

#### **Use Multijobs**

Specify Y if you want the restore processes to use multiple jobs, or N to use a single job.

#### **Multijob Prefix**

This is a 1-6 character value that is used as a prefix for the multiple jobs that are created. As each multijob is initiated, the name of the job will begin with this prefix followed by a number from 01-99. If this value is not specified, then the prefix is taken from the first 6 characters of the Master jobname.

#### **Multijob LPAR List**

The LPAR list allows you to specify up to four entries to be used by the Master job for submitting Multijobs. Each entry consists of an 8 character LPAR name, a 2 character max jobs value, and a 2 character max tasks value.

Consider the following information when specifying these entries:

- The same LPAR can be specified more than once in the LPAR List.
- When defining the LPAR List, be aware of the total number of tape drives that are required for processing if the maximum number of jobs is used. For each LPAR List entry, the maximum number of tape drives used is equal to the sum of the maximum number of jobs multiplied by the maximum number of tasks. In the **Multijob Options** panel example, this number is 8 (2x2+2x2).
- Before any Multijobs are initiated, the Master job will determine from the LPAR List entries what the maximum number of jobs is that can be submitted. The Master job will break the recovery units for a recovery into groups so that they can be processed without exceeding the maximum job limit.

#### **LPAR Name**

This is a 1-8 character LPAR name. It identifies the name of the LPAR on which the Multijob is to be submitted. You can specify a single asterisk (\*) to indicate that the LPAR that the jobs will be submitted to is the same LPAR on which the Master job is running.

#### **Max Jobs**

This is a 2 digit number from 01-99 and indicates the maximum number of jobs that can be submitted for this entry. The Master job will submit Multijobs on the specified LPAR until this limit is reached. When this limit is reached, if more jobs are needed, the Master job will move to the next LPAR List entry. The default value is 4.

#### **Max Tasks**

This is a 2 digit number from 01-99 and specifies the maximum number of tasks that are to be created in each Multijob for processing. When the Multijob is submitted, it will create as many tasks as are needed, up to this limit, to perform restore processing. The default value is 4.

3. Press PF3 to return to the **Build Restore Job** panel and build the restore JCL.

## Restoring a system: Data and logs

You can restore data and logs if both data and logs were successfully backed up. If the backup specified data only, but IMS Recovery Expert detected mixed data when the backup job was run, you must restore both data and logs.

### About this task

When restoring data and logs, IMS Recovery Expert generates only one JCL member.

### Procedure

1. Build the restore job from the desired backup. For more information, see [“Building restore jobs - data and logs” on page 244](#).
2. Submit the Restore System JCL. The job will stop IMS if not already stopped, invoke the IMS Recovery Expert system restore utility, and restart IMS if it was originally active.

## Building restore jobs - data and logs

Use these steps to build a restore job for data and logs.

### Procedure

1. From the **System Level Backup Display** panel, specify **S** in the **Cmd** line next to the backup that will be used for the restore.

```
BSY$RESD Restore Options
Restore Only Data N (Yes/No)
Select a Recovery Point N (Yes/No)
Recover to Timestamp 09301113552740000
Update Recovery Options Y (Yes/No)

Select whether to Restore Data and Logs or Data only. If
restoring Data and Logs you will not be able to select a
Timestamp Recovery Point.
```

Figure 157. **Restore Options** panel (BSY\$RESD)

2. On the **Restore Options** panel, specify information in the following fields:

#### Restore Only Data

To restore data and logs, specify N.

#### Select a Recovery Point

Leave this field set to N; you cannot select a recovery point when restoring data and logs.

#### Recover to Timestamp

This field defaults to the recovery timestamp associated with the backup. You cannot change this field.

#### Update Recovery Options

To update recovery options, specify Y.

3. When you finish specifying information on this panel, press Enter.







```

BSY$RBAE V2R2 ----- Subsystem Timestamp Display ----- 2021/11/11 15:16:09
Option ==> Scroll ==> CSR

Line Commands: S - Select Timestamp

Backup Timestamp Displayed from: 02/26/2021-21:50:00 To Current/End
Subsystem: IAA Datasharing: Yes Row 1 of 18 +

Archive Log Records
<-- Log Timestamp -->
02/26/2021-22:09:48.4
02/26/2021-22:13:21.4
02/26/2021-22:13:37.6
02/26/2021-22:13:45.6
02/26/2021-22:13:52.9
02/26/2021-22:14:23.7
02/26/2021-22:14:23.9

----- End of Data -----

Check Point Records
<-- Log Timestamp -->
02/26/2021-22:09:25.3
02/26/2021-22:13:20.5
02/26/2021-22:14:22.2

```

Figure 160. **Subsystem Timestamp Display** panel (BSY\$RBAE)

4. On the **Subsystem Timestamp Display** panel, the following fields are displayed:

**Archive Log Records**

This section displays the timestamps recorded for the creation of log records.

**Log Timestamp**

This is the store clock time at which the log records at the end of the archive log were created.

**Check Point Records**

This section displays the timestamps recorded at start and end checkpoints.

**Log Timestamp**

This is the store clock time associated with the start or end of the checkpoint record.

**RPID Recovery Points**

This section displays the quiet time ranges for the selected subsystem.

**Start Timestamp**

The timestamp for the beginning of the range.

**End Timestamp**

The timestamp for the end of the range.

5. To select a recovery point, specify S next to the record and press Enter.
6. When you have selected a timestamp, press PF3 to return to the **Restore Options** panel. The selected timestamp is inserted into the timestamp field.

## Restarting a failed restore job

---

If a job fails while restoring an IMS system from tape, you might be able to restart the restore job using a **RESTART** parameter. This parameter allows IMS Recovery Expert to bypass restoring volumes from tape that were successfully restored in the previous job.

### Before you begin

The **RESTART** parameter can only be used for jobs that are restoring IMS systems from tape. This parameter is not required; if you resubmit the restore job without adding **RESTART**, the restore job will start from the beginning and all volumes will be restored.

### Procedure

1. In an edit session, open the restore job that failed.
2. In the **RBRREST** step, find the **RBRIN DD**. Add the **RESTART** parameter anywhere after the **RESTORE** command, as shown in the following example:

```
//RBRIN DD *
 RESTORE PDBOB."B81D - SNAP BACKUP"
 GENERATION 01
 DATE 03/31/2021
 TIME 15:13:14
 RESTART
/*
//*
```

3. Save the job and resubmit it.

IMS Recovery Expert restore skips the tape restore for volumes that were previously successfully restored. Messages will be displayed in the restore report, listing the volumes that were bypassed.

## Reviewing restore reports

---

IMS Recovery Expert produces several different reports when a system is restored.

### Restore job report

The reports are output to the **DD** statements of each job. Except where indicated, the **DD** statements are the same whether the restore is a data only restore or a full restore.

#### **BSYOUT DD**

The following summary report is displayed in the **BSYOUT DD** of the restore job. The following is a sample **BSYOUT DD** for a restore using FlashCopy backups:

```

12:15:38 BSY0001I - IMS Recovery Expert Starting. Version 02.02.001
0003I - Control Cards:
0004I - RESTORE "PDBISC".IAA"
0004I - GENERATION 02
0004I - DATE 03/10/2021
0004I - TIME 11:09:05
0004I -
0123I - Backup PDBISC.IAA generation 02 was read from the repository.
0013I - Backup profile PDBISC.IAA was read from the repository
0038I - Performing profile volume map validation...
0146I - Removing volser SIRB42 from this restore. It contains only log data.
0146I - Removing volser SIRB43 from this restore. It contains only log data.
0146I - Removing volser SIRB44 from this restore. It contains only log data.
0146I - Removing volser SIRB45 from this restore. It contains only log data.
0146I - Removing volser SIRB40 from this restore. It contains only log data.
0039I - Volume map validation complete.
0137I - Varying volumes offline.
0136I - Disconnecting user catalogs.
0217I - User catalog ICF.RSPLEX01.IMS.A3DB.CAT1 disconnected.
0217I - User catalog ICF.RSPLEX01.IMS.A3SYS.CAT1 disconnected.
0138I - Restoring volumes.
0242I - Restore via flash volume from backup unit ABEE to volser SIRB46
has completed.
0242I - Restore via flash volume from backup unit ABEF to volser SIRB47
has completed.
0242I - Restore via flash volume from backup unit ABE9 to volser SIRB41
has completed.
0137I - Varying volumes online.
0002I - IMS Recovery Expert complete. RC=000.
***** Bottom of Data *****

```

## BSY#REPT DD

The following summary report is displayed in the BSY#REPT DD of the restore job. This DD lists the volume details of the restore. The following is a sample BSY#REPT DD for a restore using FlashCopy backups:

```

 IMS Recovery Expert
 Restore Summary Report

Utility Executed:..... Restore
Profile Name:..... PDBISC.IAA
IMS Subsystem:..... IAA
IMS Version:.....
Restore Type:..... FlashCopy
Restored:..... Database Data Only
Nbr of Volumes:..... 0003

 IMS Recovery Expert
 Restore Volume Detail Report

<-Source Volumes-> <--Restore-->
Volser Ucb# Devtyp Ucb#

SIRB41 AB41 3390-1 ABE9
SIRB46 AB46 3390-1 ABE9
SIRB47 AB47 3390-1 ABE9
***** Bottom of Data *****

```

## SYSPRINT DD

The following report is displayed in the SYSPRINT DD of the restore job. It is generated by the “STOP IMS” step and contains information about the status of all IMS systems defined in the group that is being restored.

```

12:15:38 BSYI918I - PROGRAM BSYIMSTP Control Statement echo:
- IMSPLEX=IAA
12:15:38 BSYI407I - IMS Sub-System IAA3 is INACTIVE
12:15:38 BSYI407I - IMS Sub-System IAA4 is INACTIVE
12:15:38 BSYI408I - All requested IMS Sub-Systems are SHUTDOWN
12:15:38 BSYI919I - PROGRAM BSYIMSTP Completed with a Return Code of 0
***** Bottom of Data *****

```

## BSYSNAPO

The following report is displayed in the BSYSNAPO DD of the restore job for SNAP backups. This DD contains messages generated by the EMC SNAP VOLUME and TimeFinder utilities. For information on these messages, see the EMC documentation.

```
EBR@SNPV - EMC Snap Volume Messages:
13:30:18 *** TIMEFINDER MF SNAP V5.5.0 (018) ***
13:30:18 ESNP020I IBM SNAPSHOT SUPPORT DETECTED AND ENABLED
13:30:18 ESNP023I IBM FLASHCOPY SUPPORT DETECTED AND ENABLED
13:30:18 ESNP024I IBM FLASHCOPY V2 SUPPORT DETECTED AND ENABLED
13:30:18 ESNP010I BEGINNING COMMAND PARSE
13:30:18 ESNP011I PARSING STATEMENT #1
13:30:18 ESNPD00I API GLOBAL REQUEST PROCESSED
13:30:18 ESNP011I PARSING STATEMENT #2
13:30:18 ESNPD40I API SNAP VOLUME REQUEST PROCESSED
13:30:18 ESNP504I UNIT 3040 WAS REQUESTED, FOUND OFFLINE
13:30:18 ESNP504I UNIT 3004 WAS REQUESTED, FOUND OFFLINE
...
13:30:18 ESNP011I PARSING STATEMENT #7
13:30:18 ESNPF20I API ACTIVATE REQUEST PROCESSED
13:30:18 ESNP011I PARSING STATEMENT #8
13:30:18 ESNPK31I A MAXIMUM OF 11 SUBTASKS WILL BE SCHEDULED
13:30:18 ESNP040I PROCESSING REQUESTS
13:30:18 ESNP460I PROCESSING FOR STATEMENT #2 BEGINNING, COPY FROM VOLUME *3040*
13:30:18 ESNPJ31I PROCESSING FOR STATEMENT #2 SUSPENDED FOR PENDING ACTIVATE
...
13:30:33 ESNP112I COPY HAS BEEN INITIATED FOR 1 EXTENT(S) - 50085 TRACK(S)
13:30:33 - FROM VOLUME *3040* (S/N 0001874-30562/0040) TO VOLUME
13:30:33 ESNP112I COPY HAS BEEN INITIATED FOR 1 EXTENT(S) - 50085 TRACK(S)
13:30:33 - FROM VOLUME *3041* (S/N 0001874-30562/0041) TO VOLUME
13:30:33 ESNP112I COPY HAS BEEN INITIATED FOR 1 EXTENT(S) - 50085 TRACK(S)
13:30:33 - FROM VOLUME *3042* (S/N 0001874-30562/0042) TO VOLUME
13:30:33 ESNP112I COPY HAS BEEN INITIATED FOR 1 EXTENT(S) - 50085 TRACK(S)
13:30:33 - FROM VOLUME *3043* (S/N 0001874-30562/0043) TO VOLUME
13:30:33 ESNP112I COPY HAS BEEN INITIATED FOR 1 EXTENT(S) - 50085 TRACK(S)
13:30:33 - FROM VOLUME *3044* (S/N 0001874-30562/0044) TO VOLUME
13:30:33 ESNPJ30I PROCESSING FOR STATEMENT #2 RESUMED, COPY FROM VOLUME
13:30:33 ESNPI31I DEVICE IS ALREADY READY
13:30:33 ESNPJ30I PROCESSING FOR STATEMENT #3 RESUMED, COPY FROM VOLUME
...
13:30:37 ESNP440I PROCESSING COMPLETED, HIGHEST RETURN CODE ENCOUNTERED IS 0
13:30:37 RQST RC SOURCE TARGET
13:30:37 2 00 SNAP VOLUME EBR300 *3004*
13:30:37 3 00 SNAP VOLUME EBR300 *3005*
13:30:37 4 00 SNAP VOLUME EBR301 *3006*
13:30:37 5 00 SNAP VOLUME EBR301 *3007*
13:30:37 6 00 SNAP VOLUME EBR302 *3008*
13:30:37 7 00 ACTIVATE - CONSISTENT(YES)
13:30:37 ESNPL80I 5 INTRA-REQUEST LEVEL SUBTASKS WERE ATTACHED
13:30:37 ESNPL81I 2 INTER-REQUEST LEVEL SUBTASKS WERE ATTACHED
```

---

## Chapter 12. Creating image copies from System Level Backups

You can use IMS Recovery Expert to make IMS image copies from System Level Backups if database restore was enabled when the backup job was built.

After the backup is complete, you can select an existing job profile, or create a new job profile, to specify which databases to create image copies for. The image copies that are created are registered in IMS Database Recovery Control (DBRC), which allows the image copies to be used by any IMS utility that can process IMS image copies.

A System Level Backup that is taken using any method can be used to create the image copies. In most cases, a backup offloaded to tape can also be used; however, if the profile used FDR or FDRInstant to offload the backup, then that offloaded backup cannot be used to make image copies.

The image copies are registered with a runtime that is the time of the System Level Backup. Image copies for database data sets that were allocated at the time of the backup are registered as a Concurrent Image Copies (CIC).

### Restrictions:

- Image copies cannot be created for databases with reusable image copies defined.
- Image copies cannot be created for database data sets encrypted by z/OS data set encryption function.

### Topics:

- [“Selecting or creating the job profile” on page 251](#)
- [“Setting image copy options” on page 253](#)
- [“Specifying data set naming conventions” on page 254](#)
- [“Using the substring function” on page 256](#)
- [“Validating the DSN name with an alphanumeric character or symbol” on page 257](#)
- [“Viewing a sample string” on page 257](#)

---

## Selecting or creating the job profile

Specify or create a job profile when creating IMS image copies from a System Level Backup.

### Procedure

1. On the **Restore System Display** panel, specify I (Image Copies) next to a backup and press Enter.

```
Enter Applications Profile Like to Display

Profile Like *
Creator Like PDMONA
SSID Like IAA

F1=HELP F2=SPLIT F3=END F4=RETURN
F5= F6=RCHANGE F7=UP F8=DOWN
```

*Figure 161. Enter Applications Profile Like to Display panel*

2. On the **Enter Profile Like to Display** panel, you can limit the profiles that are listed on the next panel by specifying a profile name, profile creator name, or SSID. You can use wildcard characters for one or all fields; an asterisk (\*) is the only supported wildcard character.

**Note:** You can change the SSID on this panel to see job profiles on different systems, but you can only use a job profile that was created for the system on which the backup was taken.

3. Press Enter.

```

BSY$IPRD V2R2 ----- Job Profile Selection ----- 2021/03/22 09:22:42
Option ==>> Scroll ==>> PAGE

Line Commands: S - Select D - Delete U - Update
 C - Create R - Rename V - View

Profile Like * SSID Like EMC
Creator Like PDMONA Row 1 of 1 >

Cmd Name Creator SSID Updt
TEST123 PDMONA EMC U
***** Bottom of Data *****

```

Figure 162. **Job Profile Selection** panel (BSY\$IPRD)

- On the **Job Profile Selection** panel, the fields that are displayed are described in “[Creating job profiles](#)” on page 180. Use the RIGHT and LEFT scroll commands (PF10 and PF11) to see all the available columns. Use the UP and DOWN commands (PF7 and PF8) to scroll through the list when there are more profiles than can be displayed on one panel. On this panel, you can select an existing job profile, or create one as described in “[Creating job profiles](#)” on page 180.
- On the **Job Profile Selection** panel, specify S next to a job profile to select it and press Enter.

```

 Build Image Copy Job for PDMONA.TEST123
BSY$I0BD
Edit Generated Job Y (Yes/No)
Edit Image Copy Options N (Yes/No)

Build job in Dataset PDMONA.BSY.JCLLIB
Member SAMPLE7

Job Cards:
==> //IMGCOPY JOB PDMONA,CLASS=A,NOTIFY=&SYSUID
==> //*
==> //*
==> //*

```

Figure 163. **Build Image Copy Job** panel (BSY\$I0BD)

6. On the **Build Image Copy Job** panel, specify information in the following fields:

**Edit Generated Job**

Specify Y to view the job in an ISPF edit session after generation. If you specify N, you will return to the **Restore System Display** panel after the job is generated.

**Edit Image Copy Options**

Specify Y if you want to edit options for the image copy, including the data set name specifications, work volumes, and so on. Options must be set the first time you create a job for an image copy from a System Level Backup. Subsequent jobs use the previous settings if you do not specify to edit the options.

**Build job in Dataset/Member**

Specify the fully qualified data set name (without quotes) where you want to save the generated job. This data set must exist and can be sequential or a PDS. If the data set is a PDS, specify a member name. If the member does not exist, IMS Recovery Expert will create it.

**Job Cards**

Specify a valid job card for your site.

## Setting image copy options

Set image copy options such as backup type, data set naming specifications, and tape allocation parameters.

### Procedure

1. On the **Build Image Copy Job** panel, specify Y in the **Edit Image Copy Options** field and press Enter.

```
BSY$IMGO V2R2 ----- Image Copy Options ----- 2021/11/21 11:24:58
Option ==>

Update IC1 Specification => Y (Yes/No)
Update IC2 Specification => Y (Yes/No)
Backup Type => 1 (1=IC1/2=IC2)
Unit Type => SYSALLDA (CART/SYSALLDA/etc.)
Data Class => (8 character class)
Storage Class => TSO (8 character class)
Management Class => TSOMC (8 character class)
Number of Tasks => 02 (1 - 99)
Maximum Tapes/Volumes => (1-256)
Temporary work data set allocation parameters
Work HLQ => TEMPDSN
Work Volumes =>
Tape specific parameters (only used if Unit Type is a Tape device):
Stack Copies on Tape => Y (Yes/No)
Tape Stack Limit => 005 (1 - 999)
Expiration date *or* => (YYYYDDD/YYDDD)
Retention period => (4 digit number)
```

Figure 164. **Image Copy Options** panel (BSY\$IMGO)

2. On the **Image Copy Options** panel (BSY\$IMGO), specify information in the following fields:

#### **Update IC1 Specification**

Specify Y in this field to set or change the data set specifications for IC1.

#### **Update IC2 Specification**

Specify Y in this field to set or change the data set specifications for IC2.

#### **Backup Type**

Specify the type of image copy to create. Valid values are 1 (IC1), or 2 (both IC1 and IC2 image copies will be created).

#### **Unit Type**

Specify a valid unit where the data set will be written.

#### **Data Class**

If your site uses SMS to manage data sets, specify the SMS Data Class.

#### **Storage Class**

If your site uses SMS to manage data sets, specify the SMS Storage Class.

#### **Management Class**

If your site uses SMS to manage data sets, specify the SMS Management Class.

#### **Number of Tasks**

Specify the number of subtasks that IMS Recovery Expert will use when creating the image copies.

#### **Maximum Tapes/Volumes**

This is an optional field. To override the z/OS default tape or disk volume limitation for each image copy data, specify the maximum number of tape or disk devices to use. Valid values are 1 to 256. If this field is not specified, then no volume count is specified when the image copy data sets are allocated.

### Work HLQ

If the work volume(s) specified are SMS-managed, specify a high level qualifier for the restored data sets.

### Work Volumes

If the Work HLQ is not SMS managed, then specify the number of volumes to use for temporary storage during the creation of the image copies. You must specify at least one work volume, and you can specify up to 6. Work volumes must be DASD devices. If the WORK HLQ is SMS managed, then Work Volumes is not required.

3. Specify information in the following fields if the unit type is a tape device:

#### Stack Copies on Tape

Specify whether you want to stack image copies on a single tape when possible.

#### Tape Stack Limit

If stacking image copies, specify the number of image copies that you want IMS Recovery Expert to stack on one tape before dismounting the tape.

#### Expiration date \*or\* Retention period

Specify either the tape expiration date in YYYYDDD format, or the tape retention period in number of days.

4. When you have finished specifying image copy options, press PF3 (END) to return to the **Build Image Copy Job** panel.

## Specifying data set naming conventions

Use IMS Recovery Expert's **Image Copy DSN Specification** panels to construct data set names for the image copies.

### About this task

The **Image Copy DSN Specification** panel allows you to build data set names using variables that are resolved at run time.

If you do not specify a data set mask using this panel, the DSN defaults to the following mask:

```
&UID..&SSID..&DB..&DDN..ICOPY and &UID..&SSID..&DB..&DDN..ICOPY2
```

### Procedure

1. On the **Image Copy Options** panel, specify Y in either the **Update IC1 Specification** or **Update IC2 Specification** field. Press Enter.

```
BSY$IMG3 V2R2 ----- 1 Image Copy DSN Specification ---- 2021/03/22 09:49:53
Option ==>>

Enter codes to create a dataset name specification:
Qualifier code ==> Free form literal ==> Show DSN ==> N
Current dataset name qualifier string:
PDMONA.IC1.&DB..&DDN..&TIMESTMP.

Valid dataset name specification codes are:
 1. Database 10. Year (YYYY) 19. GDG (+1)..(+n)
 2. DDN 11. Month (MM) 20. *Reserved*
 3. *Reserved* 12. Day (DD) 21. IC1/IC2
 4. Volser 13. Julian Day (DDD) 22. *Reserved*
 5. *Reserved* 14. Hours (HH) 23. Job Name
 6. Subsystem ID 15. Minutes (MM) 24. Step Name
 7. User ID 16. Seconds (SS) 25. Profile Creator
 8. Time (HHMMSS) 17. Timestamp 26. Profile Name
 9. Date (YYYYDDD) 18. Random Number 27. Substring Qualifier
 28. Use freeform literal
```

Figure 165. **Image Copy DSN Specification** panel (BSY\$IMG3)



2. On the **Image Copy DSN Specification** panel, specify information in one or more of the following fields:

**Qualifier code**

To include a qualifier, specify its number in the **Qualifier code** field and press Enter. The qualifier string is displayed in the **Current data set name qualifier string** field. You can also specify the data set name or string directly in the string field.

**Free form literal**

After selecting the Use Freeform literal qualifier, you can specify an eight-character literal in this field. If you want the literal to be in its own substring, make sure to begin the literal with a period.

**Show DSN**

To view the string as it would be completed, specify Y in this field and press Enter.

**Current dataset name qualifier string**

This field displays the qualifier string as it was input. Valid qualifiers for the data set names that you can use on the **Offload DSN Specification** panel are listed on the bottom half of the panel and are:

**Database**

The database name of the object for which an image copy is being created.

**DDN**

The DD name of the object for which an image copy is being created.

**Volser**

The volume serial of the data set.

**Subsystem ID**

The IMS subsystem ID or group.

**User ID**

The TSO user ID of the job builder.

**Time (HHMMSS)**

The current time in the format shown.

**Date (YYYYDDD)**

The current date in the format shown.

**Year (YYYY)**

The year in the format shown.

**Month (MM)**

The month in the format shown.

**Day (DD)**

The day of the month in the format shown.

**Julian Day (DDD)**

The Julian day.

**Hours (HH)**

The current time in hours.

**Minutes (MM)**

The current time in minutes.

**Seconds (SS)**

The current time in seconds.

**Timestamp**

The current timestamp, in format *Dyymmdd.Thhmmss*.

**Random Number**

A random number in format *Rnnnnnn*.

**GDG (+1)..(+n)**

If you are using GDG data sets, this variable appends (+n) to the GDG base. This must be the last qualifier code you specify for the data set name.

**IC1/IC2**

The backup type.

**Job Name**

The job name.

**Step Name**

The job step name.

**Profile Creator**

The profile creator ID.

**Profile Name**

The profile name.

**Substring Qualifier**

Select this option to specify one of the qualifiers and customize the substring. When you press Enter, the **Substring Parameters** panel is displayed.

**Use freeform literal**

After selecting this qualifier, you can specify an eight-character literal in the **Free Form literal** field. If you want the literal to be in its own substring, ensure that you begin the literal with a period. For example, if you specify 1 (Volser), 3 (Subsystem ID), then 14 (Timestamp), the data set name is displayed as:

```
volser.ssid.D070104.T151509
```

where *volser* and *ssid* resolve to values appropriate to your site.

## Using the substring function

Use the Substring Qualifier function to customize substring parameters.

### Procedure

1. On the **Image Copy DSN Specification** panel, select the Substring Qualifier function by specifying 27 as the Qualifier Code. Press Enter.

```

Substring Parameters
BSY$OSTR
Enter the Qualifier Code ==>
Enter Starting Position ==>
Enter Substring Length ==>

```

Figure 166. **Substring Parameters** panel (BSY\$OSTR): Substring Qualifier Function

2. On the **Substring Parameters** panel, specify one of the available qualifier codes and specify the string's starting position and length.

**Note:** Timestamp, GDG, and IC1/IC2 qualifier codes are not available.

For example, qualifier code 6 generates a string of "&SSID", a four-character system name. However, if your site uses three-character SSIDs, option 27 can be used to specify the SSID and customize the string length as follows:

```

Substring Parameters
BSY$OSTR
Enter the Qualifier Code ==> 6
Enter Starting Position ==> 1
Enter Substring Length ==> 3

```

Figure 167. **Substring Parameters** panel (BSY\$OSTR): Three-character SSIDs

3. Press Enter. On the **Image Copy DSN Specification** panel, the value of &SSID(1,3) . appears in the **Current data set name qualifier string** field.

## Validating the DSN name with an alphanumeric character or symbol

---

Numeric substrings (such as time and date) require the addition of an alphanumeric character or symbol in the beginning of the string.

### Procedure

1. From the **Image Copy DSN Specification** panel select one of the following numeric substrings:
  - 8. Time (HHMMSS)
  - 9. Date (YYYYDDD)
  - 10. Year (YYYY)
  - 11. Month (MM)
  - 12. Day (DD)
  - 13. Julian Day (DDD)
  - 14. Hours (HH)
  - 15. Minutes (MM)
  - 16. Seconds (SS)
  - 17. Timestamp
  - 18. Random Number

```
Resulting DSN using current symbolic string
BSY$UPR1
Enter a Literal or Symbolic to Prefix the Dataset Node

==>

Dataset Name:
* PDBAT.IC1.DATABASE.DDN.152728 *
```

Figure 168. **Resulting DSN using current symbolic string** panel (BSY\$UPR1)

2. On the **Resulting DSN using current symbolic string** panel, specify an alphanumeric character or symbol to prefix the numeric substring to make the data set node name valid.
3. Press Enter. The **Image Copy DSN Specification** panel reopens with the updated substring.

## Viewing a sample string

---

You can view the resulting data set name that is generated using the substring function.

### Procedure

1. From the **Image Copy DSN Specification** panel, specify Y in the **Show DSN** field and press Enter.

```

 Resulting DSN using current symbolic string
BSY$IDSN
Using the following sample data as input:

&JOBNAME = 'JOBNAME ' &STEPNAME = 'STEPNAME' &DB = 'DATABASE'
&SSID = 'SSID' &VOLSER = 'VOLSER' &DDN = 'DDN'
&IC1IC2 = 'IC1' &IUD = 'PDBISC' &PART = 'PART'
&PROFCRTR = 'PDBISC' &PROFNAME = 'DBHD000'

The date/time fields are set to the current time.

The generated dataset would be:
* IMSIBA2.DATABASE.DDN.IC1(+1) *
```

Figure 169. **Resulting DSN using current symbolic string panel (BSY\$IDSN): Sample String**

2. Review the sample data set name and make changes if necessary.

---

# Chapter 13. Recovering an IMS system using the IMS Recovery Expert disaster recovery feature

In case of a disaster that renders an IMS system unusable, you can restore the system at a remote site if you have implemented the disaster recovery feature of IMS Recovery Expert.

IMS Recovery Expert allows you to configure your disaster recovery strategy to restore from IMS image copies or System Level Backups.

IMS relies on the logs and the RECON data sets to track data changes. The log tracks the actual changes, while the RECON keeps information about the archive and active log data sets known to IMS. The log data sets and RECON are essential to recovery.

In preparation for a potential disaster, you can use IMS Recovery Expert to build jobs in the disaster recovery PDS to recover these critical data sets. In addition, you can use IMS Recovery Expert to perform System Level Backups and ensure that the backups are offloaded to tape. The tapes containing the System Level Backup, the disaster recovery PDS, and all data sets required for recovery should be shipped to the recovery site.

To ensure an accurate recovery, you need to build a disaster recovery profile and ensure that the jobs produced from the profile are executed on a regular basis.

IMS Recovery Expert makes it easy to build a disaster recovery (DR) profile because you do not have to know the names of the logs and RECON data sets.

Disaster recovery profiles can be renamed, viewed, and deleted in the same way as job profiles.

## Topics:

- [“Preparing for disaster recovery at the local site” on page 259](#)
- [“Preparing for disaster recovery at the remote site” on page 260](#)
- [“\(Optional\) Using system recovery profiles to recover groups of databases” on page 261](#)
- [“DR preparation job history display” on page 272](#)
- [“Creating disaster recovery profiles” on page 273](#)
- [“Building disaster recovery jobs” on page 286](#)
- [“Contents of the disaster recovery PDS” on page 287](#)
- [“Running the disaster recovery preparation JCL” on page 290](#)
- [“Recovering your system at the remote site” on page 291](#)
- [“Recovering both IMS and Db2 subsystems” on page 292](#)

---

## Preparing for disaster recovery at the local site

Preparing to recover your system at a remote site begins with creating a disaster recovery profile at the local site, building the profile, executing the job on a regular basis, and ensuring that the necessary files are sent to the remote site.

### About this task

To prepare to recover your system at a remote site:

### Procedure

1. Create a disaster recovery profile.

A disaster recovery profile must be created for the system or group. Within the profile, you define what recovery assets (archive logs, image copies, change accumulation data sets) will be used at the remote

site. When the profile is built and run, IMS Recovery Expert takes the necessary actions to ensure that these data sets are available at the remote site, and that the RECON data sets reflect the available assets.

## 2. Build a disaster recovery profile.

After a disaster recovery profile is created, you must build it to generate the disaster recovery preparation job. When this job is run, it generates control cards and JCL into the recovery PDS. These cards and jobs are needed for a successful recovery at the remote site.

**Tip:** When building the application recovery jobs, store the generated jobs in the same partitioned data set where you will store the remainder of the disaster recovery jobs. This will consolidate all your recovery jobs in one place.

## 3. Run the disaster recovery preparation job.

The JCL that is created from building the profile should be run on a regular basis. Run this job periodically, such as after a System Level Backup has been created and offloaded to tape for remote site recovery. If the DR method chosen includes System Level Backups, then this job locates the most recent System Level Backup that was offloaded to tape for remote site recovery; it copies the IMS Recovery Expert repository into the disaster recovery PDS; and it generates the JCL that is needed to restore IMS from the offloaded System Level Backup at the remote site.

Depending on user options, disaster recovery assets such as archive logs, image copy data sets, and change accumulation data sets are copied to tape to be sent out to the remote site. A backup of the production RECON data set is created and conditioned to reflect the availability of the different recovery assets at the remote site. A copy of the conditioned RECON is also stored in the disaster recovery PDS.

## 4. Ensure that necessary data sets are sent to the remote site.

The necessary recovery data sets must be placed on tape and shipped to the remote site. These data sets include:

- The disaster recovery PDS. The disaster recovery preparation job generates the control cards and JCL needed for disaster recovery into an output PDS.
- System Level Backups that have been taken and offloaded by IMS Recovery Expert.
- Other recovery assets to be used for database recoveries at the remote site. These might include data sets that were copied by IMS Recovery Expert (archive logs; image copy data sets; change accumulation data sets).

A list of tapes that should be taken to the remote site is generated by the batch disaster recovery preparation job.

## Preparing for disaster recovery at the remote site

---

You must prepare the remote z/OS environment before IMS Recovery Expert can restore your IMS environment.

### About this task

Complete the following steps at the remote site prior to running the IMS Recovery Expert recovery steps:

### Procedure

#### 1. Ensure that IMS Recovery Expert is installed.

The IMS Recovery Expert load library, Parmlib, and ISPF environment must be available at the remote site. The IMS Recovery Expert repository data sets will be reloaded with data from the local site as part of the IMS Recovery Expert recovery steps.

#### 2. Ensure that you meet GENJCL PDS requirements.

If the remote site recover-to point is not a System Level Backup point, then application recoveries must be performed as part of the remote site recovery. If the GENJCL skeletal members are different than those at the local site, then you must create them and configure IMS Recovery Expert at the remote site to use the proper GENJCL PDS data sets.

3. Ensure that you meet DELDEF PDS requirements.

If the remote site recover-to point is not a System Level Backup point, then application recoveries must be performed as part of the remote site recovery. If the recovery utility being used at the remote site requires the data sets to be deleted and redefined, then the proper DELDEF PDS members must be available at the remote site. If the DELDEF PDS members are different than those at the local site, then they must be created and IMS Recovery Expert must be configured to use the proper DELDEF PDS data sets at the remote site.

**Tip:** It is recommended that you add the GENJCL and the DELDEF PDS data sets as additionally included data sets for the System Level Backup.

4. Review the following list of requirements to ensure that your remote z/OS system is configured to run your IMS system:

- a) IMS SVCs have been installed.
- b) IMS resource cleanup routines, DFSAFMD0 and DFSMRCL0, have been defined to z/OS.
- c) PROCs to start your IMS address spaces have been created and are included in a JES concatenated PROCLIB.
- d) RACF, or security, rules have been defined to allow IMS access to the IMS data sets.
- e) Any SMS definitions that are ACS routines have been added to support the IMS data sets.
- f) The necessary IMS data sets have been defined as being APF authorized.
- g) The IMS region controller has been defined to the program properties table (SCHEDxx).
- h) The IRLM SSID has been added to the system name table (IEFSSNxx).
- i) If IMS is configured with any VTAM® or APPC definitions, ensure that the corresponding definitions are the same and are available.

5. Review the following list of requirements to ensure that your z/OS system has been recovered to a point at the remote site that will allow the IMS Recovery Expert-generated recovery steps to complete successfully:

- a) The master catalog has been recovered at the remote site.
- b) DASD devices at the remote site have been initialized with the same volume serials as the ones used at the local site and they are online. They must also be of equal or greater size than the devices at the local site.

## (Optional) Using system recovery profiles to recover groups of databases

---

System recovery profiles are associated with an SSID or Data Sharing group, and can be used during disaster recovery processing to recover groups of databases in separate recovery jobs. Each job can use different recovery options and can be run in any order.

### About this task

If system recovery profiles are not defined for an IMS environment, then the recovery processes required at the remote site will be performed in a single job.

The first time you specify this option for an SSID, the Default System Recovery Profile is automatically created for that SSID. The following rules apply to the Default System Recovery Profile:

- The contents of the Default System Recovery profile (that is, database entries) cannot be modified. New entries cannot be added and the existing entries cannot be modified. Only the recovery options can be updated.

- The Default System Recovery profile cannot be deleted if there are any user defined System Recovery Profiles for the SSID. All user defined System Recovery Profiles for the SSID must first be deleted and then the Default System Recovery Profile can be deleted.
- The Default System Recovery profile cannot be renamed.

You can create up to a maximum of 999 System Recovery Profiles for an SSID. The following rules apply to user defined System Recovery Profiles:

- The name of a user defined System Recovery Profile cannot begin with DEFAULT SYSTEM RECOVERY.
- No duplicate entries are allowed across the user defined System Recovery Profiles. An object can be specified in only one profile. These duplicates must be eliminated before System Recovery Profiles can be used.
- The name of a System Recovery Profile cannot duplicate the name used for a Job Profile.

## Procedure

1. Specify 0 (Administration) on the Option line of the IMS Recovery Expert main menu panel (BSY\$MAIN) and press Enter.
2. On the **Administration Menu** panel (BSY\$PNL0), specify 5 (Define System Recovery Profiles) and press Enter.

```

Enter SSID for System Recovery Profiles to Display
BSY$SRLK

 SSID IAA

```

Figure 170. Enter SSID for System Recovery Profiles to Display panel (BSY\$SRLK)

3. On the **Enter SSID for System Recovery Profiles to Display** panel, specify a subsystem ID in the **SSID** field. The SSID must be fully qualified and must already exist in the control file. Press Enter.

```

BSY$SRPD V2R2 ----- System Recovery Profile Display ----- 2021/02/20 11:49:17
Command ==>>> Scroll ==>> PAGE

 Commands: Report - Generate Report Check - Check for duplicates
Line Commands: D - Delete U - Update C - Create R - Rename V - View

 SSID IAA

Row 1 of 1 >

Cmd Name Creator SSID Updt
 DEFAULT SYSTEM RECOVERY IAA IAA U
***** Bottom of Data *****

```

Figure 171. System Recovery Profile Display panel (BSY\$SRPD)

The **System Recovery Profile Display** panel displays the System Recovery Profiles associated with the specified SSID. The first time you specify this option for an SSID, the Default System Recovery Profile is automatically created and displayed. The following fields are displayed for each System Recovery Profile:

### Name

The profile name.

### Creator

The profile creator.

### SSID

The IMS subsystem for which the profile was created.



**Updt**

Displays how users other than the profile creator can use the profile. U allows others to update the profile. V allows others to view but not update the profile. N prevents others from viewing or updating the profile.

**Description**

The user specified description of the profile.

**Last Updated****Userid**

The user ID of the last user to update the profile.

**Timestamp**

The date and time associated with the last update.

**Created****Userid**

The user ID of the user that created the profile.

**Timestamp**

The date and time that the profile was created.

4. From the **System Recovery Profile Display** panel you can perform the following functions:

- On the **Cmd** line next to a system recovery profile, specify C to create, D to delete, R to rename, U to update, or V to view a system recovery profile. Press Enter.
- To generate a report that shows all databases for the SSID and which profile will be used for recovery, specify REPORT on the **Command** line. If duplicate entries are found, then a message is issued and duplicate entries are identified at the top of the list with a > in the DUP column.
- To check for duplicate entries within the set of system recovery profiles for the specified SSID, specify CHECK on the **Command** line. If duplicate entries are found, then a message is issued and only duplicate entries are displayed.

## Creating system recovery profiles

System recovery profiles are associated with an SSID or Data Sharing group, and can be used during disaster recovery processing to recover groups of databases in separate recovery jobs.

### Procedure

1. To create a system recovery profile, on the **System Recovery Profile Display** panel (BSY\$SRPD), specify C on the **Cmd** line and press Enter.

```

Enter New System Recovery Profile Data
Creator PDMONA
Profile Name Test123
Description Test123
IMS SSID IAA
Update Option U (Update, View only, No access)

```

Figure 172. **Enter New System Recovery Profile Data** panel

2. On the **Enter New System Recovery Profile Data** panel, specify information in the following fields to define the profile.

**Creator**

This field displays your user ID as the profile creator.

**Profile Name**

Specify a name for the profile. This name can be up to 30 characters.

**Description**

(Optional) Specify a description of the profile.

**IMS SSID**

This field displays the IMS subsystem for which this profile is being created.

**Update**

Specify U to allow others to update this profile. Specify V to allow others to view but not update this profile. Specify N to prevent others from viewing or updating the profile.

3. Press Enter.

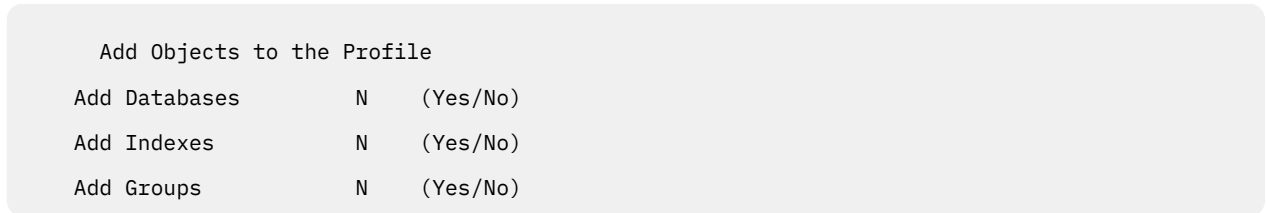


Figure 173. **Add Objects to the Profile** panel

4. On the **Add Objects to the Profile** panel, specify whether to add databases, indexes, or groups to the profile.

**Add Databases**

Specify Y in this field to add databases. Use this option to include databases and to include all indexes for a database.

If you specify Y in the **Add Databases** field, the **Enter Databases Like to Display** panel will be displayed. On the **Enter Databases Like to Display** panel you may specify whether to dynamically include dependent indexes or logical relations for the selected databases.

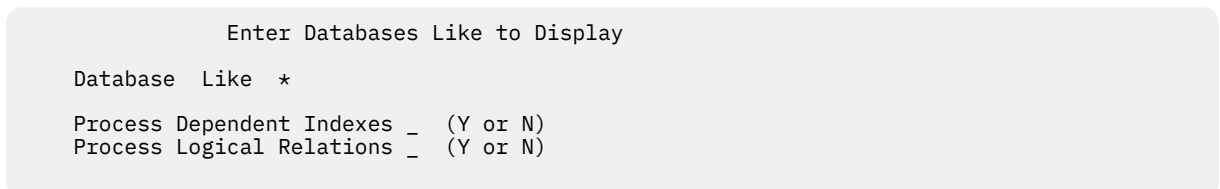


Figure 174. **Enter Databases Like to Display** panel

**Add Indexes**

Specify Y in this field to add indexes. Use this option to include indexes selectively.

**Add Groups**

Specify Y in this field to add groups. Use this option to include all the objects that are defined in a DBRC group.

If you specify Y in the **Add Groups** field, the **Enter Groups Like to Display** panel will be displayed. On the **Enter Groups Like to Display** panel you may specify whether to dynamically include dependent indexes or logical relations for the selected groups.



Figure 175. **Enter Groups Like to Display** panel

5. Press Enter.

```

BSY$SRPU V2R2 ----- Update System Recovery Profile ----- 2021/03/05 13:22:11
Option ==>> Scroll ==> PAGE

Line Commands: A - Add E - Explode D - Delete

Creator: PDMONA Name: PDMONATEST123 User: PDMONA
Share Option: U (Upd,View,No) Description: PDMONATEST1
IMS System/Group: IAA Update Recovery Options: N (Yes/No)

 Row 1 of 1 >
Cmd Type Card Indexes Logical Include/ Group/DB Area/
A Press Enter to Add Objects
***** Bottom of Data *****

```

Figure 176. **Update System Recovery Profile** panel (BSY\$SRPU)

- The **Update System Recovery Profile** panel lists the objects that are currently in the profile. On the **Cmd** line, specify A to add a new object to the profile, D to delete a selected object, or E to explode a selected object (note that the E command cannot be used on EXCLUDED objects).

You can also specify the **EXPLODE** primary command to view a list of all objects in the profile.

The **Update System Recovery Profile** panel displays the following fields:

**Creator**

The creator of the profile.

**Name**

The name of the profile.

**User**

The user of the profile.

**Share Option**

Indicates how users other than the profile creator can use the profile. U(pdate) allows other users to update the profile. V(iew) allows other users to view but not update the profile. N(o access) prevents other users from viewing or updating the profile.

**Description**

A description of the profile, if defined.

**IMS System/Group**

The IMS subsystem/group ID for which the profile was created.

**Update Recovery Options**

Specify Y in this field to update recovery options for this profile.

**Type**

The object type (database, index, or group).

**Wild Card**

If the object(s) in this detail line were selected using wild cards, then this column is set to Y. Otherwise, this column is set to N.

**Process Indexes**

This field is set to Y if all associated indexes are included in the profile. This value is initially set when objects are added to the profile, but you can update this field.

**Process Logicals**

This field is set to Y if all logically related objects should be included in the profile. This value is initially set when objects are added to the profile, but you can update this field.

**Include/Exclude**

Indicates whether the objects are included (INC) or excluded (EXC).

**Group/DB Name**

For Group type, this field contains the group name. For Database or Index type, the DBD name.

### Area/Part

For fast path DBD, this column contains the area name or mask. For HALDB, this column contains the partition name or mask.

### DDN

For HALDB, this column contains the data set DDN. The DDN will be displayed only for excluded DDNs.

### Last Updated

Lists the timestamp and the user ID of the user who added the DBD(s) to the profile.

## Setting system recovery options

You can set system recovery options in each system recovery profile. You can also update system recovery options when you build the recovery job.

### Procedure

1. On the **Update System Recovery Profile** panel, specify Y in the **Update Recovery Options** field and press Enter.

```
BSY$RECR V2R2 ----- System Recovery Options ----- 2021/08/27 13:35:3
Option ==> -----
Creator: CSMESHA Name: IBA2 DBHD000 SSID: IBA2
Share Option: U (Upd,View,No) Description: IBA2 DBHD000

Enter the Recovery options to associate with this profile:
More: +

Execute Recovery ==> Y (Yes) Edit Options N (Yes/No)
Execute Index Rebuild ==> Y (Yes/No/Rcvutil) Edit Options N (Yes/No)
Create Post Recovery IC ==> Y (Yes/No/Rcvutil) Edit Options N (Yes/No)

Recovery Type ==> 2 (1=PITR/2=LASTPITCA/3=LASTIC)
Action on Warnings ==> C Continue/Wtor/Abort)
GENJCL Defaults Member ==>

Datasets for GENJCL ==> SIR.IBA2.NEW.JCLPDS
==>
==>
==>
==>
```

Figure 177. **System Recovery Options** panel (BSY\$SRP2)

2. From the **System Recovery Options** panel, specify information in one or more of the following fields:

#### Execute Recovery

The only valid value in this field is Y. You must specify a type of recovery utility for recovery.

#### Edit Options

To update the **Execute Recovery** parameters, specify Y in this field to access the **Recovery Utility Parameter Update** panel. Specify N if you do not want to update these parameters.

#### Execute Index Rebuild

Specify Y (Yes) or N (No) to indicate whether you want to perform index rebuild.

You may also specify R (Rcvutil) to perform index rebuild as an integrated utility. This allows the restart code to process correctly if some related indexes were not rebuilt.

To edit the options for driving Full Function, Fast Path, and HALDB indexes and ILDS, open the **Index Rebuild Utility Parameter Update** panel.

#### Edit Options

If you want to update the **Execute Index Rebuild** parameters, specify Y in this field to access the **Index Rebuild Utility Parameter Update** panel. Specify N if you do not want to update these parameters.

### Create Post Recovery IC

Specify Y (Yes) or N (No) to indicate whether you want to create image copies for recovered databases.

You may also specify R (Rcvutil) to create image copies for recovered databases as an integrated utility. This allows the restart code to process correctly if an image copy does not exist after recovery.

### Edit Options

If you want to update the **Create Post Recovery IC** utility parameters, specify Y in this field to access the **Post Recovery IC Utility Parameter Update** panel. Specify N if you do not want to update these parameters.

### Recovery Type

Specify the type of recovery to perform at the disaster recovery site when the recovery job is executed. There are three possible types of recoveries that can be performed at the disaster recovery site:

#### PITR

This is the default recovery method performed at the disaster recovery site when recovering application objects. If using the IMS Database Recovery Facility (DRF) for recovery, the DRF command **RCVTIME (timestamp, PITR)** is generated and used to recover all objects in this profile. The timestamp specified is determined by the disaster recovery preparation job by inspecting the available archive logs and determining the most current timestamp that can be used for recovery.

#### LASTPICA

This option requires the use of DRF. The command **RCVTYPE (LASTPITCA)** is generated to recover all objects in the profile using the last point in time changed accumulation (PITCA) recovery point and the image copy prior to this PITCA. When this method is selected, all the objects included in the System Recovery Profile are change accumulation groups. If anything other than change accumulation groups are specified, an error message is issued and the Recovery Type is set to 1 for PITR. When the disaster recovery preparation job executes, it performs additional validation to ensure objects with LASTPITCA are recoverable. The following verification is done:

- Verify that only change accumulation groups are included in the profile. If not, then an error message is issued and processing terminates.
- Verify that for each change accumulation group in the profile, a PITCA exists. If not, then an error message is issued and processing terminates.
- Find the last PITCA for each change accumulation group in the profile and ensure that the time between the oldest and newest is within the range of hours specified in the BSY#PARAM parameter DR\_LASTPITCA\_RANGE. If not, a warning message is issued but processing continues.
- Find the newest PITCA for all of the change accumulation groups and ensure that it is not older than the hours specified in the BSY#PARAM parameter DR\_LASTPITCA\_AGE. If it is, a warning message is issued but processing continues.
- Once all verification is completed, the stop time of the last (that is, newest PITCA) across all of the groups is saved and used as the coordinated recovery time.

If the DR profile indicates an external Db2 subsystem, then this coordinated recovery time is used to provide a Db2 RBA and LRSN that can be used to recover the associated Db2 objects.

For each System Recovery Profile that specifies LASTPITCA as the recovery type, a new member in the DR PDS is created with the name pattern of *ssidTnnn* where *ssid* is the SSID of the IMS system being processed and *nnn* is a number from 000-998 matching the *ssid#nnn* member in the DR PDS created to perform application recovery for the profile. This member contains detailed information for LASTPITCA processing as well as the coordinated recovery time and Db2 RBA/LRSN.

## LASTIC

This option requires the use of DRF. The command **RCVTYPE(LASTIC)** is generated to recover all objects in the profile using the last batch image copy. No forward log processing is performed. When the disaster recovery preparation job executes, additional validation is performed to ensure objects with LASTIC are recoverable. The following verification is done:

- Verify that every object to be recovered has a batch image copy. If not, an error message is issued and the job terminates.
- Find the last batch IC for each object in the profile and ensure that the time between the oldest and newest is within the range of hours specified in the BSY#PARM parameter DR\_LASTIC\_RANGE. If not, a warning message is issued but processing continues.
- Find the last batch IC and ensure that it is not older than the hours specified in the BSY#PARM parameter DR\_LASTIC\_AGE. If it is, a warning message is issued but processing continues.

## INITONLY

This option allows the user to set the System Recovery Profile so that the objects in the profile are initialized instead of recovered. This option is only valid for a DR System Recovery Profile. It is not valid for local recovery. Specifying INITONLY in the **Recovery Type** field will change certain labels in the **Recovery Utility Options** panel. Specifying INITONLY will also require the **INIT GENJCL member name** to be specified. If left unspecified, **Recovery Type** will reset to PITR and the message BSY956E will be issued. For more information, see [“Setting recovery utility options” on page 268](#).

When INITONLY is specified, the following processes are available for recovery:

- IDCAMS delete / define
- Index Rebuild
- Post Recovery Image Copy

### Update Spawnd Job Options

Specify Y (Yes) to specify Spawnd Job Options, or N (No) to use the default method for generating the jobcard and/or jobname. For more information, see [“Setting spawned job options” on page 179](#).

### Action on Warnings

Specify how you want to process warnings that are issued during recovery. Specify A to abort, C to continue, or W to issue a WTOR.

### GENJCL Defaults Member

Specify a member to be used as the GENJCL defaults when GENJCL is executed. If specified, this member will be included in the DEFAULTS() keyword.

### Datasets for GENJCL

Specify up to 5 data sets for GENJCL skeletons. The data sets are concatenated in this order. These data sets are used by the recovery utility to restore an image copy, apply logs, or both; the index rebuild utility; the change accumulation utility; or a post-recovery image copy and pointer checker utility.

## Setting recovery utility options

From the **Recovery Utility Options** panel you can update the IMS Recovery Expert recovery options that are used by the Recovery Utility.

## Procedure

1. On the **System Recovery Options** panel, specify Y in the **Execute Recovery Edit Options** field.

```

BSY$RORU V2R2 ----- Recovery Utility Options ----- 2021/08/05 03:21:2
Option ==>

Creator: CSOSTR Name: ICA2 DBHD000 SSID: ICA2
Share Option: U (Upd,View,No) Description:

Enter the options for the recovery utility:

GENJCL member name ==> BSYDRF
Delete/Define PDS DSN ==> SIR.ICA2.DELDEFS

Include indexes in recovery list ==> N

Datasets for GENJCL ==> SIR.ICA2.JCLPDS2
 ==> RSQA.BSY220.IBMTAPE.SBSYSAMP
 ==>
 ==>
 ==>

```

Figure 178. **Recovery Utility Options** panel (BSY\$RORU): Recovery Utility Options

2. On the **Recovery Utility Options** panel, specify information in one or more of the following fields:

#### **GENJCL member name**

Specify a skeleton member name to use for recovery JCL generation.

**Note:** If you have selected INITONLY by specifying 4 in the **Recovery Type** field on the **System Recovery Options** panel, this field will be changed to **RECOV GENJCL member name**.

#### **INIT GENJCL member name**

This field will appear only if you have selected INITONLY by specifying 4 in the **Recovery Type** field on the **System Recovery Options** panel. Specifying information in this field is required if you have selected INITONLY. Error BSYR957 will be displayed if it is left unspecified.

The default for the **INIT GENJCL member name** field can be specified in the BSY#PARM or BSY#SSID SAMPLIB members using:

```

GENJCL_USER_INITO_MEM DEMOINIT -* Skeleton member name for *\
 -* initonly with USER utility*\

```

#### **Delete/Define PDS DSN**

Specify the name of a PDS data set that contains IDCAMS statements. These statements are used to delete and redefine the data sets being recovered before running the recovery utility.

#### **Include indexes in recovery list**

Specify whether you want indexes that are associated with the databases being recovered to be included in the recovery list for the recovery utility. If you specify **Y**, then a GENJCL.USER GENTYPE=DATAASE GENPHAS=SYSIN will be made for each index. If you specify **N**, then these calls are not made. For example, if you are using the IMS Database Recovery Facility for recovery, it has the ability to perform integrated index rebuild of associated indexes. To do this, the indexes are not included in the recovery list but instead, the associated IB() control statements need to be specified to drive index rebuild.

#### **Datasets for GENJCL**

Displays the concatenation of data sets for GENJCL member selection.

## **Setting index rebuild utility options**

From the **Index Rebuild Utility Options** panel you can update the recovery options that are used by the Index Rebuild utility.

### **Procedure**

1. On the **System Recovery Options** panel, specify Y in the **Execute Index Rebuild Edit Options** field.

```

BSY$ROIU V2R2 ----- Index Rebuild Utility Options ----- 2021/08/05 03:35:2
Option ==>

Creator: CSOSTR Name: ICA2 DBHD000 SSID: ICA2
Share Option: U (Upd,View,No) Description:

Enter the options for the index rebuild utility:
More: +

FF GENJCL member name ==> BSYIIB
 Use FF for HALDB ==> Y (Yes/No)
HALDB GENJCL member name ==>
FP GENJCL member name ==> BSYFPSI

Rebuild even if recoverable ==> Y (Yes/No)
Rebuild HALDB on recover to current ==> N (Yes/No)

Delete/Define PDS DSN ==> SIR.ICA2.DELDEFS

Datasets for GENJCL ==> SIR.ICA2.JCLPDS2
 ==> RSQA.BSY220.IBMTAPE.SBSYSAMP

```

Figure 179. **Index Rebuild Utility Options** panel (BSY\$ROIU): Index Rebuild Utility Options

2. On the **Application Recovery Options** panel, specify one or more of the index rebuild options:

**FF GENJCL member name**

Specify the skeleton member name to be used for the index rebuild utility when rebuilding indexes associated with full function and HALDB indexes. If the **Use FF for HALDB** option is set to Y, then this member is also used for HALDB ILDS and PINDEX processing.

**Use FF for HALDB**

Specify Y if you want to use the FF GENJCL skeleton member for processing HALDB ILDS and PINDEX; specify N if you do not want to do this.

**HALDB GENJCL member name**

Specify the skeleton member name to be used for processing HALDB ILDS or PINDEX. If the **Use FF for HALDB** option is set to Y, then you must leave this field blank.

**FP GENJCL member name**

Specify the skeleton member name to be used for processing Fast Path secondary indexes. If you do not want FP secondary indexes processed, leave this field blank.

**Rebuild even if recoverable**

Specify whether you always want indexes rebuilt after the recovery of the target database. Specify Y to always rebuild indexes. Specify N if you want indexes to be rebuilt only if they cannot be recovered.

**Rebuild HALDB on recover to current**

Specify whether you want the HALDB ILDS and PINDEX rebuilt even when the partition is being recovered to current. Usually, the ILDS and PINDEX do not need to be rebuilt in this situation. Specify Y to rebuild the HALDB ILDS and PINDEX on recovery to current. Specify N to rebuild the HALDB ILDS and PINDEX only when indicated.

**Delete/Define PDS DSN**

Specify the name of a PDS data set that contains IDCAMS statements. These statements are used to delete and redefine the data sets being recovered before running the recovery utility.

**Datasets for GENJCL**

Displays the concatenation of data sets for GENJCL member selection.



## Setting post recovery image copy options

From the **Image Copy Utility Options** panel you can update recovery options used by the Image Copy utility.

### Procedure

1. On the **System Recovery Options** panel, specify Y in the **Create Post Recovery IC Edit Options** field.

```
BSY$ROPU V2R2 ----- Image Copy Utility Options ----- 2021/08/05 03:57:2
Option ==>

Creator: CSOSTR Name: ICA2 DBHD000 SSID: ICA2
Share Option: U (Upd,View,No) Description:

Enter the options for the image copy utility:

GENJCL member name ==> BSYHPIC

Datasets for GENJCL ==> SIR.ICA2.JCLPDS2
 ==> RSQA.BSY220.IBMTAPE.SBSYSAMP
 ==>
 ==>
 ==>
```

Figure 180. **Image Copy Utility Options** panel (BSY\$ROPU): Post Recovery IC

2. From the **Image Copy Utility Options** panel, specify one or more of the following image copy options:

#### **GENJCL member name**

Specify a skeleton member name to use for the post recovery IC JCL generation.

#### **Datasets for GENJCL**

Displays the concatenation of data sets for GENJCL member selection.

## Setting spawned job options

If you specify Y in the **Update Spawned Job Options** field, you will be taken to the **Spawned Job Options** panel.

By default, the names of created jobs are the associated TSO userid plus a 1 character alphanumeric suffix (A-Z or 0-9) that is incremented with each new job. The jobcard is dynamically created using internal control blocks within the IMS Recovery Expert job. Use the **Spawned Job Options** panel to override the default methods for jobname and jobcard generation.

On the **Spawned Job Options** panel, you can specify the following information:

```

IMS RE V2R2 ----- Spawned Job Options ----- 2021/04/17 12:47:4
Option ==>

Creator: ***** Name: BSY.DEMO SSID: IDA
Share Option: U (Upd,View,No) Description: TEST

Enter the options for spawned jobs:

Jobname Mask:
==> -----

Press PF1 for help on the Jobname Mask field and valid symbols.

Job Cards:
==> -----
==> -----
==> -----
==> -----

Press PF1 for help on the Job Card fields.

```

Figure 181. **Spawned Job Options** panel

### Jobname Mask

Allows the user to control the jobname used for any jobs spawned during the recovery process. This field accepts the following data:

- Literal: Any string valid for a jobname from 1-8 characters in length.
- &USER: The TSO userid of the submitter. If specified, minimal validation is done on the mask.
- &SSID: The IMS subsystem or group id associated with the job. If specified, minimal validation is done on the mask.
- &#: Substitute a single characters (A-Z) in the jobname. Can only be used once in the mask.
- &%: Substitute a single character (0-9) in the jobname. Can only be used once in the mask.

#### Note:

- &# and &% are mutually exclusive
- All symbols must be terminated with a period (.)

### Job Cards

Allows the user to specify the a jobcard used for any jobs spawned during the recovery process. If the first line, the jobname portion of the jobcard, is left blank then the jobname is created dynamically for each spawned job using either the default method or value from the **Jobname Mask** field, otherwise the jobname will take the value from this line.

**Note:** Limited validation is done on these fields, so for the most part the specified jobcard will be used as is.

Press PF3 when you've finished, or enter CAN on the **Option** line to cancel.

## DR preparation job history display

If the DR\_HISTORY\_RETENTION parameter in the BSY#PARM member is set to a value greater than 0, then each time a DR preparation job executes, it will save history information in the reports repository associated with the execution.

To view this information, specify H next to a disaster recovery profile and press Enter. If the DR preparation job has been executed for DR Profile and the execution time is less than the retention value, the **DR History Display** panel will be displayed. This panel displays the following fields for each DR preparation job execution:

### PIT Timestamp

The recovery timestamp that was determined for use at the DR site based on available archived logs when the job executed.

### Execution Time

The execution time for this DR preparation job.

### RECON1 Dataset Name

The name of the conditioned RECON1 data set processed by the DR preparation job.

### DR PDS Name

The name of the DR PDS populated by the DR preparation job.

## Creating disaster recovery profiles

To use the IMS Recovery Expert disaster recovery feature, you must build a disaster recovery profile and ensure that the job produced from the profile is run on a regular basis.

### About this task

The Archive Log options, Change Accumulation options, Image copy options, and Application Recovery options should only be customized if it is a Point-In-Time recovery. If you select to perform a recovery to backup, then these options will no longer be updatable since no recovery is needed after restoring the System Level Backup.

### Procedure

1. Specify **1** (System Operations) on the **Option** line of the IMS Recovery Expert main menu panel (BSY\$MAIN) and press Enter.

```
BSY$SYMN V2R2 ----- System Operations Menu -----
Option ===>

 2021/09/06 13:49:43
 User: PDMONA - BSY

 1. IMS System Analysis and Configuration
 2. System Backup Profiles
 3. System Level Backup Operations
 4. Disaster Recovery Profiles
```

Figure 182. **System Operations Menu** panel (BSY\$SYMN)

2. On the **System Operations Menu** panel, specify **4** (Disaster Recovery Profiles) on the **Option** line, and press Enter.

```
Enter Disaster Recovery Profile Selection Criteria
BSY$XDRK
Profile Like *
Creator Like *
SSID Like *
```

Figure 183. **Enter Disaster Recovery Profile Selection Criteria** panel (BSY\$XDRK)

3. On the **Enter Disaster Recovery Profile Selection Criteria** panel, specify a profile name, a creator name or mask, or a system ID name in the **Profile Like**, **Creator Like**, and **SSID Like** fields. You can also use wildcard characters such as an asterisk (\*) in any or all of these fields. Press Enter.

```

BSY$XDRD V2R2 --- Disaster Recovery Profile Display --- 2021/06/30 14:04:43
Option ==> Scroll ==> PAGE

Line Commands: D - Delete U - Update B - Build P - Report H - History
 C - Create R - Rename V - View G - Group

Profile Like * SSID Like *
Creator Like * Row 1 of 109 +>

Cmd Name Creator SSID/ Group Updt
 ABC PDBATB IBA2 U
 ABCDEFG PDBATA IAA U
 BAT PDBATA IAA U
 BAT - IAA PDBAT IAA U
 BAT TRY PDBAT EMC V
 BATTERY PDBATA I9A2 U
 BAT5 PDBATA IAA U
 COORDINATED DR PDBISC IBA2 U
 CSLB TEST DR PROFILE CSTSUK TSLB U
 EMC DR1/1 CSOSTR EMC U

```

Figure 184. **Disaster Recovery Profile Display** panel (BSY\$XDRD)

On the **Disaster Recovery Profile Display** panel, the profiles that meet your selection criteria are listed.

- To create a new profile, specify C on the **Cmd** line and press Enter.

```

Enter New Disaster Recovery Profile Data
BSY$DPRC
Creator PDMONA

Profile Name

Description

IMS SSID EMC (? for system list)

Update Option U (Update, View only, No access)

```

Figure 185. **Enter New Disaster Recovery Profile Data** panel (BSY\$DPRC)

- On the **Enter New Disaster Recovery Profile Data** panel, specify information in the following fields.

**Creator**

This field displays your user ID as the profile creator.

**Profile Name**

Specify a name for the profile. This name can be up to 30 characters.

**Description**

(Optional) Specify descriptive information for the profile.

**IMS SSID**

Specify the IMS SSID or an IMS Recovery Expert group ID for the profile. If you specify an ID of an IMS SSID that is associated with an IMS Recovery Expert group, IMS Recovery Expert will automatically replace the IMS SSID with the group name. Specify ? for a list of all IMS systems registered in IMS Recovery Expert.

**Update option**

This option controls how other users can use this recovery profile.

- Specify U to allow other users to update the profile.
- Specify V to allow other users to view but not update the profile.
- Specify N to prevent other users from viewing or updating the profile.

- When you have finished specifying information on the **Enter New Disaster Recovery Profile Data** panel, press Enter.

```

BSY$DPRM V2R2 ----- Update Disaster Recovery Profile ----- 2021/08/18 15:53:03
Option ==>

Creator: PDBISC Name: IAA User: PDBISC
Share Option: U (Upd,View,No) Description: RECOVER TO PIT
IMS System/Group: IAA

DR Profile Options:
DR Method ==> I (SLB/Image Copy)
DR Site Recovery point ==> P (Backup/Point in Time)
 SLB Used for DR ==> R (Localsite/Recoverysite)

Process Archive Logs for DR ==> Y (Yes/No/Update)
Process Change Accums for DR ==> Y (Yes/No/Update)
Process Image Copies for DR ==> Y (Yes/No/Update)
Customize RECON dataset name ==> N (Yes/No)
Run Health Check ==> N (Yes/No/Update)
Use System Recovery Profiles ==> N (Yes/No)
Update DR Recovery Options ==> N (Yes/No)
Use Multijob for DR Restore ==> Y (Yes/No/Update)

Generate DBDS Delete/Define ==> Y (Yes/No/Update)
Mark DBDS Recovery Needed ==> N (Yes/No)
Dump RECON to DR PDS ==> Y (Yes/No)
Save DR Prep Job in DR PDS ==> N (Yes/No)
Disable old backup in DR PDS ==> N (Yes/No)
Archive OLDS at DR site ==> Y (Yes/No/Update)
Delete all SUBSYS in RECON ==> N (Yes/No)
Recover IMS catalog first ==> N (Yes/No)

External Subsystem ==> Db2P

```

Figure 186. **Update Disaster Recovery Profile** panel (BSY\$DPRM)

7. On the **Update Disaster Recovery Profile** panel, specify information for the following disaster recovery options:

#### **DR Method**

Specify the type of recovery to use at the disaster recovery site. Specify S to have IMS Recovery Expert generate JCL to restore an SLB as the starting point for remote site recovery. Specify I if you want IMS Recovery Expert to generate JCL to recover IMS databases using image copies and any change accums and archive logs, if specified. An image copy disaster recovery method will not use an SLB in recovery at the remote site.

#### **DR Site Recovery Point**

Specify your Recovery Point Objective at the disaster recovery site. Specify B if you want IMS Recovery Expert to generate JCL to recover to the last System Level Backup. Specify P if you want IMS Recovery Expert to process and generate JCL for recovery to the end of existing archive logs. This option is set to P if an image copy disaster recovery method is specified.

#### **SLB Used for DR**

Specify which System Level Backups will be used as the base for disaster recovery. Specify L for local site backups or R for recovery site backups. This option is not applicable if an image copy disaster recovery method is specified.

#### **Process Archive Logs for DR**

Specify N if you do not want to process archive logs, specify Y if you want to process archive logs, or specify U to go to the archive log options panel. This option is set to Y if an External Subsystem is specified.

#### **Process Change Accums for DR**

Specify N if you do not want to process Change Accumulation data sets, specify Y if you want to process Change Accumulation data sets, or specify U to go to the **Change Accumulation options** panel.

**Process Image Copies for DR**

Specify N if you do not want to process Image Copy data sets, specify Y if you want to process Image Copy data sets, or specify U to go to the **Image Copy options** panel. This option is set to Y if an image copy disaster recovery method is specified.

**Customize RECON data set name**

Specify if you want to update the name mask for the disaster recovery site RECON data set names. Specify Y if you want to update RECON data set names, or N if you do not want to update them.

**Run Health Check**

Specify whether you want to execute the Health Check function against the conditioned RECON data sets after the DR preparation job has completed the conditioning. Specify Y if you want to execute Health Check, or N if you do not want to execute Health Check. Specify U to view and update the options to use when performing Health Check. For a description of the options and their values, see [Chapter 14, "Running a Health Check," on page 295](#).

**Update DR Recovery Options**

Specify if you want to update the options for application recovery at the disaster recovery site. Specify Y to go to the recovery options panel, or specify N to use the existing recovery options.

**Use System Recovery Profiles**

Specify Y if you want to use system recovery profiles at the disaster recovery site for performing database recovery. If you specify Y and no system recovery profiles exist other than the default System recovery profile, then this field will default to N and you will receive an error message. For more information about specifying system recovery profiles, see [“\(Optional\) Using system recovery profiles to recover groups of databases” on page 261](#).

**Use Multijob for DR Restore**

Using multiple jobs reduces the time it takes to perform restore processes. Specify Y if you want restore processes to use multiple jobs, U to update the options, or N to use a single job. If you specify Y or U, the **Multijob Options** panel will open and you can specify Multijob options to be used for the restore job at the disaster recovery site. For more information about specifying these options, see [“Editing multijob options for restore” on page 242](#).

**Generate DBDS Delete/Define**

Specify whether you want the DR preparation job to create IDCAMS delete/define cards for each DBDS defined to IMS when it executes. If you specify N, then no cards are created. If you specify Y, then the cards are created based on the **Specify Delete/Define Options** panel (BSY\$DPDD). To access the **Specify Delete/Define Options** panel, specify U for this option and press Enter. For more information about specifying these options, see [“Specifying IDCAMS Delete/Define options” on page 284](#).

**Mark DBDS Recovery Needed**

The DR preparation job has the ability to mark each DBDS as recovery needed, and each AREA as unavailable in the conditioned RECON data sets to ensure that they cannot be accessed prior to recovery. If you want this process performed, specify Y. If you do not want this process performed, specify N. This option is only valid when the **DR Method** is set to Image Copy.

**Dump RECON to DR PDS**

Specify whether you want the DR preparation job to copy the conditioned RECON data set into the disaster recovery PDS. When the conditioned RECON is dumped, jobs are built to redefine and reload the RECON data sets from this member. Specify Y if you want the conditioned RECON dumped to the disaster recovery PDS. If you have another method for sending the RECON to the DR site, specify N to bypass this process.

**Save DR Prep Job in DR PDS**

Specify whether you want a copy of the DR in DR PDS preparation job to be saved in the DR PDS so that you can perform DR preparation and RECON conditioning at the DR site. This can be set to Y only when the options for processing archive logs, change accums, and image copies do not indicate that these resources are being copied.

**Disable old backup in DR PDS**

Specify whether you want to disable the previously built backup image of RECON and the IMS Recovery Expert repository in the DR PDS when the DR preparation job is executed. It updates and

disables the restore job steps in JCL for the systems other than the DR preparation target system. If you have a need for this process, specify Y to have the DR preparation job perform this process when it executes or N to skip this processing.

When multiple system groups share the same RECON data set and the IMS Recovery Expert repository, those system groups must share the same DR PDS and all DR profiles must have Y specified for this option. If you specify Y for this option, all system groups sharing the same DR PDS must share the same RECON data set and the IMS Recovery Expert repository.

#### **Archive OLDS at DR site**

Specify whether you want to execute OLDS archiving during the recovery process at the DR site. If you specify Y, DR preparation process generates a DBRC **GENJCL . ARCHIVE** command when the OLDS is in archive needed status. If you do not want OLDS archiving at the DR site, specify N.

If you want to specify the option for OLDS archiving, specify U. If U is specified, the **Edit Archive OLDS at DR site options** panel (BSY\$DPGA) is displayed and the **Archive OLDS at DR site** option is set to Y. For more information about specifying the option, see [“Updating Archive OLDS at DR site options” on page 286](#).

The default value is Y.

#### **Delete all SUBSYS in RECON**

Specify whether or not to delete all subsystem (SUBSYS) records in the DR RECON. If you want to delete all subsystem records, specify Y. If you want to delete only subsystems defined in the DR profile, specify N. The default value is N.

#### **Recover IMS catalog first**

Specify whether or not to recover IMS catalog database prior to other databases at the DR site. If you want to recover IMS catalog database prior to other databases, specify Y. If not, specify N. If Y is specified, application recovery job JCLs dedicated to IMS catalog databases will be created in the disaster recovery PDS.

If the system is in the IMS-managed ACBs environment, you must specify Y. The default value is N.

#### **External Subsystem**

Specify a subsystem for coordinated disaster recovery. Both subsystems will be recovered to the most recent common timestamp available.

8. When you finish specifying the disaster recovery profile fields, press the PF3 key. The **Update Disaster Recovery Profile** panel closes. The **Disaster Recovery Profile Display** panel opens. A message is issued that your profile was created.

## **Updating Archive Log options**

The Archive Log options are used if you are processing the archive logs during disaster recovery.

### **Procedure**

1. On the **Update Disaster Recovery Profile** panel (BSY\$DPRM), specify U in the **Process Archive Logs for DR** field options and press Enter.

```

BSY$DPR1 ----- Edit DR Archive Options ----- 2021/09/22 14:43:27
Option ==>

Creator: PDBISC Name: FFJKJ User: PDBISC
Share Option: U (Upd,View,No) Description: DDL
IMS System/Group: ICA2

Archive Log Options:
Archive Logs Used at DR Site ==> C (Yes/Copied/2)
Use RLDS datasets at DR Site ==> Y (Yes/No)
Copy local archive logs ==> B (1/2/Both/Create 2 from 1)
Number of archive copy tasks ==> 04 (1-32)
Force an archive log switch ==> Y (Yes/No)
Force checkpoint before archiving ==> Y (Yes/No)
Archive logs needed at DR site ==> 014 (days) 000 (hours)
Unit for Copying archive log ==> CART
 Edit Allocation parameters ==> N (Yes/No)
Number of qualifiers to replace ==> 1 (0-9)
DR Archive Prefix 1 ==> ICA2.ARCHLOG1.DR
DR Archive Prefix 2 ==> ICA2.ARCHLOG2.DR
Copy archives to DASD at DR site ==> N (Yes/No/Update)

```

Figure 187. *Edit DR Archive Options* panel (BSY\$DPR1)

2. On the **Edit DR Archive Options** panel, specify information for the following archive options:

**Archive Logs Used at DR Site**

Specify which archive logs are to be used at the DR site. Specify C to have IMS Recovery Expert copy your local archive logs and register them in the DR RECON data set. Specify Y if you want IMS Recovery Expert to use your copy of the primary archive logs. Specify 2 if you are using dual logging and you want IMS Recovery Expert to use your copy of the secondary archive logs at DR.

**Use RLDS datasets at DR Site**

Specify if you want IMS to use RLDS data sets for recovery at the DR site.

**Copy local archive logs**

If you specified to copy the local archive logs, then this field tells IMS Recovery Expert which logs to copy. Specify 1 to copy only the primary archive log. Specify 2 to copy only the secondary archive log. Specify B to copy both the primary and secondary archive logs. Specify C to create two copies from the primary log. IMS Recovery Expert will create recovery site primary and recovery site secondary logs from the local primary archive log.

**Number of archive copy tasks**

Specify how many tasks you want IMS Recovery Expert to assign to the archive log copy process. Specify a number between 1 and 32.

**Force an archive log switch**

This field allows you to force IMS Recovery Expert to issue a **/SWI OLDS** command prior to determining what archive logs exist. The current active online log is archived when this field is set to Y. For a data sharing group, each member's online logs will be switched and archived.

**Force checkpoint before archiving**

Specify Y to force a system checkpoint before archiving the logs. This will cause the IMS restart point to be included on the last archive log to be included for disaster recovery.

**Archive logs needed at DR site**

Specify the number of days and/or hours of archive logs that are needed at disaster recovery. This value is computed from the time the job is built at the local site. The recommended value for this field is (the longest duration between image copies at your site)\*2. For example, if weekly image copies are the longest duration, then specify 14 in this field (7\*2).

**Unit for copying archive logs**

Specify the tape or DASD unit device to be used to allocate data sets to be created when copying archive logs.

**Edit allocation parameters**

Specify Y in this field to edit to the archive log copy allocation parameter panel.



### Number of qualifiers to replace

Specify how many qualifiers of the existing archive log data set name you want to replace with the disaster recovery archive log prefix.

### DR Archive Prefix 1 and 2

Specify the archive log prefix 1 and 2 that the copied archive logs will have at the disaster recovery site. You can include &SSID in the prefix to have IMS Recovery Expert replace it with the IMS system name.

### Copy archives to DASD at DR site

Indicate if you want IMS Recovery Expert to generate JCL to copy the archive logs from tape to DASD at the remote site as part of the remote site recovery process. Specify N if you do not want IMS Recovery Expert to generate JCL to copy any of the archive logs to DASD. Specify Y if you want IMS Recovery Expert to generate JCL to copy the archive logs from tape to DASD at the disaster recovery site. Specify U to edit the Update User Options for copying the archive logs to DASD panel.

3. To configure more options, specify Y in the **Edit allocation parameters** field, or specify U in the **Copy archives to DASD at the DR site** field.
  - a) If you specify Y in the **Edit allocation parameters** field and press Enter, the Local Archive copy allocation panel opens:

```
BSY$DPR4 ----- Local Archive copy allocation ----- 2021/11/11 15:37:3
Option ==>

Creator: PDMONA Name: TEST2 User: PDMONA
Share Option: U (Upd,View,No) Description:
IMS System/Group: EMC

Parameters for Local Archive copy:
SMS Data Class ==>
SMS Storage Class ==>
SMS Management Class ==>

Tape specific parameters:
Expiration Date *or* ==> (YYYYDDD/YYDDD)
Retention Period ==> 0100 (4 digit number)
```

Figure 188. **Local Archive copy allocation** panel (BSY\$DPR4)

Specify information for the following local archive copy allocation options:

#### SMS Data Class

Specify what SMS data class to use for the allocation of the copied local archive logs.

#### SMS Storage Class

Specify what SMS storage class to use for the allocation of the copied local archive logs.

#### SMS Management Class

Specify what SMS management class to use for the allocation of the copied local archive logs.

#### Expiration Date \*or\*

If you specified to use a tape unit for the copied archive logs, specify an expiration date for the data sets. You must specify either an Expiration date or a Retention Period.

#### Retention Period

If you specified to use a tape unit for the copied archive logs, specify a retention period for the data sets. You must specify either an Expiration date or a Retention Period.

- b) If you specify U for **Copy archives to DASD at DR site** and press Enter, the **DR copy to DASD allocation** panel opens.

```

BSY$DPR5 ----- DR copy to DASD allocation ----- 2021/11/11 15:39:27.4
Option ==>

Creator: PDMONA Name: TEST2 User: PDMONA
Share Option: U (Upd,View,No) Description:
IMS System/Group: EMC

Parameters for Remote site archive copy:
Number of days/hours to copy ==> 007 (days) 000 (hours)
Unit for Copying archives to DASD ==> CART
SMS Data Class ==>
SMS Storage Class ==>
SMS Management Class ==>

```

Figure 189. **DR copy to DASD allocation** panel (BSY\$DPR5)

Specify information for the following options for copying archives to DASD at the disaster recovery site:

**Number of days/hours to copy**

Specify how many days and hours of archive logs you want to copy from tape to DASD at the disaster recovery site.

**Unit for Copying archives to DASD**

Specify the unit to be used for copying archive logs from tape to DASD at the disaster recovery site.

**SMS Data Class**

Specify what SMS data class to use when allocating archives on DASD at the disaster recovery site.

**SMS Storage Class**

Specify what SMS storage class to use when allocating archives on DASD at the disaster recovery site.

**SMS Management Class**

Specify what SMS management class to use when allocating archives on DASD at the disaster recovery site.

## Updating Change Accumulation options

The Change Accumulation options are used during disaster recovery when you are processing Change Accumulation data sets.

### Procedure

1. On the **Update Disaster Recovery Profile** panel, specify **U** in the **Process Change Accums for DR** field. Press Enter.

```

BSY$DPR2 ----- Edit DR Change Accum Options ----- 2021/09/22 14:45:40
Option ==>

Creator: PDBISC Name: FFJKJ User: PDBISC
Share Option: U (Upd,View,No) Description: DDL
IMS System/Group: ICA2

Change Accum Options:
Change Accums used at DR ==> C (Yes/None/Copy)
Number of Change Accum copy tasks ==> 4 (1-32)
Change Accums needed at DR site ==> 030 (days) 000 (hours)
Unit for Copying Change Accums ==> CART
Edit Allocation parameters ==> N (Yes/No)
Number of qualifiers to replace ==> 1 (0-9)
DR Change Accum prefix ==> EMC.CA.DR

```

Figure 190. **Edit DR Change Accum Options** panel (BSY\$DPR2)

2. On the **Edit DR Change Accum Options** panel, specify the following information:

**Change Accum Used at DR**

Specify which Change Accum data sets to use at the DR site. Specify C if you want IMS Recovery Expert to copy local CA data sets and register the copied data sets in the DR RECON. Specify N if you want IMS Recovery Expert to invalidate all registered CA data sets in the DR RECON. Specify Y if you do not want IMS Recovery Expert to change any registered CA data sets in the DR RECON.

**Number of Change Accum copy tasks**

Specify how many tasks you want IMS Recovery Expert to assign to the change accumulation copy process. Specify a number between 1 and 32.

**Change Accum needed at DR site**

Specify the number of days and/or hours of change accumulation data that are needed at disaster recovery.

**Unit for Copying Change Accum**

Specify the tape or DASD unit device to be used to allocate data sets to be created when copying change accumulation data sets.

**Edit allocation parameters**

Specify Y in this field to edit the change accumulation copy allocation parameter panel.

**Number of qualifiers to replace**

Specify how many qualifiers of the existing change accumulation data set name you want to replace with the DR Change Accum Prefix.

**DR Change Accum Prefix**

Specify the change accumulation data sets prefix that the copied change accumulation data sets will have at the disaster recovery site. You can include &SSID in the prefix to have IMS Recovery Expert replace it with the IMS system name.

3. If you specify Y for **Edit allocation parameters**, the **Local CA copy allocation** panel opens:

```

BSY$DPR6 ----- Local CA copy allocation ----- 2021/11/11 15:40:52.86
Option ==>

Creator: PDMONA Name: TEST2 User: PDMONA
Share Option: U (Upd,View,No) Description:
IMS System/Group: EMC

Parameters for Local Change Accum copy:
SMS Data Class ==>
SMS Storage Class ==>
SMS Management Class ==>

Tape specific parameters:
Expiration Date *or* ==> (YYYYDDD/YYDDD)
Retention Period ==> 0100 (4 digit number)

```

Figure 191. **Local CA copy allocation** panel (BSY\$DPR6)

4. Specify information for the following Local CA copy allocation options:

**SMS Data Class**

Specify what SMS data class to use for the allocation of the copied local Change Accum data sets.

**SMS Storage Class**

Specify what SMS storage class to use for the allocation of the copied local Change Accum data sets.

**SMS Management Class**

Specify what SMS management class to use for the allocation of the copied local Change Accum data sets.

**Expiration Date**

If you specified to use a tape unit for the copied CA data sets, specify an expiration date for the data sets. You must specify either an Expiration date or a Retention Period.

## Retention Period

If you specified to use a tape unit for the copied CA data sets, specify a retention period for the data sets. You must specify either an Expiration date or a Retention Period.

## Updating Image Copy options

The Image Copy Options are used if you choose to process Image Copy data sets during disaster recovery processing.

### Procedure

1. On the **Update Disaster Recovery Profile** panel (BSY\$DPRM), specify **U** in the **Process Image Copies for DR** field. Press Enter.

```
BSY$DPR3 ----- Edit DR Image Copy Options ----- 2021/09/22 14:46:19
Option ==>

Creator: PDBISC Name: FFJKJ User: PDBISC
Share Option: U (Upd,View,No) Description: DDL
IMS System/Group: ICA2

Image Copy Options:
Image Copies used at DR ==> C (Yes/IC2/Copy/None)
Number of Image Copy copy tasks ==> 4 (1-32)
Image Copies needed at DR site ==> 030 (days) 000 (hours)
Unit for Copying Image Copies ==> CART
 Edit Allocation parameters ==> N (Yes/No)
Number of qualifiers to replace ==> 1 (0-9)
DR Image Copy Prefix ==> ICA2.IC.DR
```

Figure 192. **Edit DR Image Copy Options** panel (BSY\$DPR3)

2. On the **Edit DR Image Copy Options** panel, specify information for the following Image Copy options:

#### **Image Copies Used at DR**

Specify which Image Copy data sets to use at the DR site. Specify C if you want IMS Recovery Expert to copy local IC data sets and register the copied data sets in the DR RECON. Specify Y if you want IMS Recovery Expert to leave all IC data sets in the DR RECON. Specify 2 if you want IMS Recovery Expert to leave all IC2 data sets and invalidate all IC1 data sets in the DR RECON. Specify N if you want IMS Recovery Expert to invalidate all registered IC data sets in the DR RECON.

#### **Number of Image Copy copy tasks**

Specify how many tasks you want IMS Recovery Expert to assign to the Image Copy-copy process. Specify a number between 1 and 32.

#### **Image Copies needed at DR site**

Specify the number of days and/or hours of image copy data sets that are needed at disaster recovery.

#### **Unit for Copying Image Copies**

Specify the tape or DASD unit device to be used to allocate data sets to be created when copying image copy data sets.

#### **Edit allocation parameters**

Specify Y to edit the **Image Copy-copy allocation parameter** panel.

#### **Number of qualifiers to replace**

Specify how many qualifiers of the existing Image Copy data sets name you want to replace with the DR Image Copy prefix.

#### **DR Image Copy Prefix**

Specify the Image Copy data sets prefix that the copied Image Copy data sets will have at the disaster recovery site. You can include &SSID in the prefix to have IMS Recovery Expert replace it with the IMS subsystem name.

a) If you specify Y in the **Edit allocation parameters** field, the **Local IC copy allocation** panel opens:

```
BSY$DPR7 ----- Local IC copy allocation ----- 2021/11/11 15:42:17.46
Option ==>

Creator: PDMONA Name: TEST2 User: PDMONA
Share Option: U (Upd,View,No) Description:
IMS System/Group: EMC

Parameters for Local IC copy:
SMS Data Class ==>
SMS Storage Class ==>
SMS Management Class ==>

Tape specific parameters:
Expiration Date *or* ==> (YYYYDDD/YYDDD)
Retention Period ==> 0100 (4 digit number)
```

Figure 193. **Local IC copy allocation** panel (BSY\$DPR7)

b) Specify the following Local IC copy allocation options:

**SMS Data Class**

Specify what SMS data class to use for the allocation of the copied local Image Copy data sets.

**SMS Storage Class**

Specify what SMS storage class to use for the allocation of the copied local Image Copy data sets.

**SMS Management Class**

Specify what SMS management class to use for the allocation of the copied local Image Copy data sets.

**Expiration Date**

If you specified to use a tape unit for the copied IC data sets, specify an expiration date for the data sets. You must specify either an Expiration date or a Retention Period.

**Retention Period**

If you specified to use a tape unit for the copied IC data sets, specify a retention period for the data sets. You must specify either an Expiration date or a Retention Period.

## Updating DR Recovery options

Update DR Recovery options from the **Update Disaster Recovery Profile** panel.

If you choose to update the DR Recovery options, see the topic [“Creating utility profiles”](#) on page 172.

**Note:** The DR Recovery options settings are for utilities to be used at the remote site.

## Customizing RECON data set names

You can update the name mask for the disaster recovery site RECON data set names.

### Procedure

1. On the **Update Disaster Recovery Profile** panel (BSY\$DPRM), specify **Y** in the **Customize RECON data set name** field. Press Enter.

```

BSY$DPRR ---- Customize Conditioned RECON name ---- 2021/11/11 15:26:47
Option ==>

Creator: PDBATA Name: BAT3 User: PDMONA
Share Option: U (Upd,View,No) Description: A
IMS System/Group: IAA

DR preparation copy RECONS for conditioning ==> Y

Specify the conditioned RECON data set names below.
RECON Copy 1 ==> TSMXD.IEA2.RECON1
RECON Copy 2 ==> TSMXD.IEA2.RECON2

When the DR preparation job will copy the RECON data sets to be
conditioned, you can use the variables below as part of the data
set name. If you are making your own copy of the RECON data
sets for conditioning, you must specify the fully qualified
data set name.

&RECON - The production RECON name
&USER - The user associated with the DR preparation job
&SSID - The subsystem name
&DATE - Current date in format Dyyddd
&TIME - Current time in format Thhmss

```

Figure 194. **Customize Conditioned RECON name panel (BSY\$DPRR)**

2. On the **Customize Conditioned RECON name** panel, in the **DR Prep create conditioned RECON data sets** field, specify whether you want the DR preparation job to create the RECON data sets that will be conditioned or not. If you specify Y, then when the DR preparation job executes, it will make a copy of the production RECON data sets and use them for performing RECON conditioning. If you specify N, then you must create a copy of the RECON data sets to be conditioned and specify their names in the **RECON Copy 1** and **RECON Copy 2** fields.

**Note:** When you specify Y in the **DR Prep create conditioned RECON data sets** field, you can either specify the RECON data set names or leave these fields blank, and the DR preparation job will create the name. When you specify N in the **DR Prep create conditioned RECON data sets** field, you must specify fully qualified data set names for both **RECON Copy 1** and **RECON Copy 2**; no symbolic variables are allowed in this case.

3. In the **RECON Copy 1** and **RECON Copy 2** fields, customize the names of the two copies of the RECON data sets that are used for RECON conditioning. You can use the following symbols as part of the name mask:
  - &RECON: The production RECON name
  - &USER: The user associated with the DR preparation job
  - &SSID: The subsystem name
  - &DATE: The current date in format *yyddd*
  - &TIME: The current time in format *hhmmss*

## Specifying IDCAMS Delete/Define options

The IDCAMS Delete/Define options are used when the DR preparation job creates IDCAMS delete/define cards for each DBDS defined to IMS.

### Procedure

1. On the **Update Disaster Recovery Profile** panel (BSY\$DPRM), specify U in the **Generate DBDS Delete/Define** field and press Enter.

```
BSY$DPDD V2R2 --- Specify Delete/Define Options ---- 2021/06/15 13:53:33
Option ==>
```

```

Creator: TSMXD Name: IDA DR User: TSMXDA
Share Option: U (Upd,View,No) Description:
IMS System/Group: IDA

```

```
DBDS Delete/Define Option ==> P (None/Global/PDS)
```

```
SMS/VOLSER Option ==> 4 (1=Gen SMS and/or VOLSER)
 (2=Gen SMS only)
 (3=Gen SMS and VOL(*,*.))
 (4=Do not Gen SMS or VOL)
```

```
If DBDS Delete/Define Option is PDS:
PDS Name ==> TSMXD.BSY.IDA.DR.DELDEF.PDS
```

```
Delete/Define PDS Option ==> 2 (1=Override in recovery options)
 (2=Pass to recovery JCL)
 (3=Create PDS only)
```

```
Key label replication ==> Y (Yes/No)
```

2. On the **Specify Delete/Define Options** panel (BSY\$DPDD), specify the following options:

#### **DBDS Delete/Define Option**

Specify N to indicate that no IDCAMS delete/define cards should be created. Specify G to indicate that global IDCAMS delete/define cards should be created in the DR PDS in members ssidBBDL (delete cards) and ssidBBDL (define cards). Specify P to create a PDS that contains the delete/define cards where a member is created by DD name.

#### **SMS/VOLSER Option**

Specify the type of SMS and/or VOLSER information you want created for each define card. Specify 1 if you want to replicate the SMS/VOLSER information from the existing data set. Specify 2 if you want only the SMS information created; if this option is selected and the data set is not SMS managed, then the VOLSER information will be created. Specify 3 if you want the SMS information created, but instead of actual VOLSERs, a VOLSER(\*,\*.\*) parameter will be created. Specify 4 if you do not want SMS or VOLSER information created.

#### **PDS Name**

If the **DBDS Delete/Define Option** is set to P, then specify the data set name of the PDS that will be created to contain the delete/define cards. Specify the fully qualified data set name with no quotes. If this exists when the DR preparation job runs, it will be deleted and reallocated.

#### **Delete/Define PDS Option**

If the **DBDS Delete/Define Option** is set to P, then specify what you want done with the IDCAMS delete/define PDS when the recovery jobs are executed at the DR site. Specify 1 if you want this PDS to be used in the recovery and index rebuild options as the IDCAMS delete/define PDS. If a data set is already specified, this data set will override the specification. Specify 2 if you want this data set to be passed to the JCL skeletons that are created at recovery time for the recovery and index rebuild jobs. Specify 3 if you only want the data set created.

#### **Key label replication**

If you are using z/OS data set encryption for DBDS, encrypted DBDS has an encryption key label. If the **DBDS Delete/Define Option** is active, you can specify the DBDS key label replication option. Specify Y if you want the existing key label information to be set on the KEYLABEL parameter of the **DEFINE CLUSTER** command. Specify N if you do not want the key label information to be set. The default value is Y.

You can assign a key label also by SMS Data Class definition. If you assign a key label by SMS Data Class definition at remote site, you should set N for the key label replication option.

3. When you are finished, press Enter.

## Updating Archive OLDS at DR site options

The Archive OLDS at DR site options are used during disaster recovery when you enable OLDS archiving at the DR site.

### Procedure

1. On the **Update Disaster Recovery Profile** panel (BSY\$DPRM), specify U in the **Archive OLDS at DR site** field and press Enter.

```
BSY$DPGA V2R2 --- Edit Archive OLDS at DR site options --- 2021/07/12 22:13:54

Option ==>

Creator: TSMXD Name: IDA DR User: TSMXDA
Share Option: U (Upd,View,No) Description:
IMS System/Group: IDA

GENJCL.ARCHIVE command optional parameters:

```

Figure 195. *Edit Archive OLDS at DR site options panel (BSY\$DPGA)*

2. On the **Edit Archive OLDS at DR site options** panel (BSY\$DPGA), specify the following option:

#### **GENJCL.ARCHIVE command optional parameters**

IMS Recovery Expert generates a DBRC command string, **GENJCL.ARCHIVE SSID(ssid)**, by default. If you want to add optional parameters for the generated command string, specify the parameters on this field. The maximum length is 72 bytes. You must specify valid parameters for the **GENJCL . ARAHIVE** command. IMS Recovery Expert does not check validity of the parameters. The default value of this field is null.

## Building disaster recovery jobs

After you define a disaster recovery profile, you must build from the profile a series of jobs that can be used to restore an IMS system at the remote site.

### Procedure

1. On the **Disaster Recovery Profile Display** panel, specify B on the **Cmd** line next to the profile you want to build, and press Enter.

```
Build Job for PDMONA.KMONA
BSY$DOBD
Edit Generated Job Y (Yes/No)

Build job in Data set PDMONA.BSY.JCLLIB
Member SAMPLE8

Job Cards:
==> //OBJREST JOB PDMONA,CLASS=A,NOTIFY=&SYSUID
==> //*
==> //*
==> //*

Press ENTER to process or PF3 to Cancel
```

Figure 196. *Build Job panel (BSY\$DOBD): Building DR profiles*

2. On the **Build Job** panel, specify information in the following fields:



### Edit Generated Job

Specify Y if you want to edit the job after it has been generated. The job is displayed in an edit session after it has been generated. If you specify N, the **Disaster Recovery Profile Display** panel reopens after job generation.

### Build job in Data set

Specify the fully qualified data set name (without quotes) where you want to save the generated job. This data set must already exist.

**Note:** Multiple systems' disaster recovery jobs can be generated to the same PDS. The IMS system or group name prefixes all recovery job members.

### Member

If the data set to hold the generated job is a PDS, then specify a member name for the job output. If the member does not exist, then IMS Recovery Expert will create it.

### Job Cards

Specify a valid job card for your site.

- When you are finished, press Enter.

```
BSY$DBBD
When the job is executed, it will build control cards and JCL
that must be taken to the Disaster Recovery site.

Please specify a dataset where you would like these to be placed.
Build jobs in Dataset RSQA.BSY220.ICA2.GENJCL

Please specify a prefix to be used for system recovery jobs.
Jobname Prefix BORIS

Jobcard data for generated jobs for remote site:
==> //DRIDA22 JOB CSTSUK,CLASS=A,NOTIFY=&SYSUID
==> // *
==> // *
==> // *
```

Figure 197. **Build Job** panel (BSY\$DBBD)

On the **Build Job** panel, specify the recovery PDS data set name to hold the utility job that will be generated by the job. You must also specify a valid job card to be included in the disaster recovery jobs.

- Press Enter to process the job.

## Contents of the disaster recovery PDS

When the disaster recovery job that was created is built and submitted, the following members are generated and displayed in the specified disaster recovery PDS.

| Member name | Contents                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|-------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ssid#DRC    | If the DR profile indicated that the DR preparation job should be saved in the DR PDS, then this job contains a copy of the DR preparation job that was used to create the members of the DR PDS. If your DR environment is set up to use the archive logs, image copies, and change accumulation data sets with the same names as those in the RECON data sets, then you can ship a new copy of the RECONS to the DR site and re-execute this job to create a new DR PDS to a new recovery point. |
| ssidSKP1,2  | Control cards for the <b>Disable old backup in DR PDS</b> function of the DR profile.                                                                                                                                                                                                                                                                                                                                                                                                              |

---

| Member name | Contents                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|-------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ssid#Snn    | <p data-bbox="521 195 1455 317">A series of jobs is created depending on the options specified in the DR profile. Each job performs a specific function, but the member names might change depending on the options. Each member is documented internally to indicate what the job does. The processes that these jobs perform include:</p> <ul data-bbox="521 338 1455 779" style="list-style-type: none"><li data-bbox="521 338 1187 367">• Restore the IMS Recovery Expert repository data sets.</li><li data-bbox="521 380 1406 472">• If coordinated IMS and Db2 recovery was requested, locate a common recovery point between IMS and Db2 and modify the IMS jobs to include the recover to timestamp.</li><li data-bbox="521 485 1330 514">• Perform system restore from a system level backup (if requested).</li><li data-bbox="521 527 1390 556">• Delete, define, and recatalog data sets needed for application recovery.</li><li data-bbox="521 569 1045 598">• Restore the conditioned RECON data sets.</li><li data-bbox="521 611 1455 737">• Perform application recovery (when system recovery profiles are not being used). If the <b>Recover IMS catalog first</b> option is enabled, two JCLs are created: one is for IMS catalog DBDS recovery and the other one is for other DBDS recovery.</li><li data-bbox="521 749 1357 779">• Perform pre-recovery when system recovery profiles are being used.</li></ul> |

---

---

**Member name****Contents**

---

ssid#*nnn*

If system recovery profiles are used for disaster recovery processing, one or more of these jobs will be created where *nnn* is a number from 000 through 998.

One ssid#*nnn* job is created for each user defined system recovery profile. These jobs perform application recovery for the databases defined within the specified system recovery profile.

Run these jobs after the pre-recovery job completes successfully. These jobs do not exist if system recovery profiles are not used.

If the **Recover IMS catalog first** option is enabled and the IMS catalog DBDSs are defined in the system recovery profile, two jobs are created for the profile: one is for IMS catalog DBDS recovery and the other one is for other DBDS recovery. By running the ssid#*nnn* jobs in ascending order of the job member name, IMS catalog DBDSs are recovered prior to other DBDSs. The pre-recovery job JCL shows which profiles are associated with IMS catalog DBDSs as shown in [Figure 198 on page 289](#).

```
//* CAUTION: Members with CATALOG_RECOV=ONLY specified in the list *
//* must be completed before other jobs are started. If multiple *
//* CATALOG_RECOV=ONLY jobs exist, each job must be completed *
//* in ascending order of the member name. *
//* *
//* CATALOG_RECOV *
//* ONLY: Recover only the IMS catalog DBDSs defined in the profile.*
//* EXCL: Recover the DBDSs defined in the profile except for IMS *
//* catalog DBDS. *
//* N/A: No IMS catalog DBDS is defined in the profile *
//* *
//* Member Profile Name CATALOG_RECOV *
//* ----- *
//* IFA#000 PROF-B ONLY *
//* IFA#001 PROF-A ONLY *
//* IFA#002 PROF-A EXCL *
//* IFA#003 PROF-B EXCL *
//* IFA#004 PROF-C N/A *
//* IFA#999 DEFAULT SYSTEM RECOVERY N/A *
```

*Figure 198. Pre-recovery job JCL example*

In order to make recovery process simple, it is recommended that you define a system recovery profile covering all IMS catalog DBDSs. Then, the ssid#000 job will be the only job for IMS catalog DBDS recovery as shown in [Figure 199 on page 289](#).

```
//* CAUTION: Members with CATALOG_RECOV=ONLY specified in the list *
//* must be completed before other jobs are started. If multiple *
//* CATALOG_RECOV=ONLY jobs exist, each job must be completed *
//* in ascending order of the member name. *
//* *
//* CATALOG_RECOV *
//* ONLY: Recover only the IMS catalog DBDSs defined in the profile.*
//* EXCL: Recover the DBDSs defined in the profile except for IMS *
//* catalog DBDS. *
//* N/A: No IMS catalog DBDS is defined in the profile *
//* *
//* Member Profile Name CATALOG_RECOV *
//* ----- *
//* IFA#000 PROF-A ONLY *
//* IFA#001 PROF-A EXCL *
//* IFA#002 PROF-B N/A *
//* IFA#003 PROF-C N/A *
//* IFA#999 DEFAULT SYSTEM RECOVERY N/A *
```

*Figure 199. Pre-recovery job JCL example*

| Member name  | Contents                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|--------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ssid#999     | <p>If system recovery profiles are used for disaster recovery processing, this job is created to perform application recovery against any databases that require additional recovery and that were not recovered by one of the ssid#<i>nnn</i> jobs. This job executes application recovery against the default system recovery profile.</p> <p>Run this job after the ssid#<i>nnn</i> job has completed successfully. This job does not exist if system recovery profiles are not used.</p> |
| ssidALLC     | IDCAMS control cards to allocate the IMS WADS, OLDS, RECONS.                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| ssidCPYL     | Control cards for copying the archive logs from the tape to the recovery site.                                                                                                                                                                                                                                                                                                                                                                                                               |
| ssidDBDL     | IDCAMS control cards to delete all database data sets.                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| ssidDBDF     | IDCAMS control cards to define all database data sets.                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| ssidDBRC     | JCL to delete any subsystem records and close any open logs.                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| ssidCATL     | IDCAMS control cards to catalog image copy data sets.                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| ssidDELC     | IDCAMS control cards to delete the IMS WADS, OLDS, RECONS.                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| ssidGDG1,2,3 | IDCAMS control cards to allocate GDG bases for archive logs, image copy data sets, and change accumulation data sets.                                                                                                                                                                                                                                                                                                                                                                        |
| ssidRCAT     | IDCAMS control cards to re-catalog archive log data sets on disk.                                                                                                                                                                                                                                                                                                                                                                                                                            |
| ssidRECN     | A copy of the conditioned RECON data set in 80 byte records.                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| ssidTIME     | Information needed for performing IMS recovery; and if coordinated IMS and Db2 recovery is being performed, it also contains information for Db2 recovery. This includes timestamps of System Level Backups and archives.                                                                                                                                                                                                                                                                    |
| BSYREPOC     | IDCAMS control cards to allocate the IMS Recovery Expert repository data sets.                                                                                                                                                                                                                                                                                                                                                                                                               |
| BSYREPOD     | A copy of the IMS Recovery Expert repository in 80 byte records.                                                                                                                                                                                                                                                                                                                                                                                                                             |

## Running the disaster recovery preparation JCL

After the disaster recovery preparation job is built, you must run it on a regular basis to ensure the availability of recovery assets that are needed for disaster recovery at the remote site.

### Procedure

1. Delete old JCL and control cards associated with the system from the recovery PDS.
2. Complete the following processing steps:
  - a) Validate the existence of an offloaded System Level Backup. The DR profile indicates whether a local or remote copy is being used for DR.
  - b) Copy archive logs, image copy data sets, and change accumulation data sets for disaster recovery dependent on user options.
  - c) Create a copy of the RECON data set and condition it to reflect the availability of archive logs, image copies and change accumulation data sets at the remote site.
  - d) Save a copy of the conditioned RECON into the recovery PDS.
  - e) Save the IMS Recovery Expert repository data into the recovery PDS.
  - f) Create control cards needed for recovery.
  - g) Generate a list of tapes to be taken to the disaster recovery site.

The following outputs are generated as a result of this step:

- BSYOPTN: List of all the profile options.
  - BSYREPT: Report of tapes that should be transferred to the remote site. These include the System Level Backup tapes, tapes of copies of recovery assets (archive logs, change accumulation data sets, image copy data sets) and the name and VOLSER of the recovery PDS.
  - BSYERROR: Any error messages and progress messages that are produced.
3. Generate JCL that is needed for the recovery of the system at the disaster recovery site. The disaster recovery preparation job must complete with RC=0.

## Recovering your system at the remote site

Follow these steps at the remote site to recover your system.

### Procedure

1. Restore the recovery PDS that was created by the disaster recovery preparation job at the local site.

The following figure is an example of the JCL used to restore this file:

```
//RESTORE JOB ...
//COPY EXEC PGM=IEBCOPY
//SYSPRINT DD SYSOUT=A
//SYSUT1 DD DSN=disaster.recovery.pds.backup,
// UNIT=tape,LABEL=(,SL),
// VOL=SER=xxxxxx,DISP=OLD
//SYSUT2 DD DSN=disaster.recovery.pds,
// UNIT=disk,VOL=SER=xxxxxx,
// DISP=(NEW,KEEP),SPACE=(CYL,(10,5,10))
//SYSUT3 DD DSN=TEMP1,UNIT=disk,VOL=SER=xxxxxx,
// DISP=(NEW,DELETE),SPACE=(80,(15,1))
//SYSIN DD DUMMY
/*
```

Figure 200. Example: JCL to Restore Recovery PDS

2. Run the ssid#S01 job. This job deletes, redefines, and then reloads the repository data sets. If you are recovering multiple SSIDs that use the same repository data sets, you should only run this job once for all SSIDs. If you run this job multiple times, then active data from the DR site might be destroyed or duplicate records might be added.
3. Review and execute the ssid#S02 through ssid#Snn jobs to perform the steps required to restore the IMS system data sets (if requested) and IMS database data sets, and perform application recovery (if requested).

These jobs will perform the following processes, as requested:

- If recovery is being performed using a System Level Backup, the ssid#S02 job will restore the IMS system from the SLB. After this job is run, ensure that all user catalogs are connected and all aliases are defined for the IMS subsystem.
  - Delete and redefine the OLDS, WADS, and RECON data sets.
  - If the image copy DR method is being used, then delete and redefine all database data sets.
  - Delete and redefine any GDG bases needed for archive logs, image copies, or change accumulation data sets.
  - Recatalog any archive logs that are on tape.
  - Rebuild the RECON data sets from the ssidRECN member of the DR PDS.
  - Copy archive logs to DASD.
4. If System Recovery Profiles are not being used, the last ssid#Snn job will perform application recovery for all database data sets according to the recovery options that you specified in the DR profile. If System Recovery Profiles are being used, this job will perform application pre-recovery (such as running Change Accumulation if requested). After this job completes, run the ssid#nnn jobs as follows:

- a) Run the `ssid#nnn` jobs. If system recovery profiles are used, run the `ssid#nnn` jobs (where *nnn* is a number from 000 through 998) to perform application recovery. These jobs execute the user defined system recovery profiles to perform recovery on the databases specified in the profile. These jobs will not exist if system recovery profiles are not being used.

If the **Recover IMS catalog first** option is enabled, you must complete the application recovery jobs for IMS catalog database prior to other databases. See also `ssid#nnn` in [“Contents of the disaster recovery PDS”](#) on page 287.

- b) Run the `ssid#999` job. If system recovery profiles are used, run the `ssid#999` job to perform application recovery against the default system recovery profile. This job will perform database recovery for all databases that require recovery and that were not included in the `ssid#nnn` jobs. This job will not exist if system recovery profiles are not being used.
5. When you have completed these steps, restart IMS.

## Application recovery restart

IMS Recovery Expert provides the ability to rerun any of the application recovery jobs that failed, and only those recovery related functions that were not successful on a prior execution are rerun. No setup is required to activate this feature.

If one of the application recovery jobs fails, then you can correct the problem if necessary and resubmit the same job. IMS Recovery Expert will use information that exists in the RECON data sets to determine if a recovery related action was already successful or not, to determine what processes to execute when the job is rerun.

## Recovering both IMS and Db2 subsystems

---

You can use IMS Recovery Expert along with Db2 Recovery Expert to perform a remote site disaster recovery of both IMS and Db2 subsystems to a common point in time.

To use this feature, you will create a disaster recovery profile for an IMS system using IMS Recovery Expert and a disaster recovery profile for a Db2 system using Db2 Recovery Expert. The IMS profile will specify the Db2 system name that is to be recovered to a common point in time and the Db2 profile will specify the IMS system.

When disaster recovery processing is performed at the disaster recovery site, a common recovery point will be determined depending on the availability of a system level backup (SLB) and archives of both subsystems at the disaster recovery site. IMS Recovery Expert will modify the recovery JCL to use the common timestamp.

### Notes:

1. When the disaster recovery profile specifies a Db2 external subsystem, the DR preparation job must execute on the same lpar as the Db2 subsystem so that IMS Recovery Expert can obtain information about active Db2 threads. The `BSY#PARM` parameter `DR_DLIBATCH_OPTION` can be set to have the DR preparation job report on and also, if desired, take action based on any DL/I batch jobs that are also attached to Db2.
2. When setting up for coordinated DR between IMS and Db2, if you are not sharing the repository data sets, you must ensure that your `BSYV220` invocation CLIST specifies the data set name of the Db2 control information repository in the `EXTCNTFL()` variable. You can get this data set name from your `ARYV320` Db2 CLIST in the `Db2CNTFL()` variable.

## Creating IMS and Db2 disaster recovery profiles

You create the IMS and Db2 disaster recovery profiles the same way you create a non-combined IMS or Db2 disaster recovery profile using the **Update Disaster Recovery Profile** panel, with the exception of the value you must specify in the **External Subsystem** field.

### Procedure

1. On the IMS Recovery Expert **Update Disaster Recovery Profile** panel (BSY\$DPRM), specify the Db2 system that will be recovered with the IMS system in the **External Subsystem** field.

```
BSY$DPRM V2R2 ----- Update Disaster Recovery Profile ---- 2021/08/18 15:50:20
Option ==>>

Creator: PDBISC Name: IAA User: PDBISC
Share Option: U (Upd,View,No) Description: RECOVER TO PIT
IMS System/Group: IAA

DR Profile Options:
DR Method ==> S (SLB/Image Copy)
DR Site Recovery point ==> P (Backup/Point in Time)
 SLB Used for DR ==> R (Localsite/Recoverysite)

Process Archive Logs for DR ==> Y (Yes/No/Update)
Process Change Accums for DR ==> N (Yes/No/Update)
Process Image Copies for DR ==> N (Yes/No/Update)
Customize RECON dataset name ==> N (Yes/No)

Use System Recovery Profiles ==> N (Yes/No)
Update DR Recovery Options ==> N (Yes/No)
Use Multijob for DR Restore ==> Y (Yes/No/Update)

Dump RECON to DR PDS ==> Y (Yes/No)
Perform RECON Conditioning ==> L (Local/Remote/Both)
Disable old backup in DR PDS ==> N (Yes/No)

External Subsystem ==> Db2P
```

Figure 201. **Update Disaster Recovery Profile** panel (BSY\$DPRM)

2. In the Db2 Recovery Expert **Update Disaster Recovery Profile** panel (ARY\$DPRU), you (or the administrator that is creating the profile) must specify the IMS system that will be recovered with the Db2 system in the **External Subsystem** field.

## Recovering both IMS and Db2 subsystems at the local site

After you have created IMS and Db2 disaster recovery profiles (see [“Creating IMS and Db2 disaster recovery profiles”](#) on page 293 to perform this step), you must provide a recovery PDS, which is a data set where all jobs and control cards generated by the preparation job will be placed.

Both the IMS and the Db2 subsystem must use the same recovery PDS.

Follow steps “3” on page 260 and “4” on page 260 of [“Preparing for disaster recovery at the local site”](#) on page 259. IMS Recovery Expert will generate additional JCL and control cards to support an IMS and Db2 coordinated disaster recovery.

### Running the IMS and Db2 disaster recovery timestamp determination process in simulate mode

At the local site, you can run the coordinated disaster recovery timestamp determination process in simulate mode to preview the recovery timestamp. This process of running the BSY#CDR program using

the SIMULATE parameter allows you to review the timestamp, and does not result in any data set changes.

## Procedure

1. Review the ssid#Snn jobs and locate the job that executes the BSY#CDR program; the documentation in the member indicates that its purpose is to locate the timestamp for coordinated recovery.
2. Update the COORDDR step to run in simulate mode as follows:

```
//COORDDR EXEC PGM=BSY#CDR,PARM='SIMULATE',REGION=006M
```

3. Remove all other steps from the JCL.
4. Submit the JCL. A successful execution in simulate mode will complete with the return code RC=4. After the job has completed, a report with the recovery timestamp selection is displayed in the generated output.

## Recovering both IMS and Db2 subsystems at the remote site

You may run the IMS and Db2 combined recovery jobs at the remote site.

### Procedure

1. Ensure that you have restored the recovery PDS.
2. Locate the Db2 and IMS jobs that execute the BSY#CDR or ARY#CDR program. Execute these jobs to determine the most current timestamp that can be used for recovery, and to update the jobs in the recovery PDS jobs with the correct timestamp.

These jobs will run the coordinated disaster recovery timestamp determination process, and will then update the related recovery PDS jobs with that timestamp. The Db2 job might also have additional steps to reconstruct the BSDS data sets.

These jobs compare the highest available archive timestamp of IMS and Db2. The lowest of these timestamps can be used for coordinated recovery. The Db2 job updates the Db2-ssidCRCR member with this timestamp. The IMS job updates all application recovery jobs.

If the Db2 subsystem is a non data-sharing subsystem, then RBAs are used instead of LRSN; if this happens, then Db2 will have to identify an earlier point in time that can be matched with an RBA.

After a recovery timestamp is determined, IMS Recovery Expert must ensure that the SLB that is used for recovery is earlier than this timestamp. If it is not, an older backup will be used, and IMS and Db2 SLB recovery jobs will be modified to reflect that.

3. Follow steps “4” on page 291 through “5” on page 292 of [“Recovering your system at the remote site” on page 291](#) to perform the IMS system point in time recovery. Consult the *IBM Db2 Recovery Expert for z/OS User's Guide* for the recovery steps for Db2.

**Note:** If IMS Recovery Expert and Db2 Recovery Expert are sharing the same product repository, then you must consider the following points:

- IMS and Db2 both have jobs that delete, redefine, and reload the repository data sets. You only have to run one of these jobs. Run the job that was generated later to ensure that the repositories contain data for both IMS and Db2.
- It is recommended that you take a SLB of your subsystems after full recovery.



---

## Chapter 14. Running a Health Check

The Health Check is a function provided by the IMS Recovery Solution Pack Database Recovery Facility: Extended Functions (DRF/XF). It is used to identify databases that indicate problems in the RECON data sets that might make them unrecoverable.

Health Check can be run from three different locations within the IMS Recovery Expert ISPF interface:

- From the System Level Backup Display, by selecting a system level backup with the H line command.
- During the Disaster Recovery preparation job, when the Disaster Recovery profile indicates that Health Check should be run.
- From the Application Profile, by selecting a profile with the H line command.

For Health Check to run, the DRF/XF library must be specified in the BSYV220 CLIST using the IMSTOOL1, IMSTOOL2, or IMSTOOL3 variable. If this is not done, Health Check will not be available.

When executing Health Check from the System Level Backup or Application Profile display, the JCL build panel will include the **Edit Health Check Options** option. Specifying Y on this line will display the current Health Check options, which you can change. From the Disaster Recovery Profile, specify U for the **Run Health Check** option to get to this panel.

When the panels are displayed, you can individually select the options that you want to execute, as well as any time or range parameters that are required for those options. These settings are saved in your ISPF profile so that they are remembered. If you do not change these options, a default set of options is used.

Some of the Health Check options require a parameter to specify the timeframe for which to perform the health check. This parameter can be specified in one of three formats:

- DAYS – The number of days from the current time backward to check. The DAYS value can be any number from 1-999.
- HOURS – The number of hours from the current time backward to check. The HOURS value can be any number from 1-999.
- RANGE – A range of time during which to perform the check. The RANGE consists of four different parts:
  - timestamp – Any valid timestamp in the format accepted by DBRC.
  - direction – Whether to check back or forward in time from the specified timestamp.
  - amount – How far back or forward to check.
  - scale – The scale associated with the amount. This might be ‘SECS’ for seconds, ‘MINS’ for minutes, ‘HRS’ for hours, or ‘DAYS’ for days.

For options that require a timeframe, select the type you want to use, and then specify the required values. Only one timeframe type can be selected for a given option.

The **Health Check Report Options** panels are shown in the following examples, followed by a description of the options.

```

BSY$HCOP V2R2 ----- Health Check Report Options ----- 2021/06/24 15:20:3
Option ==>

Enter options for the Health Check Report utility. Options will be
saved to your ISPF profile and used to generate all Health Check jobs.
More: +
Y DBs for which no ICs exist (Y/N) ICNONE/ICFREQ
 Days (1-999)
 Hours (1-999)
 Range() (tmstmp,dir,amt,scale)

Y DBs for which no batch ICs exist (Y/N) MINBAT
 Days 007 (1-999)
 Hours (1-999)
 S Range(15123123456789000 , - , 059 , SECS) (tmstmp,dir,amt,scale)

Y DBs for which no online ICs exist (Y/N) MINONL
 Days 007 (1-999)
 Hours (1-999)
 S Range(15336123456789000 , + , 023 , DAYS) (tmstmp,dir,amt,scale)

N DBs for which ICs are needed (Y/N) ICNEED

```

Figure 202. **Health Check Report Options** (BSY\$HCOP) panel: Example 1

```

BSY$HCOP V2R2 ----- Health Check Report Options ----- 2021/06/24 15:20:3
Option ==>

Enter options for the Health Check Report utility. Options will be
saved to your ISPF profile and used to generate all Health Check jobs.
More: - +
N DBs for which ICs are needed (Y/N) ICNEED

N DBs for which ICs are recommended (Y/N) ICREC

N DBs not in a CA group (Y/N) DBNOTCA

Y CA groups with no valid CAs (Y/N) CARUN
 Days 007 (1-999)
 Hours (1-999)
 S Range(15336123456789000 , + , 111 , DAYS) (tmstmp,dir,amt,scale)

N HALDBs with disabled partitions (Y/N) HALDBD

N HALDBs with non-init partitions (Y/N) HALDBN

N DEDBs that have EEQEs (Y/N) EEQE

```

Figure 203. **Health Check Report Options** (BSY\$HCOP) panel: Example 2

```

BSY$HCOP V2R2 ----- Health Check Report Options ----- 2021/06/24 15:20:3
Option ===>

Enter options for the Health Check Report utility. Options will be
saved to your ISPF profile and used to generate all Health Check jobs.
More: - +
N DEDBs that have EEQEs (Y/N) EEQE
N DEDBs with no area data sets defined (Y/N) NOADS
N DEDBs with no area data sets avail (Y/N) NOADSAVAIL
N DBs that have backout needed (Y/N) BACKOUT
N DBs with PROHIBIT AUTH on (Y/N) PROAUTH
Y IC1 with no IC2 (Y/N) PISEC
 Days 007 (1-999)
 Hours (1-999)
S Range(15001001001001001 , - , 023 , SECS) (tmstmp,dir,amt,scale)
N Minimum CAs not available for a DB (Y/N) MINCARECS

```

Figure 204. **Health Check Report Options** (BSY\$HCOP) panel: Example 3

```

BSY$HCOP V2R2 ----- Health Check Report Options ----- 2021/06/24 15:20:3
Option ===>

Enter options for the Health Check Report utility. Options will be
saved to your ISPF profile and used to generate all Health Check jobs.
More: -
N DBs with PROHIBIT AUTH on (Y/N) PROAUTH
Y IC1 with no IC2 (Y/N) PISEC
 Days 007 (1-999)
 Hours (1-999)
S Range(15001001001001001 , - , 023 , SECS) (tmstmp,dir,amt,scale)
N Minimum CAs not available for a DB (Y/N) MINCARECS
 Minimum number of CAs 007 (1-999)
N PRILOG with no SECLOG (Y/N) SECLOG
N PRISLDS with no SECSLDS (Y/N) SECSLD
N Verify recovery assets are catalogued (Y/N) VERIFY

```

Figure 205. **Health Check Report Options** (BSY\$HCOP) panel: Example 4

The following Health Check options can be executed. For additional information, refer to the *IMS Recovery Solution Pack: IMS Database Recovery Facility Extended Functions User's Guide*.

**DBs for which no ICs exist**

This option checks for databases that either have no ICs available or no ICs available within the specified timeframe. If you do not select a timeframe, then the entire RECON is checked for the existence of an IC for the database. If a timeframe is selected, then only that timeframe is processed.

**DBs for which no batch ICs exist**

This option checks for databases that have no batch ICs within the specified timeframe. A timeframe specification is required.

**DBs for which no online ICS exist**

This option checks for databases that have no online ICs within the specified timeframe. A timeframe specification is required.

**DBs for which ICs are needed**

This option checks for DBs for which ICs are needed.

**DBs for which ICs are recommended**

This option checks for DBs for which ICs are recommended.

**DBs not in a CA group**

This option checks for DBs that are not in a change accumulation group.

**CA groups with no valid CAs**

This option checks for change accumulation groups with no valid CAs within the specified timeframe. A timeframe specification is required.

**HALDBs with disabled partitions**

This option checks for HALDBs that have disabled partitions.

**HALDBs with non-init partitions**

This option checks for HALDBs that have partitions that are not initialized.

**DEDBs that have EEQEs**

This option checks for DEDBs that have outstanding error queue elements (EEQEs).

**DEDBs with no area data sets defined**

This option checks for DEDBs that do not have any area data sets defined.

**DEDBs with no area data sets avail**

This option checks for DEDBs that do not have any area data sets marked as available.

**DBs that have backout needed**

This option checks for databases that have the BACKOUT NEEDED flag on.

**DBs with PROHIBIT AUTH on**

This option checks for databases that have the PROHIBIT AUTH flag on.

**IC1 with no IC2**

This option checks for databases that have an image copy 1, but no image copy 2 within the specified timeframe. A timeframe specification is required.

**Minimum CAs not available for a DB**

This option checks for change accumulation groups that do not have the minimum number of change accumulation records. The minimum number to use must be specified.

**PRILOGs with no SECLOG**

This option checks for any PRILOG records that do not have a corresponding SECLOG record.

**PRISLDS with no SECSLDS**

This option checks for any PRISLDS records that do not have a corresponding SECSLDS record.

**Verify recovery assets are catalogued**

This option checks to make sure that any recovery assets that might be needed to recover the database are catalogued.

# Chapter 15. Messages

Use the information in these messages to help you diagnose and solve IMS Recovery Expert problems.

## Message format

IMS Recovery Expert messages adhere to the following format:

```
BSYnnn x
BSYcnnn x
```

where:

### **BSY**

Indicates that the message was issued by IMS Recovery Expert

### **c**

Indicates the message category

### **nnn**

Indicates the message identification number

### **x**

Indicates the severity of the message:

#### **I**

Indicates that the message is informational only. No action is required.

#### **S**

Indicates that the message is a status message only. No action is required.

#### **E**

Indicates that an error occurred, which might or might not require operator intervention.

#### **W**

Indicates that the message is a warning to alert you to a possible error condition.

Each message also includes the following information:

### **Explanation:**

The Explanation section explains what the message text means, why it occurred, and what its variables represent.

### **User response:**

The User response section describes whether a response is necessary, what the appropriate response is, and how the response will affect the system or program.

Messages are displayed in ascending, numerical, and alphabetical order.

**Note:** If BSYcnnn $x$  message is not listed below, see the explanation for the corresponding BSY0nnn $x$  message. For example, to find the explanation for the BSYI113E message, see the BSY0113E message.

---

**BSY0018I**      **command commands are not required**

### **Explanation:**

It is not necessary to issue the command.

### **User response:**

None. This message is informational.

---

**BSY0019I**      **PROCLIB DSN: *data set name***

### **Explanation:**

The *data set name* is the data set that was used to get information from the IMS PROCLIB.

### **User response:**

None. This message is informational.

---

**BSY0020I**      **SSID: *subsystem id***

### **Explanation:**

The *subsystem id* is the IMS SSID or group name for the associated job step.

### **User response:**

None. This message is informational.

---

**BSY0100E**      **OS LOAD failed for *module type*  
*module name***

**Explanation:**

IMS Recovery Expert was unable to locate *module name* in the libraries specified for *module type*.

**User response:**

Verify that *module name* is a valid name of *module type*, and that the library where the module exists is specified in the job step.

**BSY0101E**      ***function call failed for module  
module name***

**Explanation:**

Most often, this error means that previous errors occurred or that there is a logic error.

**User response:**

Review previous messages for other errors that could have caused this error, and try to correct them. If there are no previous errors and you cannot correct the problem, contact IBM Software Support.

**BSY0102E**      ***type Eyecatcher is invalid (xvalue)***

**Explanation:**

An internal control block of *type* is not valid or has been overlaid with the indicated *value*.

**User response:**

Contact IBM Software Support.

**BSY0103E**      ***Name/Token call type call failed in  
module (token name)***

**Explanation:**

In an attempt to make a z/OS name token service *call type* call in module *module* for the name/token pair *token name*, an error occurred. You will receive additional messages that will indicate the return and reason codes received.

**User response:**

Review the return and reason codes for an indication of a system or environmental error. If you cannot correct the condition, contact IBM Software Support.

**BSY0104E**      ***CPOOL call type call failed***

**Explanation:**

IMS Recovery Expert received a return code when attempting to issue a *call type* CPOOL request. You will receive additional messages that will indicate the return code and reason code that was received.

**User response:**

Review the return and reason codes for an indication of a system or environmental error. If you cannot correct the condition, contact IBM Software Support.

**BSY0105E**      ***The IMS Release of the IMS SSID  
requested is not supported***

**Explanation:**

The release of the IMS System that was specified is not a release that is supported by IMS Recovery Expert.

**User response:**

Verify that the maintenance level of IMS Recovery Expert supports the release of the IMS System.

**BSY0106E**      ***Cannot continue; IMS Subsystem  
ssid is terminating***

**Explanation:**

IMS Recovery Expert was attempting to start an IMS subsystem, but IMS is terminating before completing the startup.

**User response:**

Contact IBM Software Support.

**BSY0107E**      ***Dynamic Allocation (SVC99)  
request type call failed in program  
module name***

**Explanation:**

An attempt to perform dynamic allocation *request type* request failed in module *module name*.

**User response:**

Review the additional messages you will receive that indicate the return code and reason code from SVC 99. If you are unable to correct the condition, contact IBM Software Support.

**BSY0108E**      ***BLDL (SVC 18) call for member type  
member name failed in program  
module name***

**Explanation:**

An attempt to issue a BLDL request to locate member *member name* in the library type *member type* from module *module name* failed.

**User response:**

Review the additional messages you will receive that indicate the return code and reason code from SVC 18. If you are unable to correct the condition, contact IBM Software Support.

**BSY0109E**      ***member type member name is in an  
unknown format***

**Explanation:**

An attempt to use *member name* from the library type *member type* failed because the member was not in a recognizable format.

**User response:**

Verify that the member name being processed is valid and that it is at a supported IMS release level. Also, verify that the correct libraries are allocated. If you are unable to correct the condition, contact IBM Software Support.

---

**BSY0110E**      **DEVTYPE (SVC 24) call for DD name *ddname* failed in program *module name***

**Explanation:**

An attempt to issue the DEVTYPE macro failed.

**User response:**

Review the additional messages you will receive that indicate the return code and reason code from the DEVTYPE macro. If you are unable to correct the condition, contact IBM Software Support.

---

**BSY0111E**      **DD required for program processing is missing**

**Explanation:**

A required DD statement was not supplied to the IMS Recovery Expert job step.

**User response:**

Supply the necessary DD statement to the IMS Recovery Expert job step.

---

**BSY0112E**      **Unauthorized data set found in *region type* region STEPLIB concatenation**

**Explanation:**

IMS Recovery Expert detected that one of the libraries in the IMS *region type* region for the specified IMS system is not APF authorized on the system IMS Recovery Expert is running on.

**User response:**

Authorize all of the libraries in the STEPLIB concatenation of the specified region on the system where IMS Recovery Expert is running.

---

**BSY0113E**      **Started task name *task name* was not found in IMS PROC/JOB DSN: *data set name***

**Explanation:**

IMS Recovery Expert was unable to locate the started task member for *task name* in the IMS PROC/JOB DSN.

**User response:**

Verify that the correct started task name and IMS PROC/JOB DSN were specified when the IMS system was registered to IMS Recovery Expert during product setup.

---

**BSY0114E**      **Module *modulename* not found in *ddname* concatenation**

**Explanation:**

IMS Recovery Expert was unable to locate the specified module in the *ddname* libraries.

**User response:**

Verify that the correct data sets were specified in the JCL or configuration for IMS Recovery Expert.

---

**BSY0115E**      **No STEPLIB data sets found in member *membername* in IMS PROC/JOB DSN: *data set name***

**Explanation:**

IMS Recovery Expert was unable to locate the STEPLIB DD in the PROC/JOB for the IMS control region.

**User response:**

Verify that the correct started task name and IMS PROC/JOB DSN were specified when the IMS system was registered to IMS Recovery Expert during product setup. If correct, report the problem to IBM Software Support.

---

**BSY0116E**      **Unable to open INCLUDE member *membername* in DSN: *data set name***

**Explanation:**

While parsing IMS PROCs, IMS Recovery Expert was unable to open a member specified on an INCLUDE JCL statement.

**User response:**

Verify that the correct started task name and IMS PROCLIB data set were specified when the IMS system was registered to IMS Recovery Expert during product setup. If correct, report the problem to IBM Software Support.

---

**BSY0117E**      **Member *membername* was not found in either IMS PROC/JOB DSN or JES PROCLIB**

**Explanation:**

While parsing IMS PROCs IMS Recovery Expert was unable to locate a PROC/JOB or INCLUDE member in either the IMS PROC/JOB DSN specified when the IMS subsystem was registered to IMS Recovery Expert or in any of the PROCLIBs in the JES concatenation.

**User response:**

Verify that the correct started task name and IMS PROC/JOB DSN were specified when the IMS system was registered to IMS Recovery Expert during product setup. If correct, report the problem to IBM Software Support.

---

**BSY0200E**      **DBRC-API *functionservice* failed**

**Explanation:**

An unexpected return code was returned to IMS Recovery Expert when the specified request was issued to the DBRC-API.

**User response:**

Review the return code and reason code in the following messages in the *IMS System Programming API Reference*. If the problem cannot be corrected, contact IBM Software Support.

---

**BSY0201E**      **Function request timed out in program *modulename*****Explanation:**

A function requested from *modulename* did not complete in a reasonable amount of time.

**User response:**

Review any additional messages that might indicate connection problems or system performance degradation. If you cannot correct the problem, contact IBM Software Support.

---

**BSY0300W**      **No OLDS records found for SSID/RSENAME *ssid/rasename* in RECON DATA SETS****Explanation:**

IMS Recovery Expert was unable to locate an OLDS defined in the RECON for the IMS system.

**User response:**

Verify that the correct IMS system and RECON data sets are specified.

---

**BSY0301E**      **IMSPLEX names for SSID *ssid* and SSID *ssid* in IMSPLEX do not match****Explanation:**

IMS Recovery Expert determined that two IMS systems defined in the same group do not belong to the same IMSPLEX.

**User response:**

Verify that the IMS systems defined to an IMS group under product setup all belong to the same IMSPLEX.

---

**BSY0302E**      **RECON data sets for SSID *ssid* and SSID *ssid* in IMSPLEX do not match****Explanation:**

IMS Recovery Expert determined that two IMS systems defined in the same group do not reference the same RECON data sets.

**User response:**

Verify that the IMS systems defined to an IMS group under product setup all reference the same RECON data sets.

---

**BSY0303I**      **IMS SSID/RSENAME *ssid/rasename* is not available for command processing****Explanation:**

The specified system is not available.

**User response:**

IMS Recovery Expert will continue with the request without issuing any commands. If the IMS system is online, then verify that IMS Recovery Expert has been installed into the IMS control region.

---

**BSY0304E**      ***call type* call to *ssid* for IMSPLEX name *imsplex name* failed****Explanation:**

An attempt to issue an IMS command using the CSL failed.

**User response:**

Additional messages will provide the CSL return code and reason code, which will indicate why the request failed. If you cannot correct the CSL error, contact IBM Software Support.

---

**BSY0305W**      **IMS CHECKPOINT command did not complete for IMS SSID/RSENAME****Explanation:**

An attempt to have IMS perform a system checkpoint did not complete in an allowable amount of time.

**User response:**

Check the IMS system to determine what might be preventing it from completing a checkpoint. If the checkpoint is required by IMS Recovery Expert to complete the requested function, you might have to retry the function at a less busy time.

---

**BSY0306E**      **Unable to process the requested IMS command as none of the participating IMS subsystems are available****Explanation:**

When attempting to process the requested IMS command, IMS Recovery Expert did not detect that any of the IMS systems are active.

**User response:**

Start one of the participating IMS systems. Verify that IMS Recovery Expert has been installed in the IMS control region.

---

**BSY0307E**      **The format of the RDDSN data set *data set name* has changed while processing****Explanation:**

IMS Recovery Expert detected that the RDDSN data set was updated while it was reading the data set.

**User response:**

Retry the request when the RDDSN is not being exported to, or when Dynamic Resource Definitions are being made to the IMS system.

---

**BSY0308E**      **Module *module name* was not found in the data set concatenation for DD *ddname* when processing IMS SSID *ssid*****Explanation:**

IMS Recovery Expert was unable to locate the requested member in the *ddname* specified.



**User response:**

Provide the correct data set name for the DD and retry the request.

---

**BSY0309W**      **Inconsistencies found between the ACBLIB DMB and DBRC definitions for database *database***

**Explanation:**

IMS Recovery Expert detected that the DMB member and the RECON definitions for the database are not the same.

**User response:**

Correct either the definition in DBRC or the DMB.

---

**BSY0310I**      ***function initialization completed***

**Explanation:**

The IMS Recovery Expert function has been initialized in the address space.

**User response:**

None. This message is informational.

---

**BSY0311I**      ***function initialization failed, reason=reason***

**Explanation:**

The IMS Recovery Expert function did not initialize successfully.

**User response:**

If you cannot correct the problem, contact IBM Software Support.

---

**BSY0312E**      **IMSPLEX names do not match**

**Explanation:**

IMS Recovery Expert determined that two IMS systems defined in the same group do not belong to the same IMSPLEX.

**User response:**

Verify that the IMS systems defined to an IMS group under product setup all belong to the same IMSPLEX.

---

**BSY0313E**      **QSAM call type call failed for DD *ddname* in PROGRAM module *name***

**Explanation:**

The requested call to access the data set associated with the ddname failed.

**User response:**

View QSAM SYSLOG messages to determine the reason for the failure.

---

**BSY0314W**      **There are no *group type* groups defined in the RECONS used by SSID *ssid***

**Explanation:**

IMS Recovery Expert was unable to locate the requested group in the RECONS for the specified IMS system.

**User response:**

Verify that the correct group type and IMS System was specified.

---

**BSY0315I**      ***ssid suspended by jobname***

**Explanation:**

The jobname is running a function that requires I/O to be suspended for the IMS system. This message indicates that I/O has been successfully suspended.

**User response:**

None. This message is informational.

---

**BSY0316I**      ***ssid resumed***

**Explanation:**

This message indicates that I/O is no longer suspended for the IMS system.

**User response:**

None. This message is informational.

---

**BSY0317E**      ***request type request for ssid failed, RC=return code***

**Explanation:**

A request to suspend I/O for an IMS system failed.

**User response:**

Contact IBM Software Support.

---

**BSY0318E**      **SCI not available for issuing IMS commands**

**Explanation:**

IMS Recovery Expert has detected that the IMS System is active on another LPAR and an SCI address space is not available on the LPAR IMS Recovery Expert is running on.

**User response:**

Either issue the request on the same LPAR where the IMS system is running, or start an SCI address space on the LPAR IMS Recovery Expert is running on.

---

**BSY0319E**      ***database still has the following subsystems authorized to it***

**Explanation:**

IMS Recovery Expert tried to DBR a database but the DBR did not complete.

**User response:**

Check the reason the DBR was unable to complete on the IMS Systems listed. Retry the request when the database is stopped.

---

**BSY0320E**      ***database still has the DBRC Recovery Needed flag on***

**Explanation:**

IMS Recovery Expert tried to start a database but the database still needs to be recovered.

**User response:**

Recover the database and then retry the request.

---

**BSY0321I**      **JOINED|LEFT XCF GROUP**  
*groupname AS MEMBER*  
*membername*

**Explanation:**

The job or STC successfully joined or left the XCF group.

**User response:**

None. This message is informational.

---

**BSY0322E**      **xcfrequest FAILED, RC=return code**  
**RSN=reason code**

**Explanation:**

A problem occurred when attempting an XCF service. Processing terminated.

**User response:**

Review the return and reason code for the XCF service that failed in the *MVS Programming: Sysplex Services Guide*. If the return and reason code do not indicate an environmental error, report the problem to IBM Software Support. Ensure that you have the output from the job that encountered this problem available.

---

**BSY0323I**      **SUSPEND REQUEST RECEIVED**  
**FROM jobname**

**Explanation:**

The IMS subsystem or DLI batch job received a request to suspend update activity. The request came from the jobname indicated.

**User response:**

None. This message is informational.

---

**BSY0324E**      **CSLQMCMDCMD command command**  
**to IMSPLEX implex name failed,**  
**route=ssid routing list**

**Explanation:**

An attempt to issue the IMS command using the CSLQMCMDCMD service failed. The IMSPLEX name and specific SSID(s) that the command was issued against is also listed.

**User response:**

Additional messages will provide the return code and reason code related to the failure. If you cannot correct the error, contact IBM Software Support.

---

**BSY0325E**      **OM not available for issuing IMS**  
**commands**

**Explanation:**

IMS Recovery Expert has detected that the IMS System is active and is attempting to issue an IMS

command using the CSLQMCMDCMD service. However, the OM address space is not currently active.

**User response:**

Start the OM address space and retry the process.

---

**BSY0326I**      **XML output**

**Explanation:**

This message displays the XML output from a CSLQMCMDCMD command that either failed or received an error or warning.

**User response:**

These messages are for diagnostic purposes and might be needed for problem resolution by IBM Software Support.

---

**BSY0327E**      **ssid received an error response**  
**from CSLQMCMDCMD command**  
**(alternatively: ssid received**  
**no response from CSLQMCMDCMD**  
**command)**

**Explanation:**

The listed SSID received either an error response from the CSLQMCMDCMD command listed, or received no response from the command.

**User response:**

You will receive additional messages that will provide more information related to the failure. If you cannot correct the error, contact IBM Software Support.

---

**BSY0328I**      **Issuing CSLQMCMDCMD command**  
**to IMSPLEX implex name,**  
**route=ssid routing list**

**Explanation:**

This message indicates that a command is being issued using the CSLQMCMDCMD interface against the specified IMSPLEX, and it will be routed to the listed systems.

**User response:**

These messages are for diagnostic purposes and might be needed for problem resolution by IBM Software Support.

---

**BSY0329I**      **Command: command**

**Explanation:**

This informational message is paired with "[BSY0328I](#)" on [page 304](#) and displays the issued command.

**User response:**

These messages are for diagnostic purposes and might be needed for problem resolution by IBM Software Support.

---

**BSY0400W**      **User requested termination for**  
**PROGRAM module name**

**Explanation:**

A user requested the specified program to terminate.

**User response:**

Verify that the program termination was intentional.

---

**BSY0401W**      **PROGRAM *program name* is unable to complete the IMS SHUTDOWN request**

**Explanation:**

IMS Recovery Expert was unable to shut down the IMS system.

**User response:**

The IMS system must be shut down manually.

---

**BSY0402W**      **IMS shutdown request from PROGRAM *program name* has timed-out**

**Explanation:**

The IMS system did not terminate in the specified time interval.

**User response:**

The IMS system must be shut down manually.

---

**BSY0403A**      **Reply OK when shutdown is complete, or QUIT to terminate the request**

**Explanation:**

IMS Recovery Expert was unable to shut down the IMS system and is waiting for the IMS system to be manually shut down.

**User response:**

Reply **OK** when the IMS System has completed shutdown, or reply **QUIT** to terminate the IMS Recovery Expert function.

---

**BSY0404W**      **The following IMS subsystems might still be ACTIVE**

**Explanation:**

IMS Recovery Expert was unable to determine if an IMS system is still active.

**User response:**

Message “BSY0403A” on page 305 will follow, requesting a reply on what action to take.

---

**BSY0406I**      **IMS subsystem *ssid* is ACTIVE on z/OS Image *z/OS name***

**Explanation:**

The IMS system is active on the z/OS LPAR.

**User response:**

None. This message is informational.

---

**BSY0407I**      **IMS subsystem *ssid* is INACTIVE**

**Explanation:**

The IMS system is not active.

**User response:**

If the IMS System is active, verify that IMS Recovery Expert has been installed in the IMS control region for the IMS System.

---

**BSY0408I**      **All requested IMS subsystems are SHUTDOWN**

**Explanation:**

IMS Recovery Expert has completed shutdown of all requested IMS systems.

**User response:**

None. This message is informational.

---

**BSY0409E**      **Requested SSID/GROUP *ssid/group* not registered in the repository defined by the *ddname* DD statement**

**Explanation:**

The specified ssid or group was not found in the DBR repository.

**User response:**

Correct the ssid or group specified, or register the IMS System or group to DBR.

---

**BSY0410E**      **Validation failed during IMS subsystem registration for SSID *ssid***

**Explanation:**

IMS Recovery Expert was unable to validate a component of the IMS system being registered.

**User response:**

Verify that the correct IMS system information was provided when the IMS system was registered to IMS Recovery Expert during product setup.

---

**BSY0411E**      **Supplied and found values for *ssid* do not match**

**Explanation:**

IMS Recovery Expert detected that some information provided during IMS system registration does not match actual IMS values.

**User response:**

Verify that the correct IMS system information was provided when the IMS system was registered to IMS Recovery Expert during product setup.

---

**BSY0412I**      **Supplied value: *supplied value*  
Found value: *found value***

**Explanation:**

IMS Recovery Expert detected that some information provided during IMS system registration does not match actual IMS values.

**User response:**

Verify that the correct IMS system information was provided when the IMS system was registered to IMS Recovery Expert during product setup.

---

**BSY0413I**      **IMS subsystem *ssid* is an XRF *ssid* partner within RSENAME '*rseaname*'**

**Explanation:**

IMS Recovery Expert has detected that the specified IMS system is an XRF partner.

**User response:**

None. This message is informational.

---

**BSY0414I**      **PROGRAM *program name* starting to issue IMS *command type* commands**

**Explanation:**

The specified program is starting to issue the IMS commands.

**User response:**

None. This message is informational.

---

**BSY0415I**      ***ims command***

**Explanation:**

The specified program is starting to issue the IMS commands.

**User response:**

None. This message is informational.

---

**BSY0416I**      **IMS SSID *ssid* found ACTIVE on z/OS Image *z/OS name* on DATE: *date* (UTC)**

**Explanation:**

IMS Recovery Expert has detected that the specified IMS system is active on the specified z/OS system.

**User response:**

None. This message is informational.

---

**BSY0417I**      **IMS SSID *ssid* found INACTIVE on DATE: *date* (UTC)**

**Explanation:**

The IMS system is not active.

**User response:**

If the IMS System is active, verify that IMS Recovery Expert has been installed in the IMS control region for the IMS system.

---

**BSY0418I**      ***command type* command issued for SSID *ssid* on z/OS IMAGE *zOS name***

**Explanation:**

IMS Recovery Expert has issued the *command type* command on the IMS system.

**User response:**

None. This message is informational.

---

**BSY0419I**      ***command***

**Explanation:**

IMS Recovery Expert has issued the *command* command on the IMS system.

**User response:**

None. This message is informational.

---

**BSY0420I**      **JOB *jobname* (*job number*) spawned to *ssid* subsystems on z/OS Image *z/OS name***

**Explanation:**

IMS Recovery Expert has submitted a job through the internal reader to run a command on a different LPAR.

**User response:**

None. This message is informational.

---

**BSY0421I**      **JOB *jobname* (*job number*) spawned to z/OS Image *zOS name* completed with *return/abend code***

**Explanation:**

A job IMS Recovery Expert submitted to run on another LPAR has completed.

**User response:**

If the job ended with a non-zero return or abend code, review the spawned job output to determine the cause of the problem.

---

**BSY0422W**      **Starting of IMS SSID will be bypassed**

**Explanation:**

IMS Recovery Expert was unable to start an IMS system.

**User response:**

Start the IMS system manually and retry the IMS Recovery Expert function.

---

**BSY0423I**      **IMS SSID *ssid* was not stopped by the LOGFILE creation job**

**Explanation:**

IMS Recovery Expert is trying to start any IMS systems that it had previously stopped in a prior job step, but the prior job step did not stop the IMS system. Starting of the IMS system is bypassed.

**User response:**

Manually start the IMS system when needed.

---

**BSY0424I**      **IMS SSID *ssid* found ACTIVE on z/OS Image *z/OS name***

**Explanation:**

IMS Recovery Expert has detected that the specified IMS system is active on the specified z/OS system.

**User response:**

None. This message is informational.

---

**BSY0425I**      **All requested objects are now in a *state* needed state**

**Explanation:**

IMS Recovery Expert has completed getting the objects into the requested state.

**User response:**

None. This message is informational.

---

**BSY0426E            The request to place objects in a  
                         'state' needed state has failed**

**Explanation:**

IMS Recovery Expert was unable to get the objects into the requested state.

**User response:**

Review additional error messages to indicate why the request was unsuccessful.

---

**BSY0427I            No participating IMS subsystems  
                         are executing**

**Explanation:**

IMS Recovery Expert did not detect that the IMS system(s) was active so the command did not have to be processed.

**User response:**

None. This message is informational.

---

**BSY0428I            'command type' Commands  
                         complete for participating IMS  
                         subsystems**

**Explanation:**

IMS Recovery Expert was successfully able to issue the command on the active IMS system(s).

**User response:**

None. This message is informational.

---

**BSY0429I            Batch Job 'jobname' for IMS SSID  
                         'ssid' is active on z/OS Image 'zOS  
                         name'**

**Explanation:**

IMS Recovery Expert detected that a DLI batch job is running for the IMS System.

**User response:**

None. This message is informational.

---

**BSY0430I            JOB 'jobname' ('job number')  
                         spawned to perform IMS Database  
                         Recoveries on z/OS Image 'zOS  
                         name'**

**Explanation:**

IMS Recovery Expert has submitted a job through the internal reader to perform a recovery function.

**User response:**

None. This message is informational.

---

**BSY0431W            CAGROUP 'group name' not found  
                         in RECON for DB 'database' DDN  
                         'ddname'**

**Explanation:**

The DD for the database does not belong to a CA Group. If the DD was defined to a CA group the recovery time can be reduced when using a System Level Backup to restore the data set.

**User response:**

To help speed recovery times, the DD should be added to a CA group.

---

**BSY0432E            DDN='ddname' already allocated  
                         to DSN='data set name'**

**Explanation:**

IMS Recovery Expert is attempting to dynamically allocate a data set with a required ddname but the DD is already allocated to another data set.

**User response:**

Check the JCL to make sure the correct ddname and data set name are specified.

---

**BSY0433E            Requested DSN='data set name'**

**Explanation:**

IMS Recovery Expert is attempting to dynamically allocate a data set with a required ddname but the DD is already allocated to another data set.

**User response:**

Check the JCL to make sure the correct ddname and data set name are specified.

---

**BSY0470I            Disaster Recovery pre-recovery  
                         processing beginning**

**Explanation:**

The Disaster Recovery job executing is the pre-recovery job and is performing processes needed to prepare the environment for the database recovery jobs, which will be run after this job completes.

**User response:**

None. This message is informational.

---

**BSY0471I            Data set *data set* is migrated and  
                         will be restored**

**Explanation:**

The specified database data set is migrated and will be restored according to the DR\_RECALL\_MIGRATED\_DATA option value in the BSY#PARM options. If there are any errors encountered while restoring this data set, additional messages will be issued.

**User response:**

None. This message is informational.

---

**BSY0472W            Data set *data set* is migrated and  
                         will be ignored**

**Explanation:**

The specified database data set is migrated and will be ignored according to the DR\_RECALL\_MIGRATED\_DATA option value in the

BSY#PARM options. This database data set will not be included in the IDCAMS delete/define statements.

**User response:**  
None required.

---

**BSY0510E            No Usable Image Copy records exist for the object**

**Explanation:**

IMS Recovery Expert is unable to recover the object because it did not find an image copy not in error or System Level Backup that contained the object data set.

**User response:**

Verify that all resources, image copies, and system level backups are specified in the application profile. If so, then the object will have to be either rebuilt with another utility like an index builder or recovered in another way.

---

**BSY0511E            A REORG occurred between the selected Image Copy and the recovery point**

**Explanation:**

IMS Recovery Expert is unable to recover the object because it did not find an image copy not in error or System Level Backup that contained the object data set that was created after the reorg.

**User response:**

Verify that all resources, image copies, and system level backups are specified in the application profile. If so, then the object will have to be either rebuilt with another utility like an index builder or recovered in another way.

---

**BSY0512W            No Image Copies exist for object:**

**Explanation:**

IMS Recovery Expert is unable to recover the object because it did not find an image copy not in error or System Level Backup that contained the object data set.

**User response:**

Verify that all resources, image copies, and system level backups are specified in the application profile. If so, then the object will have to be either rebuilt with another utility like an index builder or recovered in another way.

---

**BSY0513W            A Point-In-Time recovery (PITR) was requested for Database 'database'**

**Explanation:**

Warning message to indicate the database is being recovered to some other time than current.

**User response:**

Verify that the recovery time is the desired recover to time.

---

**BSY0514W            'database type' 'database' is not included in the Object group**

**Explanation:**

Warning message to indicate that a related database is being recovered to some other time than current and this database is not included in the group of data bases to recover.

**User response:**

Verify that this database does not need to be recovered to the same point in time as the related database.

---

**BSY0515E            'utility type' Utility GENJCL Member 'member name' not found in JCLPDS data set(s)**

**Explanation:**

IMS Recovery Expert was unable to locate the GENJCL skeleton member in the JCLPDS data sets specified in the application profile.

**User response:**

Check the Application Profile to make sure the correct skeleton member and the correct JCLPDS data sets are defined.

---

**BSY0516W            HSAM/SHSAM Database is required to belong to a Change Accumulation group**

**Explanation:**

IMS requires that change accumulation is run for HSAM and SHSAM databases if log updates need to be applied in the recovery process.

**User response:**

Define the database to a change accumulation group and rerun the recovery job.

---

**BSY0518W            A Timestamp Recovery (TSR) was specified for Database database DD ddname**

**Explanation:**

The database is being recovered to a different time than current.

**User response:**

Verify that the recovery time is the desired recover-to time.

---

**BSY0519W            The database was allocated at the time specified**

**Explanation:**

For a timestamp recovery (TSR), the databases being recovered cannot have been in use or allocated at the timestamp specified.

**User response:**

Specify a timestamp when the database was not allocated.

---

**BSY0526E**      **Either a work volume or work HLQ must be specified with an input card.**

**Explanation:**

The IMS Recovery Expert utility needs to allocate a temporary work data set. You must specify either a work volume or an SMS managed high-level qualifier in the control cards that are passed to the utility.

**User response:**

Correct the control cards by specifying either a work volume or a work HLQ, and then rerun the job.

---

**BSY0527E**      **WORK HLQ is non-SMS managed and work volumes were not specified with an input card.**

**Explanation:**

The IMS Recovery Expert utility needs to allocate a temporary work data set. You must specify either an SMS managed high-level qualifier or a work volume in the control cards that are passed to the utility.

**User response:**

Correct the control cards by specifying either a work volume or an SMS managed work HLQ, and then rerun the job.

---

**BSY0529I**      **Task *task number* BSY#YCPY - Esoteric is tape but copy files was allocated on DASD**

**Explanation:**

The esoteric unit specified for copying files was tape, but the copy files was allocated on DASD. This most likely happens when SMS ACS routines direct the data set high level qualifier to a specific SMS pool.

**User response:**

If you need to copy files to be put on tape, contact your SMS systems support to change the rules or use a different data set high level qualifier.

---

**BSY0540E**      **Required DD 'ddname' not specified in the JCL**

**Explanation:**

The required DD name specified was not specified in the JCL and the job cannot continue.

**User response:**

The JCL to run the **QUIESCE** command is built by the ISPF interface, so the JCL might have been modified and a required DD was removed. Recreate the JCL and run the job again.

---

**BSY0541I**      **'informational QUIESCE message'**

**Explanation:**

This message relays information associated with the **QUIESCE** command, and is strictly informational.

**User response:**

None. This message is informational.

---

**BSY0543E**      **Error encountered during 'module' 'function' processing**

**Explanation:**

An error was encountered when the listed module attempted to perform the specified function.

**User response:**

If the reason for the failure cannot be determined, contact IBM Software Support.

---

**BSY0544W**      **No IMS subsystems were active**

**Explanation:**

None of the IMS subsystems required by this function were found to be active on any of the lpars in this SYSPLEX.

**User response:**

Make sure at least one of the target IMS subsystems are active somewhere in the SYSPLEX and resubmit the job.

---

**BSY0545I**      **IMS subsystem 'ssid' is ACTIVE on z/OS image 'lpar'**

**Explanation:**

The listed IMS subsystem is currently active on the listed lpar.

**User response:**

None. This message is informational.

---

**BSY0546I**      **IMS subsystem 'ssid' is INACTIVE**

**Explanation:**

The listed IMS subsystem is currently not active within the SYSPLEX.

**User response:**

None. This message is informational.

---

**BSY0547E**      **No local IMS subsystem or SCI found for communications**

**Explanation:**

No IMS subsystems are active on the lpar on which the job is executing, nor can an SCI be found on the lpar to communicate with the IMS. The job must be executed on an lpar which has either the IMS active or has an SCI that is associated with the IMS.

**User response:**

Resubmit the job on an lpar that has either the active IMS or an active SCI.

---

**BSY0548E**      **'target-module' function 'function' has failed, location 'detecting-module'**

**Explanation:**

The target module encountered an error while attempting to perform the listed function. The module that detected the error is also listed.

**User response:**

If the reason for the failure cannot be determined, contact IBM Software Support

---

**BSY0549E**      **QUIESCE failed for DB 'database', RC='rc'**

**Explanation:**

An undetermined error occurred while executing the **QUIESCE** command against the specified database. The return code returned by the **UPD DB** command is shown.

**User response:**

If the reason for the failure cannot be determined, contact IBM Software Support

---

**BSY0550E**      **QUIESCE failed for DB 'database', RC='rc', ERROR='error-text'**

**Explanation:**

An error occurred while running the **QUIESCE** command against the specified database. The return code and error text returned by the **UPD DB** command are shown.

**User response:**

If the reason for the failure cannot be determined, contact IBM Software Support.

---

**BSY0551E**      **'tablespace' cannot be quiesced because it is in 'state' status**

**Explanation:**

The specified Db2 tablespace cannot be quiesced because it is currently in the status shown.

**User response:**

Correct the tablespace status and resubmit the job.

---

**BSY0552E**      **'tablespace' cannot currently be quiesced with this process**

**Explanation:**

The specified Db2 tablespace is a restricted or system tablespace and may not be quiesced using this process.

**User response:**

Remove the listed tablespace from the application profile and resubmit the job.

---

**BSY0553E**      **'function' function is only available for IMS version 'vv' and later**

**Explanation:**

The specified function is not available for the target IMS subsystem because the version is not supported. The supported version is shown in the message.

**User response:**

This function cannot be performed against this IMS subsystem.

---

**BSY0554E**      **RECON MINVERS must be set at IMS version vv or later**

**Explanation:**

The specified function is not available for the target IMS subsystem because the MINVERS setting in the RECON data sets is not supported. The supported version is displayed in the message.

**User response:**

This function cannot be performed against this IMS subsystem.

---

**BSY0560I**      *message text*

**Explanation:**

This message is issued with varying message text during the execution of the dynamic API environment utility, BSY#UTIL. The message text indicates the progress of processing as well as other information pertinent to the utility execution.

**User response:**

None. This message is informational.

---

**BSY0561I**      *message text*

**Explanation:**

This message is issued with varying message text by the dynamic API environment utility, BSY#UTIL to indicate the status of the API interface module, BSY#API. This message indicates whether the module already exists in LPA, or if it was loaded into LPA by this execution of the utility.

**User response:**

None. This message is informational.

---

**BSY0562E**      **Unable to locate the maintenance level for BSY#API**

**Explanation:**

During the execution of the dynamic API environment utility, BSY#UTIL, the maintenance level could not be determined for the API interface module, BSY#API. The utility terminates.

**User response:**

Ensure that the current version of the BSY#API program is located in the //STEPLIB.

---

**BSY0563E**      **Error loading BSY#API into LPA, RC=rc, RSN=rsn**

**Explanation:**

This message is issued by the dynamic API environment utility program, BSY#UTIL, when the API interface module BSY#API cannot be loaded into LPA. The return and reason codes from the CSVDYLPA REQUEST=ADD are displayed.

**User response:**



Ensure that the current version of the BSY#API program is located in the //STEPLIB. If the problem persists, contact IBM Software Support.

---

**BSY0564E**      **BSY#API not found in //STEPLIB.**

**Explanation:**

This message is issued by the dynamic API environment utility program, BSY#UTIL, when the API interface module BSY#API cannot be found in the //STEPLIB or //JOB LIB.

**User response:**

Ensure that the current version of the BSY#API program is located in the //STEPLIB or //JOB LIB.

---

**BSY0565E**      **Error deleting BSY#API from LPA, RC=rc, RSN=rsn**

**Explanation:**

This message is issued by the dynamic API environment utility program, BSY#UTIL, when the API interface module, BSY#API cannot be deleted from LPA. The return and reason codes from the CSVDYLPA REQUEST=DELETE are displayed.

**User response:**

Contact IBM Software Support.

---

**BSY0566E**      **Required DD ddname not specified in the JCL**

**Explanation:**

This message is issued by the dynamic API environment utility program, BSY#UTIL. One or more required DD statements are missing from the JCL. This message displays the missing DD name.

**User response:**

Specify the missing DD statement and resubmit the job.

---

**BSY0567I**      *message text*

**Explanation:**

This message is issued with varying message text by the dynamic API environment utility program, BSY#UTIL, to display information about one or more dynamic API environments. The message text displays information about the environment such as whether it is active or inactive, as well as the DD names and data sets associated with the environment.

**User response:**

None. This message is informational.

---

**BSY0568I**      **BSY#API ENTRYPT = *entry-point***  
**BSY#API LOADPT = *load-point***  
**BSY#API MODLEN = *module-length***  
**BSY#API TIMESTAMP = *timestamp***  
**BSY#API VERSION = *version***

**Explanation:**

These messages are issued by the dynamic API environment utility program, BSY#UTIL, to display

information about the API interface module BSY#API, which is loaded into LPA.

**User response:**

None. This message is informational.

---

**BSY0569W**      **BSY#API environment not found for DEACTIVATE**

**Explanation:**

This message is issued by the dynamic API environment utility program, BSY#UTIL, when a DEACTIVATE was performed but no environment was located that matches the DD statements specified in the JCL. No environment is deactivated.

**User response:**

Ensure that the DD statements specified in the JCL match the environment to be deactivated, and resubmit the job.

---

**BSY0570I**      **Deleting active | inactive BSY#API environment**

**Explanation:**

This message is issued by the dynamic API environment utility program, BSY#UTIL, when a DEACTIVATE was performed. This message indicates whether the currently active or inactive environment is being deleted.

**User response:**

None. This message is informational.

---

**BSY0571E**      **Unable to acquire SHR | EXC enqueue for BSY#UTIL execution; retry later.**

**Explanation:**

This message is issued by the dynamic API environment utility program, BSY#UTIL, when it cannot acquire the required enqueue needed to perform work. The job terminates.

**User response:**

The most likely cause of this error is that multiple BSY#UTIL jobs are executing at the same time. Ensure that only one BSY#UTIL job is active at a time.

---

**BSY0572E**      **There are active users of the API, ACTIVATE | DEACTIVATE not allowed at this time**

**Explanation:**

This message is issued by the dynamic API environment utility program, BSY#UTIL, when an ACTIVATE or DEACTIVATE is requested but it was determined that there are active users of the BSY#API API interface routine loaded into LPA. No changes can be made to the dynamic API environment while there are active users.

**User response:**

Wait until all active API user jobs are complete and resubmit the job.

---

**BSY0600E      Master 'type' job 'name' is not active**

**Explanation:**

A multijob offload or restore job (type) could not locate the active master job 'name'. The multijob will terminate. This could happen when the master job ends abnormally after it submits the multijobs.

**User response:**

Correct the problem and resubmit the master job.

---

**BSY0601E      SWAREQ failed for 'object' RC='return code'**

**Explanation:**

The system SWAREQ service failed for the specified object. The return code from the service is listed.

**User response:**

If the reason for the failure cannot be determined, contact IBM Software Support.

---

**BSY0602E      VSAM FUNCTION 'function' failed with RC='return code' RSN='reason'**

**Explanation:**

The VSAM function listed failed with the specified return and reason codes.

**User response:**

If the reason for the failure cannot be determined, contact IBM Software Support.

---

**BSY0604E      FUNCTION 'function' failed with RC='return code' RSN='reason'**

**Explanation:**

The system function listed failed with the specified return and reason codes.

**User response:**

If the reason for the failure cannot be determined, contact IBM Software Support.

---

**BSY0605I      Job 'jobname' submitted to z/OS image 'name'**

**Explanation:**

The master has submitted the specified jobname to run on the listed LPAR.

**User response:**

No response is required. This message is for informational purposes only.

---

**BSY0606I      JOB 'jobname' submitted to z/OS image 'name' completed with 'status type' 'status'**

**Explanation:**

The specified multijob which was submitted to run on the listed LPAR has completed. The status will indicate whether the job completed successfully or not.

**User response:**

If the status indicates that the job completed with a return code of zero, no response is needed. Otherwise look at the output from the job and correct the problem. If the reason cannot be determined, contact IBM Software Support.

---

**BSY0607E      Error opening JCLOUT DD**

**Explanation:**

An error occurred trying to open the JCLOUT DD name. This DD is used to create the JCL for submitting the multijobs.

**User response:**

Make sure the JCLOUT DD is not specified in the JCL since it is dynamically allocated.

---

**BSY0608E      Error building JOBCARD**

**Explanation:**

An error occurred trying to build the jobcard for one of the multijobs.

**User response:**

Review the joblog for other messages indicating the cause of the error and correct the problem.

---

**BSY0609E      There are no volumes to offload**

**Explanation:**

An attempt to offload the backup determined that there are no volumes that have not already been offloaded.

**User response:**

If you want to reprocess the offload, specify the RE-OFFLOAD keyword in the BSYIN input and resubmit the job.

---

**BSY0610I      There are 'number of volumes' volumes to process; 'number of jobs' jobs will be spawned**

**Explanation:**

This is an informational message indicating how many volumes will be processed and how many multijobs will be used to process them.

**User response:**

No response is required. This message is for informational purposes only.

---

**BSY0612E      Vol 'unit' 'volser' was not successfully processed**

**Explanation:**

The listed unit address and volser was not successfully processed.

**User response:**

Review the messages and report to determine the exact cause of the error. Correct the problem and resubmit the job.

---

**BSY0620E**      **Task 'task number' Error checking volume 'unit' 'volser'**

**Explanation:**

The specified task encountered an error checking the listed unit address and volser for processing.

**User response:**

Review the messages and report to determine the exact cause of the error. Correct the problem and resubmit the job.

---

**BSY0621E**      **Task 'task number' Unable to get next volume in the stack 'unit' 'volser'**

**Explanation:**

The specified task encountered an error obtaining the listed unit address and volser for restore processing.

**User response:**

Review the messages and report to determine the exact cause of the error. Correct the problem and resubmit the job.

---

**BSY0636I**      **Task 'task number' Processing VOL 'unit' 'volser'**

**Explanation:**

This message indicates that the specified task number is processing the listed unit address and volser.

**User response:**

No response is required. This message is for informational purposes only.

---

**BSY0640E**      **Profile *profile\_creator.profile\_name* is not a Combined SLB profile**

**Explanation:**

During BACKUP processing for a Combined SLB group, the profile being processed was not associated with a Combined SLB group. Processing was terminated.

**User response:**

When performing BACKUP for a Combined SLB group, ensure that you select a profile that is associated with a Combined SLB group.

---

**BSY0641E**      ***parameter* is not supported for CSLB profiles (currently only LOG SUSPEND)**

**Explanation:**

While processing a Combined SLB profile, it was determined that one of the parameters in the profile is not allowed for Combined SLB processing. The parameter is displayed in the message. Processing was terminated.

**User response:**

Edit the Combined SLB profile and ensure that the listed parameter is set appropriately.

---

**BSY0642E**      ***module* is an invalid CSLB offset table**

**Explanation:**

While processing a Combined SLB profile, it was determined that one of the load modules which contains offset values is not valid. Processing was terminated.

**User response:**

Ensure that the module listed was correctly installed.

---

**BSY0643E**      **Error encountered during *module* phase processing**

**Explanation:**

While processing a Combined SLB profile, an error occurred in the listed module during the listed phase. Processing was terminated.

**User response:**

Review the job log for other messages that identify the error. Correct the error and resubmit the job.

---

**BSY0644W**      **Parameter mismatch Section: *section*, Parameter: *parameter***

**Explanation:**

While performing BACKUP processing for a Combined SLB group, it was determined that the parameter listed was inconsistently set between IMS Recovery Expert and Db2 Recovery Expert. Processing continues.

**User response:**

Review the listed parameter and the values displayed in “BSY0645W” on page 313 for each product. Determine what you must do to make the parameter consistent.

---

**BSY0645W**      **BSY value: *value1*, ARY value: *value2***

**Explanation:**

This message appears after message “BSY0644W” on page 313 and displays the mismatched parameter values for IMS Recovery Expert (BSY) and Db2 Recovery Expert (ARY).

**User response:**

Review the listed parameter and the values displayed for each product. Determine what you must do to make the parameter consistent.

---

**BSY0646E**      **Error processing Combined SLB group *group*, error**

**Explanation:**

While processing a Combined SLB profile, an error was detected in the group. The group and the error are listed in the message. Processing was terminated.

**User response:**

Review the listed error. Correct the problem and resubmit the job.

---

**BSY0647E**      **SSID *ssid* was not found in the Combined SLB backup**

**Explanation:**

While performing image copy processing against a Combined SLB, it was determined that the listed SSID is not part of the backup. Processing was terminated.

**User response:**

Select a backup that contains the SSID for which image copy processing is being performed, and resubmit the job.

---

**BSY0648E**      **Combined SLB repository record validation failed**

**Explanation:**

While attempting to create a Combined SLB, validation failed for the repository records that are created by the process.

**User response:**

Contact IBM Software Support and provide them with the information displayed in this message.

---

**BSY0650I**      **CSLB backup not allowed due to prior error**

**Explanation:**

While performing BACKUP processing for a Combined SLB group, an error occurred that prevents the backup from completing. Processing was terminated.

**User response:**

Review the job log for other messages that identify the error. Correct the error and resubmit the job.

---

**BSY0821I**      **NEWSET | OLDEST PITCA found for CA group *cagroup***

**Explanation:**

This message is issued in combination with BSY0822I and lists the NEWEST or OLDEST point in time change accumulation (PITCA) for the specified change accumulation (CA) group. BSY0822I will show the actual data set name and the timestamp associated with it.

**User response:**

None. This message is informational.

---

**BSY0822I**      **PITCADSN=*pitcadsn*, TIME=*timestamp***

**Explanation:**

This message is issued after BSY0821I and shows the point in time change accumulation (PITCA) data set name *pitcadsn* associated with the group in the BSY0821I message, as well as the end time of the PITCA *timestamp*.

**User response:**

None. This message is informational.

---

**BSY0823I**      **NEWEST | OLDEST LASTIC found for DBD *dbname* DDN *ddname***

**Explanation:**

This message is issued in combination with BSY0824I and lists the NEWEST or OLDEST last image copy associated with the listed database *dbname* and DD name *ddname*. BSY0824I will show the actual data set name and the timestamp associated with it.

**User response:**

None. This message is informational.

---

**BSY0824I**      **ICDSN=*icdsn*, TIME=*timestamp***

**Explanation:**

This message is issued after BSY0823I and shows the image copy data set name *icdsn* associated with the database and DD listed in the BSY0823I message, as well as the run time of the IC *timestamp*.

**User response:**

None. This message is informational.

---

**BSY0835I**      **Current time: *current-timestamp*  
Adjusted time: *adjusted-timestamp***

**Explanation:**

This message is issued any time there are warnings for LASTPITCA or LASTIC processing, and will show the current time *current-timestamp* and adjusted time *adjusted-timestamp* based on the LASTPITCA\_AGE or LASTIC\_AGE parameters in BSY#PARM.

**User response:**

None. This message is informational.

---

**BSY0900E**      **Entry number 'number' not found in Table: 'table name'**

**Explanation:**

A module was trying to issue a message but the message number is not defined in the message table.

**User response:**

Contact IBM Software Support.

---

**BSY0901E**      **Program 'program name' requires APF-Authorization**

**Explanation:**

The running program requires APF authorization to perform the requested function.

**User response:**

APF authorize all libraries in the STEPLIB.

---

**BSY0902E**      **MVS Service 'service name' call from 'module name' failed**

**Explanation:**

IMS Recovery Expert received an expected return code from issuing a request for an MVS service. Additional

messages will be issued to document the return and reason code returned.

**User response:**

If return codes for the MVS service are documented, view them to see if the problem can be corrected. Otherwise, contact IBM Software Support.

---

**BSY0903E**      **Program 'module name' was unable to find 'member type' 'member name' in data set 'data set name'**

**Explanation:**

IMS Recovery Expert was unable to locate the member in the data set.

**User response:**

Verify the member name is correct and that the libraries specified for the member type are valid.

---

**BSY0910E**      **ABEND occurred in program 'module name'**

**Explanation:**

IMS Recovery Expert detected that an abend occurred in one of its modules.

**User response:**

Contact IBM Software Support.

---

**BSY0911E**      **Problem determining ACTIVE RDS data set for RSENAME 'rseaname'**

**Explanation:**

IMS Recovery Expert detected that it was processing an XRF-capable IMS system but it was unable to locate the RSENAME.

**User response:**

Verify that the correct IMS System Information was provided when the IMS system was registered to IMS Recovery Expert. If the problem cannot be resolved, contact IBM Software Support.

---

**BSY0912W**      **Invalid response to message 'message number'**

**Explanation:**

An invalid reply was issued to a WTOR.

**User response:**

Issue a valid response to the WTOR.

---

**BSY0913I**      **Response to message 'message number'='reply'**

**Explanation:**

A valid response was received from a WTOR.

**User response:**

None. This message is informational.

---

**BSY0914I**      **Invalid keyword('keyword') supplied to PROGRAM 'program name'**

**Explanation:**

A IMS Recovery Expert job step encountered an invalid keyword.

**User response:**

If this was a IMS Recovery Expert generated JCL, contact IBM Software Support. Otherwise, correct the control statement and rerun the job.

---

**BSY0915E**      **Keyword 'keyword' supplied an invalid parameter**

**Explanation:**

A IMS Recovery Expert job step encountered an invalid parameter.

**User response:**

If this was a IMS Recovery Expert generated JCL, contact IBM Software Support. Otherwise, correct the parameter and rerun the job.

---

**BSY0916W**      **No usable data supplied as input to DD 'ddname'**

**Explanation:**

The job step did not find any control statements in the input DD. IMS Recovery Expert will attempt to continue with default options.

**User response:**

If control statement input is required, provide the control statements in the specified DD.

---

**BSY0917E**      **Invalid data passed to PROGRAM 'program name' via the "PARM" execution parameter**

**Explanation:**

The job step detected that the PARM value on the EXEC statement was invalid.

**User response:**

If this was a IMS Recovery Expert generated JCL, contact IBM Software Support. Otherwise, correct the parameter and rerun the job.

---

**BSY0918I**      **PROGRAM 'program name' Control Statement echo:**

**Explanation:**

The program will list the control statements that were supplied to it.

**User response:**

None. This message is informational.

---

**BSY0919I**      **PROGRAM 'program name' completed with a Return Code of 'return code'**

**Explanation:**

The program is terminating and the highest encountered return code is displayed.

**User response:**

If the return code is not 0, review any previous error or warning messages.

---

**BSY0920E VSAM 'call type' call failed**

**Explanation:**

IMS Recovery Expert received an error return code when trying to issue the VSAM call.

**User response:**

Review SYSLOG messages for VSAM error messages. If the problem cannot be corrected, contact IBM Software Support.

---

**BSY0921I IMS 'command type' Command Process on SSID: 'ssid'**

**Explanation:**

IMS Recovery Expert issued and received a response for the IMS command.

**User response:**

None. This message is informational.

---

**BSY0922I DBR Command will not be processed for 'database' on IMS SSID 'ssid' REASON: 'reason'**

**Explanation:**

IMS Recovery Expert will not issue the DBR command for the database because it is in a state that the DBR cannot complete.

**User response:**

Correct the reason listed or remove the database from the application profile being processed.

---

**BSY0923I Processing 'database type' for 'database name'**

**Explanation:**

IMS Recovery Expert is beginning to process the requested command for the database listed.

**User response:**

None. This message is informational.

---

**BSY0924W IMS 'command type' command failed on SSID: 'ssid'**

**Explanation:**

A command that IMS Recovery Expert issued to the IMS system failed.

**User response:**

Review additional SYSLOG and IMS messages that may have been issued. If the problem cannot be corrected, contact IBM Software Support.

---

**BSY0925W CHANGE.DBDS RECOV command will not be issued for 'database' as a DBR request failed**

**Explanation:**

Since IMS Recovery Expert could not DBR the database, it will not set the Recovery Needed flag on in DBRC.

**User response:**

Review why the database could not be DBR'd and then rerun the recovery process.

---

**BSY0926I No active subsystems when DBR request was issued, STA request bypassed**

**Explanation:**

The job step to restart any databases that were DBR'd by a prior job step in the recovery process detected that no IMS systems were active when the DBR job step ran. The attempt to start the databases in the application profile is bypassed.

**User response:**

None. This message is informational.

---

**BSY0927I No databases processed by the DBR request, STA request bypassed**

**Explanation:**

The job step to restart any databases that were DBR'd by a prior job step in the recovery process detected that no databases were processed when the DBR job step ran. The attempt to start the databases in the application profile is bypassed.

**User response:**

None. This message is informational.

---

**BSY0928W No archive logs found for time range requested.**

**Explanation:**

A quiet time analysis was requested but no archive logs for the specified time range were found in DBRC.

**User response:**

Correct the specified time range and rerun the job.

---

**BSY0929I Processing log dsn: *archive log data set name***

**Explanation:**

This is an informational message. The data set name for the archive log is being processed.

**User response:**

None. This message is informational.

---

**BSY0930I Processing completed for log dsn: *archive log data set name***

**Explanation:**

This is an informational message. Processing has completed for the archive log data set name.

**User response:**

None. This message is informational.

---

**BSY0931W**      **Unable to archive log for *ims-ssid*****Explanation:**

An attempt to archive a required active log did not complete successfully.

**User response:**

Review the IMS archive log utility output to determine the reason that the active log was not successfully archived.

---

**BSY0932W**      **Logs not read until end of time range****Explanation:**

The quiet time log analysis utility did not find archive logs for the entire time range in DBRC. Also, the IMS system is down so a **/SWI OLDS** command could not be issued to archive active logs.

**User response:**

Quiet time reporting did not include the entire specified time range. If the entire time range is required, then you can manually submit a job to archive any active logs for the IMS.

---

**BSY0933E**      **No IMSPLEX name found****Explanation:**

The requested operation requires the use of the CSL address spaces.

**User response:**

CSL address spaces are required to be enabled for the requested function. If enabled, report the problem to IBM Software Support.

---

**BSY0934I**      **Connecting to IMSPLEX=*plexname*.****Explanation:**

This is an informational message. An attempt to connect to an IMSPLEX is being initiated.

**User response:**

None. This message is informational.

---

**BSY0935I**      **Disconnected from IMSPLEX=*plexname*.****Explanation:**

IMS Recovery Expert has disconnected from the IMSPLEX.

**User response:**

None. This message is informational.

---

**BSY0999I**      **Internal Logic Error: 'module name' (Code: 'return code')****Explanation:**

An unexpected error occurred.

**User response:**

Contact IBM Software Support.

---

**BSYA900E**      **Invalid Column Function value. Valid values: 1, 2, 3, 4.****Explanation**

An invalid character was entered in the **Column Function** field.

**User response**

Specify a valid character (1, 2, 3, or 4).

---

**BSYA901E**      **Invalid Permanent View value. Valid values: Y, N.****Explanation**

An invalid value was entered in the **Permanent View** field.

**User response**

Correct the value or cancel. Valid values are Y and N.

---

**BSYA902E**      **Invalid Reset View value. Valid values are Y, N.****Explanation**

An invalid character was entered in the **Reset View** field. Valid values are Y and N.

**User response**

Specify a valid value or cancel.

---

**BSYA903E**      **Invalid Stop Sorting value. Valid values: Y, N.****Explanation**

An invalid character was entered in the **Reset View** field. Valid values are Y and N.

**User response**

Specify a valid value or cancel.

---

**BSYA904E**      **Invalid FORM parameter.****Explanation**

Invalid parameter to the **FORM** command. The **FORM** command has no parameters.

**User response**

Clear the invalid parameters and re-issue the command. Or, clear the entire command.

---

**BSYA906E** Invalid parameter for NROW. Must be numeric.

### Explanation

The parameter you specified was not numeric and is therefore invalid.

### User response

Specify a numeric value corresponding to the number of rows to advance. The default value for NROW is 1.

---

**BSYA907E** Invalid parameter for PROW. Must be numeric.

### Explanation

The parameter you specified was not numeric and is therefore invalid.

### User response

Specify a numeric value corresponding to the number of rows to scroll back. The default value for PROW is 1.

---

**BSYA908E** Invalid parameter for NROW. Too many digits.

### Explanation

An invalid parameter for the NROW keyword was specified. More than eight digits were specified. Parsing stops at eight digits.

### User response

A parameter of NROW must be between 1 and the number of rows in the current report display. If no parameter is specified, 1 is assumed.

---

**BSYA909E** Invalid parameter for PROW. Too many digits.

### Explanation

Invalid parameter to PROW specified. More than eight digits were specified. Parsing stops at eight digits.

### User response

A parameter of PROW must be between 1 and the number of rows in the current report display. If no parameter is specified, 1 is assumed.

---

**BSYA910E** CSETUP command not supported from FORM function.

### Explanation

CSETUP functions are not supported while in the FORM display. CSETUP functions include CFIX, CORDER, CSIZE, CSORT, and CSETUP (CSET).

### User response

Exit the current FORM function before issuing a CSETUP function.

---

**BSYA911E** Invalid ICR command. Use RIGHT command.

### Explanation

ICR is only valid with columns that are not their maximum size. You can see the column's current and maximum sizes by issuing CSIZE.

### User response

RIGHT and LEFT commands can be used to see all parts of this column.

---

**BSYA912E** Invalid ICL command. Use LEFT command.

### Explanation

ICL is only allowed with columns that are not their maximum size. You can see the column's current and maximum sizes by issuing CSIZE.

### User response

RIGHT and LEFT commands can be used to see all parts of this column.

---

**BSYA913E** Format mix data element not updated.

### Explanation

Format MIX data cannot be updated when only part of the data is displayed.

### User response

None required.

---

**BSYA914E** FORM command not supported from FORM function.

### Explanation

FORM was issued from within a FORM display. This is not supported.



## User response

None required.

---

**BSYA915I**      **FORM PF keys set; NROW = next row PROW = previous row.**

## Explanation

The **NROW** (next row) and **PROW** (previous row) commands are used to move the FORM display window to another row. The **UP**, **DOWN**, **LEFT**, and **RIGHT** commands move the FORM display window within the current row. Row refers to the row from the original report display, not any reformatted FORM display row. By default, **NROW** advances the FORM display to the next row. If **NROW n** is issued, the FORM display will advance n rows. Similarly, **PROW** moves the FORM display window to the immediately prior row. **PROW n** moves the current FORM display window to the nth prior row.

## User response:

None. This message is informational.

---

**BSYA916E**      **Invalid CNUM parm. Valid parms are ON, OFF, or blank.**

## Explanation

CNUM was issued with an invalid parameter. Issuing CNUM with no parameter acts as an ON/OFF toggle. ON and OFF are the only parameters accepted. ON turns the CNUM display on. OFF turns the CNUM display off.

## User response

Use a valid CNUM parameter (ON, OFF, or blank).

---

**BSYA917E**      **Report width for print too large.**

## Explanation

The report width specified is too large. The maximum report width currently supported is 32,760.

## User response

Reduce the report width.

---

**BSYA918E**      **FORM command not supported from CSET function.**

## Explanation

FORM was issued from within a CSET function. This is not supported. CSET functions include CFIX, CORDER, CSIZE, CSORT and CSETUP (CSET).

## User response

None required.

---

**BSYA920I**      **Chars string found number times.**

## Explanation

The **FIND** command located the specified character string. The number of times the string was found is listed in the message.

## User response:

None. This message is informational.

---

**BSYA921I**      **Chars string not found on any lines.**

## Explanation

The **FIND** command could not locate the specified character string.

## User response:

None. This message is informational.

---

**BSYA922I**      **Search for CHARS string was successful.**

## Explanation

The **FIND** command located the specified character string.

## User response:

None. This message is informational.

---

**BSYA923E**      **Parameter not recognized: Check for misspelled keywords or embedded blanks in search string.**

## Explanation

An invalid parameter was entered for the **FIND** command.

## User response

Check the parameter spelling and syntax.

---

**BSYA924E**      **Inconsistent parameters: parameter 1 and parameter 2 cannot both be specified for FIND command.**

## Explanation

Too many parameters were specified for the **FIND** command.

## User response

Check the command syntax and retry.

---

**BSYA926E**      **Parm too long: Maximum parameter length is 80.**

## Explanation

The parameter entered in the **FIND** command is too long. Maximum length is 80 characters.

## User response

Shorten the parameters to less than or equal to 80 characters and retry.

---

**BSYA927E**      **Invalid COLS parm. Valid parms are ON, OFF, or blank.**

## Explanation

An invalid parameters was entered with the **COLS** command.

## User response

Enter a valid value as indicated in the message text.

---

**BSYA930I**      **No columns eligible for resizing.**

## Explanation

The displayed report does not contain any columns that can be re-sized.

## User response:

None. This message is informational.

---

**BSYA931I**      **No columns eligible for sorting.**

## Explanation

The displayed report does not contain any columns that can be sorted.

## User response:

None. This message is informational.

---

**BSYA932E**      **TBMOD failed. RC=return code.**

## Explanation

An unexpected return code of (hex) return code occurred doing TBMOD.

## User response

See the *ISPF Services Guide* under TBMOD. Review ISPTLIB allocation. Review ISPTLIB data set

characteristics. Review security controlled access to ISPTLIB data sets.

---

**BSYA933E**      **Invalid column name: missing quote.**

## Explanation

**SORT** or **CSORT** was issued with a parameter that had an initial quotation character, but not a second closing quotation character.

## User response

Either clear the command line and select the desired sort column(s) from the displayed selection list or correct the command on the command line.

---

**BSYA934E**      **More than 9 columns specified.**

## Explanation

**SORT** or **CSORT** was issued with too many columns specified as sort columns. A maximum of 9 sort columns can be specified.

## User response

Either clear the command line and select the desired sort column(s) from the displayed selection list or correct the command on the command line.

---

**BSYA935E**      **Invalid column name.**

## Explanation

**SORT** or **CSORT** was issued with a column parameter that does not match any column name. A list of the correct column names is seen in the **SORT** selection panel.

## User response

Either clear the command line and select the desired sort column(s) from the displayed selection list or correct the command on the command line.

---

**BSYA967E**      **Data set not found. Data set *datasetname* was not found in the MVS catalog. Please enter a valid data set that is cataloged.**

## Explanation:

The specified data set name does not exist or is not catalogued.

## User response:

Specify the name of an existing, cataloged data set.

---

**BSYA968E**      **Invalid data set/member/alias. The data set, member name, or**

**alias entered does not meet the MVS data set naming standards.**

**Explanation:**

The information specified for a data set, member name, or alias is not valid.

**User response:**

Specify a valid data set and member name.

---

**BSYA969E**      **A name of a valid partitioned data set and member name are required.**

**Explanation:**

Either the specified data set name is not a valid name, or the data set name or member name were not specified.

**User response:**

Specify a valid data set and member name.

---

**BSYA970E**      **A problem was encountered in allocating the files necessary for ISPF file tailoring. Please try again.**

**Explanation:**

While allocating the files necessary for ISPF file tailoring, an error occurred.

**User response:**

Retry the request to build the MEPL job. If the problem persists, contact IBM Software Support.

---

**BSYA971I**      **Display MEPL Job *jobname* successfully submitted.**

**Explanation:**

This is an informational message indicating that a job to create the MEPL report was submitted to the internal reader.

**User response:**

None. This message is informational.

---

**BSYA972E**      **Command is not supported on this screen. Please enter a valid command or clear the primary command line.**

**Explanation:**

The command that was specified on the command line of this panel is not valid.

**User response:**

Specify a valid command or clear the command line.

---

**BSYA973E**      **Allocation error. An error was encountered when allocating the ISPF DD. Attempting to continue.**

**Explanation:**

An attempt to allocate the ISPF DD in order to customize skeleton JCL failed.

**User response:**

Determine if the ISPF DD is allocated in the TSO address space for another use, and FREE the DD if it is not needed. If this does not resolve the problem, contact IBM Software Support.

---

**BSYA974E**      **Display MEPL internal error - at least one DSN required.**

**Explanation:**

When a call was made to the product module that generates the job to produce the MEPL report, an error occurred.

**User response:**

Contact IBM Software Support.

---

**BSYA975E**      **Display MEPL internal error - Invalid eyecatcher length**

**Explanation:**

When a call was made to the product module that generates the job to produce the MEPL report, an error occurred.

**User response:**

Contact IBM Software Support.

---

**BSYC000E**      **Combined SLB Group name must be specified**

**Explanation:**

You must specify the name of the Combined SLB group to perform this operation.

**User response:**

Specify the name of a valid Combined SLB group.

---

**BSYC001E**      **A description for the Combined SLB Group must be specified**

**Explanation:**

You must specify a valid description for the Combined SLB group definition.

**User response:**

Specify a valid description.

---

**BSYC002I**      **Add new Combined SLB Group operation canceled**

**Explanation:**

The operation to add a new Combined SLB group was canceled at your request.

**User response:**

None. This message is informational.

---

**BSYC003I**      **Combined SLB Group *group* added**

**Explanation:**

The listed Combined SLB group was successfully added.

**User response:**

You can now define backup and DR profiles for this group.

---

**BSYC004E      Combined SLB Group *group*  
already exists**

---

**Explanation:**

The listed Combined SLB group is already defined.

**User response:**

Choose a different name for the Combined SLB group, and continue.

---

**BSYC005E      Subsystem *ssid* is already part of a  
Combined SLB Group**

---

**Explanation:**

The listed subsystem *ssid* is already a part of a Combined SLB group and cannot be included in another group. You can only include a subsystem in one Combined SLB group.

**User response:**

Choose a different SSID to include in this group. If the SSID must be added to this group, it must first be removed from the other group.

---

**BSYC006E      Error adding Combine SLB Group  
*group*, RC=*rc*, RSN=*rsn***

---

**Explanation:**

An internal error occurred while attempting to add the listed group to the repository.

**User response:**

Contact IBM Software Support and provide them with the information displayed in this message.

---

**BSYC007E      A Combined SLB Group must  
contain at least 1 member**

---

**Explanation:**

A Combined SLB group must contain at least 1 member. You cannot add a group that has no member(s), and you cannot delete all members from a group.

**User response:**

If you are adding a new Combined SLB group, include at least one SSID in the group. If you are deleting all SSIDs from a group, then delete the group instead of deleting the members.

---

**BSYC008I      Combined SLB Group *group*  
deleted**

---

**Explanation:**

The listed Combined SLB group was successfully deleted.

**User response:**

None. This message is informational.

---

**BSYC009E      Error deleting Combine SLB Group  
*group*, RC=*rc*, RSN=*rsn***

---

**Explanation:**

An internal error occurred while attempting to delete the listed group from the repository.

**User response:**

Contact IBM Software Support and provide them with the information displayed in this message.

---

**BSYC010I      Combined SLB Group &CSLBGRPN  
successfully updated**

---

**Explanation:**

The listed Combined SLB group was successfully updated.

**User response:**

None. This message is informational.

---

**BSYC011E      Error updating Combined SLB  
Group *group*, RC=*rc*, RSN=*rsn***

---

**Explanation:**

An internal error occurred while attempting to update the listed group in the repository.

**User response:**

Contact IBM Software Support and provide them with the information displayed in this message.

---

**BSYC012E      Error adding member SSID to  
Combined SLB Group *group*,  
RC=*rc*, RSN=*rsn***

---

**Explanation:**

An internal error occurred while attempting to add the listed member to the Combined SLB group in the repository.

**User response:**

Contact IBM Software Support and provide them with the information displayed in this message.

---

**BSYC013E      Error deleting member SSID  
from Combined SLB Group *group*,  
RC=*rc*, RSN=*rsn***

---

**Explanation:**

An internal error occurred while attempting to delete the listed member from the Combined SLB group in the repository.

**User response:**

Contact IBM Software Support and provide them with the information displayed in this message.

---

**BSYC014E      Error reading SYSGROUP  
repository, RC=*rc*, RSN=*rsn***

---

**Explanation:**

An internal error occurred while attempting to read the SYSGROUP repository.

**User response:**

Contact IBM Software Support and provide them with the information displayed in this message.

---

**BSYC015E**      **There are no Combined SLB Groups currently defined in the SYSGROUP repository**

**Explanation:**

While attempting to add a profile for a Combined SLB group, it was detected that there are currently no Combined SLB groups defined.

**User response:**

Define a Combined SLB group before creating backup or DR profiles for the Combined SLB group.

---

**BSYC016E**      **Unable to read the Combined SLB Group from the SYSGROUP repository**

**Explanation:**

An error occurred while attempting to read a Combined SLB group from the SYSGROUP repository.

**User response:**

Ensure that a valid SYSGROUP repository is defined and specified in the invocation CLIST.

---

**BSYC017E**      **Combined SLB group delete canceled, profiles exist for the group**

**Explanation:**

While attempting to delete a Combined SLB group, it was determined that there are profiles that still reference this group. A list of these profiles was displayed, and a confirmation to delete them was canceled.

**User response:**

None required.

---

**BSYC018E**      **View mode - updates not allowed because there are backups for this Combined SLB group**

**Explanation:**

While attempting to update a Combined SLB group, it was determined that there are backups associated with the group. You cannot add or remove SSIDs in a Combined SLB group when there are backups for the group. As a result, you are placed in the group in view mode.

**User response:**

To update the Combined SLB group, you must first delete any backups for the group.

---

**BSYC020E**      **Specify a Combined SLB Group name or ? to display the currently defined groups**

**Explanation:**

To add a new profile for a Combined SLB group, you must either specify an existing group name or specify ? to view a list of groups from which to choose.

**User response:**

Specify a valid Combined SLB group name or ? to view a list of groups.

---

**BSYC021E**      **Group display allowed for Combined SLB profiles only**

**Explanation:**

The group display option is valid only for profiles that are associated with a Combined SLB group.

**User response:**

Choose a profile that is associated with a Combined SLB group for the group display option.

---

**BSYC022W**      **There are no Combined SLB Groups defined to the product**

**Explanation:**

There are currently no Combined SLB groups defined in the SYSGROUP repository.

**User response:**

Define one or more Combined SLB groups before attempting to create Combined SLB profiles.

---

**BSYC023E**      ***group* is an invalid Combined SLB Group name**

**Explanation:**

The listed group name is not a valid Combined SLB group name.

**User response:**

Specify a valid Combined SLB group name and retry the operation.

---

**BSYC024E**      **Only one Combined SLB Group can be selected**

**Explanation:**

You can only select a single Combined SLB group for the operation you are attempting to perform.

**User response:**

Choose one Combined SLB group and continue.

---

**BSYC025E**      **Invalid profile type selected**

**Explanation:**

The profile type that you selected is not valid.

**User response:**

Specify one of the listed values to select a valid profile type.

---

**BSYC026E**      **Only one SSID can be selected**

**Explanation:**

For the operation being performed, only one SSID can be selected.

**User response:**

Select a single SSID. If you want to perform the operation against multiple SSIDs, you must run the process multiple times.

---

**BSYC027W      The excluded volume could not be discovered****Explanation:**

The excluded volume could not be discovered. This backup profile is for a Combined SLB group that contains Db2 SSIDs. The volume being excluded was not associated with any IMS SSID in the CSLB group and could be associated with a Db2 SSID. If this volume is associated with one of the Db2 SSIDs in the group and contains a catalog, then BACKUP will fail.

**User response:**

Ensure that the volume being excluded does not contain any catalogs.

---

**BSYC028E      Invalid value - the Source/Target Mapping field should be A for Auto Mapping or S for Stogroup Discover****Explanation:**

In the **Source/Target mapping** field, you must specify A for Auto Mapping or S for Stogroup Discovery. No other values are allowed.

**User response:**

Specify A for Auto Mapping or S for Stogroup Discovery in the **Source/Target mapping** field.

---

**BSYC030E      Invalid Combined SLB group name. An SSID or data sharing group with this name already exists.****Explanation:**

The Combined SLB group name duplicates an existing SSID or data sharing group. Subsystem names, data sharing group names, and Combined SLB group names must be unique.

**User response:**

Change the name to a unique name.

---

**BSYC031E      Invalid subsystem name. A Combined SLB group with this name already exists.****Explanation:**

The subsystem name duplicates an existing Combined SLB group name. Subsystem names, data sharing group names, and Combined SLB group names must be unique.

**User response:**

Change the name to a unique name.

---

**BSYC032E      Invalid IMSPLEX name. A Combined SLB group with this name already exists.****Explanation:**

The IMSPLEX name duplicates an existing Combined SLB group name. Subsystem names, data sharing

group names, and Combined SLB group names must be unique.

**User response:**

Change the name to a unique name.

---

**BSYC201E      You must select the SSID to be processed for a Combined SLB backup.****Explanation:**

You must select at least one SSID to be processed for the operation you are attempting to perform.

**User response:**

Select one or more SSIDs to be processed.

---

**BSYC202E      There are no candidate SSIDs in the backup for processing****Explanation:**

For the operation being performed, it was determined that there are no SSIDs that are candidates for this process.

**User response:**

None required.

---

**BSYC211E      SLB Used at DR must be L for Local Site, or R for Remote Site.****Explanation:**

The value specified for the SLB to be used for disaster recovery was not valid.

**User response:**

Specify L to use the local site backups, or R to use the remote site backups.

---

**BSYI220E      Member *membername* was not found in IMS PROCLIB****Explanation:**

IMS Recovery Expert was not able to find the IMS PROCLIB member.

**User response:**

Verify the member is located in the libraries defined by the PROCLIB DD statement of the IMS control region.

---

**BSYI330E      Neither MODBLKS DD nor RDDSDSN parameter is specified****Explanation:**

The IMS system has neither the MODBLKS DD statement in the start procedure nor the RDDSDSN parameter in the DYNAMIC\_RESOURCES section of the IMS PROCLIB DFSDFxxx member. IMS Recovery Expert requires the MODBLKS DD statement or the RDDSDSN parameter to be specified.

**User response:**

Review the associated message and take the action necessary to complete the IMS System Analysis and Configuration.

---

**BSYI520E**      **Image copy data set must be created for DB=*dbname* DDN=*ddname*.**

**Explanation:**

A recovery job determined that a data set in an SLB for the specified database and DDN was to be used. When the SLB was created, ISSUE NOTIFY.IC was set to **Y**, and NOTIFY\_IC\_TYPE in BSY#PARM was set to **IC**. As a result, an image copy was registered to DBRC with a pseudo data set name for the specified database DDN.

**User response**

Do one of the following. Manually delete the IC from DBRC and rerun the recovery job. IMS Recovery Expert will still use the SLB for recovery and issue a NOTIFY.UIC. Or, create an image copy data set from the SLB using the **I** – Image Copy command from the System Restore and Offload option.

If the IMS Database Recovery Facility is used to recover the DBDS, you can use the SLB API and the USESLBIC(Y) parameter to have the Image Copy created from the SLB at recovery time.

---

**BSYI521W**      **Recovery is being performed using SLB for DB=*database* DDN=*ddname***

**Explanation:**

The specified database and ddname is being recovered using an SLB. However, a warning or an error was encountered (BSYI521W indicates a warning and BSYI521E indicates an error). This message will be followed by an additional message that indicates the specific condition.

**User response:**

Review the associated message and take the action necessary to complete the recovery of the data set.

---

**BSYI522W**      **SLB is older than the oldest IC recorded in DBRC**

**Explanation:**

This message is preceded by message BSYI521W or BSYI521E, which identified the database and ddname that encountered this condition. The data set is being recovered using an SLB, but the oldest image copy recorded in DBRC for this data set is marked later than the SLB time. This could indicate that older allocation or image copy records have rolled off of DBRC, so it cannot be determined if logs need to be applied after the data set is restored from the SLB. If the data set was allocated at the time the SLB was created, BSYI522E is issued and this recovery is terminated because recovery is unable to determine which logs to use for recovery. If the data set is not allocated, then BSYI522W is issued and the recovery job uses

the 'Action on Warnings' setting to determine how to proceed.

**User response:**

If BSYI522E is issued, then this data set cannot be recovered using the system level backup. If BSYI522W is issued, then the 'Action on Warnings' can be set to Cont to have IMS Recovery Expert restore the data set from the SLB. Be aware that IMS Recovery Expert cannot determine if logs will need to be applied to fully recover the data set.

---

**BSYI523E**      **Unable to recover index for DB=*dbname* DDN=*ddname*, index rebuild utility not defined**

**Explanation:**

The index associated with the database *dbname* and DD *ddname* cannot be rebuilt because no GENJCL skeleton is specified in the recovery options for that type of database.

**User response:**

Update the recovery options and specify and GENJCL skeleton for rebuilding the index.

---

**BSYI937I**      **IMS STA DB/AREA not processed for '*database*' on IMS SSID '*ssid*'**

**Explanation:**

IMS Recovery Expert will not issue the START DB command (START AREA command for DEDB) because the DBR command was not issued at the beginning of the database recovery process.

**User response:**

After the database recovery process, issue the START DB command (START AREA command for DEDB) if necessary. If you set the FORCE\_STARTDB parameter to Y, IMS Recovery Expert issues the START DB command (START AREA command for DEDB) even if the DBR command was not issued at the beginning of the database recovery process.

---

**BSYI998E**      **Error in command XML response: *error***

**Explanation:**

Running the command produced an error, and the returned XML could not be fully diagnosed. The specific type of error is shown by *error*.

**User response:**

Review the error condition and correct the problem, and then resubmit the job.

---

**BSYM640E**      **Allocation Error - The ISPFIL DD is already allocated and cannot be deallocated - Process not completed.**

**Explanation:**

The ISPF DD allocation failed. The DD is already allocated and cannot be deallocated for this TSO session. The process did not complete successfully.

**User response:**

Free the ISPF DD. You must exit the product and re-enter, then rebuild the job.

---

**BSYM641E**      **Allocation Error - An error was encountered allocating the ISPWRK1 or ISPWRK2 DD - Process not completed.**

**Explanation:**

The ISPWRK1 or ISPWRK2 DD allocation failed. The process did not complete successfully.

**User response:**

Verify TSO session parameters are set correctly for your site prior to allocation of these DD statements.

---

**BSYR001E**      **Invalid value entered - Please enter a valid value from the list displayed.**

**Explanation:**

You entered an invalid selection in the Option line.

**User response:**

Correct the invalid value and retry.

---

**BSYR002E**      **AUTOTGT is only valid for BCV type profiles.**

**Explanation:**

You used the **AUTOTGT** primary command, but the backup is a SNAP type backup. The **AUTOTGT** command searches for any BCVs that have a current relationship with the source volumes listed in the profile. If a BCV is found that is currently established to a source volume, it will be placed in the first open target UCB slot. The **AUTOTGT** command is only available for BCV type profiles.

**User response:**

Clear the invalid command from the Option line.

---

**BSYR003I**      **Log Suspend is required for Flash type profiles**

**Explanation:**

Log Suspend must be set to Y for Flash type backup profiles.

**User response:**

None. This message is informational.

---

**BSYR004E**      **Invalid Subsystem ID (SSID) entered. The SSID must be defined in the "Setup" section of the product before it can be used.**

**Explanation:**

The subsystem listed in the message has not been configured using the product setup panel.

**User response:**

On the IMS Recovery Expert main menu panel (BSY\$MAIN), specify 0 (User Settings) and press Enter. On the **Backup Profile Defaults** panel, you can set up the subsystem. On the IMS Recovery Expert main menu panel (BSY\$MAIN), specify 0 (Administration) and press Enter. On the **Administration Menu** panel (BSY\$PNLO), specify 1 (Set System Backup Profile Defaults) and press Enter. On the **System Backup Profile Defaults**, you can set up the subsystem. Refer to the configuration documentation for information about the setup parameters.

---

**BSYR005E**      **Invalid Command Entered. The command is not supported on this screen. Enter a "?" to get a list of the valid commands.**

**Explanation:**

An invalid command was entered in the Option line.

**User response:**

Clear the invalid command from the command line. Enter ? and press Enter to get a list of valid primary commands.

---

**BSYR007E**      **Invalid value entered - Please enter a valid value.**

**Explanation:**

An invalid value was entered.

**User response:**

Enter Y or N and press Enter.

---

**BSYR008E**      **Invalid Command Entered. The command is not supported on this screen.**

**Explanation:**

An invalid command was entered in the Option line.

**User response:**

Check the command syntax and resubmit.

---

**BSYR009E**      **Bootstrap #01 cannot be equal to bootstrap #02.**

**Explanation:**

The IMS Bootstrap data set names must be unique.

**User response:**

Enter a unique name for one of the boot strap data sets.

---

**BSYR010**      **Rocket Licensed Materials - Property of Rocket Software (c) Copyright Rocket Software, Inc. 2009 - 2012 All Rights Reserved. Trademark of Rocket Software, Inc.**

**Explanation:**

This message is displayed upon starting the IMS Recovery Expert ISPF screens.



**User response:**

None required.

---

**BSYR011E**      **Cannot offload from a backup that is not on disk.**

**Explanation:**

You cannot generate offload JCL for this backup because it is no longer on DASD volumes.

**User response:**

The backup must be on DASD volumes in order to be offloaded.

---

**BSYR012E**      **Invalid value. Must be H for HSM or R for BSY**

**Explanation:**

An invalid value was entered when specifying offload options.

**User response:**

Enter "H" to use IBM's HSM product to offload the backup to tape. In order to use HSM, you must have created the proper HSM dump classes and configured them properly. Enter "R" to have IMS Recovery Expert manage the offload process.

---

**BSYR014E**      **Invalid value. Backup method should be (B)cv, (S)nap, (F)lash or (D)b2.**

**Explanation:**

An invalid value was entered for the Backup method.

**User response:**

Enter B for BCV, S for Snap, F for Flash or D for IMS.

---

**BSYR015E**      **Invalid value. Must be H for HSM or A for IMS Recovery Expert.**

**Explanation:**

**User response:**

Invalid value entered. Enter H to use IBM's HSM product to offload the backup to tape. In order to use HSM, you must have created the proper HSM dump classes and configured them properly. Enter A to have IMS Recovery Expert manage the offload process.

---

**BSYR016E**      **Only one IMS type profile can be created for each IMS SSID. Profile profile\_creator.profile\_name already exists for this IMS SSID. Please cancel from this profile edit session.**

**Explanation:**

Only one profile that specifies a backup method of "IMS" can be created per IMS subsystem.

**User response:**

Edit and/or use the profile name specified in the message.

---

**BSYR018E**      **Any volume that contains a data user catalog or active log user catalog cannot be excluded.**

**Explanation:**

The Exclude line command was entered next to a volume that contains a data user catalog or active log user catalog. This volume cannot be excluded from a System Level Backup.

**User response:**

Clear the line command from the selected volume.

---

**BSYR019W**      **This volume has already been excluded.**

**Explanation:**

Since this volume has already been excluded, the exclude command cannot be performed.

**User response:**

None required.

---

**BSYR020E**      **No source volumes were found in the entered range.**

**Explanation:**

The entered UCB range was scanned and no valid online disk volume serials were found.

**User response:**

Enter another range or contact your DASD administrator.

---

**BSYR021I**      **There were no System Level Backup history records found in the IMS Recovery Expert repository. The system restore function cannot be run without creating a System Level Backup first.**

**Explanation:**

You specified R on the **Option** line of the IMS Recovery Expert main menu panel, but no backup history records were found.

**User response:**

None. This message is informational.

---

**BSYR022E**      **No offload options were specified for this backup profile. Update the Backup Profile and add Offload Options before trying again**

**Explanation:**

No offload options were specified for this backup profile. Offload options must be set before attempting an offload.

**User response:**

Update the Backup Profile and add Offload Options before attempting to offload again.

---

**BSYR023E**      **Invalid Entry - The Recover RBA/LRSN field is not a valid hexadecimal string. Please enter a valid RBA / LRSN to recover to.**

---

**Explanation:**

An invalid value was entered in the **Recover to RBA/LRSN** field.

**User response:**

Enter a valid value as listed in the message text, or enter Y in the **Select Timestamp Recovery Point** field to locate an appropriate RBA or LRSN.

---

**BSYR024E**      **Invalid Entry - Enter a "Y" if you would like to enter a date/time and have it converted to an LRSN for you.**

---

**Explanation:**

An invalid value was entered in the **Select Timestamp Recovery Point** field.

**User response:**

Enter Y in the **Select Timestamp Recovery Point** field to locate an appropriate RBA or LRSN. Enter N to use the listed RBA/ LRSN as the recovery point.

---

**BSYR025W**      **This volume has not been excluded so the undo will not be performed.**

---

**Explanation:**

The U(ndo) line command was entered next to a volume, but since this volume has not been excluded, the undo command will not be performed.

**User response:**

None required.

---

**BSYR026E**      **Invalid Entry - Only one recovery point can be selected from the list for the Restore System Utility. Please select only one line or select none and enter a recovery point RBA/LRSN.**

---

**Explanation:**

Two or more recovery points were selected for restoration.

**User response:**

Select one recovery point, or enter the **RECOVER** subsystem command to specify an RBA/LRSN.

---

**BSYR027E**      **Invalid Value - Enter "S" to choose this recovery point.**

---

**Explanation:**

An invalid line command was entered next to the recovery point.

**User response:**

Enter S to choose the recovery point for restoration, or enter another valid line command from the list on the screen.

---

**BSYR028E**      **Invalid Value - Please enter a "Y" if you would like to edit the generated JCL after the job has been built.**

---

**Explanation:**

An invalid value was entered in the **Edit Generated Job** field.

**User response:**

Enter Y to edit the generated JCL after the job is built. Enter N to return to the Backup Profile Display without editing the job after it is built.

---

**BSYR029E**      **A fully qualified data set name is required to save the generated JCL.**

---

**Explanation:**

The data set name is missing from the **Build job in Data set** field.

**User response:**

Enter a fully qualified data set name in the **Build job in Data set** field to hold the generated JCL.

---

**BSYR030E**      **Invalid Data set/Member/Alias - The Data set, Member name, or Alias entered does not meet the MVS data set naming standards.**

---

**Explanation:**

The data set name, member name, or alias entered is not valid for z/OS data set names. The first character must be capitalized alphabetic (A-Z,@,\$,#) and the remaining characters must be capitalized alphanumeric (A-Z,0-9,@,\$,#).

**User response:**

Correct the data set name, member name, or alias.

---

**BSYR031I**      **No Profiles were found that match your selection criteria. Press enter to create a new profile or change the selection criteria.**

---

**Explanation:**

No profiles match your selection criteria.

**User response:**

Press Enter to create a new profile, or change your selection criteria to get a different list.

---

**BSYR032E**      **Error opening VSAM repository data set. DSN=data set name RETCODE= return code.**

---

**Explanation:**

An error occurred upon opening the IMS Recovery Expert VSAM repository data set. The data set and

return code are listed in the message. Possible cause of this message is the data set was not found.

**User response:**

A WTO is issued for this message listing the file that is in error. Check to ensure the data set exists and is accessible.

---

**BSYR033E**      **Error writing to VSAM repository data set. DSN = *data set name* RETCODE = *return code***

**Explanation:**

An error occurred upon attempting to write to the IMS Recovery Expert VSAM repository data set. The data set and return code are listed in the message.

**User response:**

A WTO is issued for this message listing the file that is in error. Check to ensure the data set exists and is accessible.

---

**BSYR034E**      **Error reading from VSAM repository data set. DSN = *data set name* RETCODE = *return code***

**Explanation:**

An error occurred upon attempting to read the IMS Recovery Expert VSAM repository data set. The data set and return code are listed in the message. Possible cause is the data set was not found.

**User response:**

A WTO is issued for this message listing the file that is in error. Check to ensure the data set exists and is accessible.

---

**BSYR035E**      **Profile *profile creator*.*profile name* was not found**

**Explanation:**

The specified profile is not found in the IMS Recovery Expert VSAM repository.

**User response:**

A WTO is issued for this message listing the file that is in error. Check to ensure the repository exists and is accessible.

---

**BSYR036E**      **The Entered Value Must be Numeric.**

**Explanation:**

An invalid value was entered in a numeric field.

**User response:**

Enter a valid numeric value.

---

**BSYR037E**      **You are not authorized to enter any line commands for this profile. The Creator of the profile is restricting all activity.**

**Explanation:**

The creator of the selected profile specified that no other user is to view, update, or export the selected profile.

**User response:**

Choose a different profile to work with.

---

**BSYR038E**      **You are not authorized to update or delete this profile. Enter a "V" if you would like to View this profile.**

**Explanation:**

The creator of the selected profile specified that no other user is to update or delete the selected profile.

**User response:**

Enter V to view the profile, or choose a different profile to work with.

---

**BSYR039E**      **Invalid Line Command Entered.**

**Explanation:**

An invalid value was entered in the line command area.

**User response:**

Enter one of the valid line commands listed at the bottom of the screen.

---

**BSYR040E**      **Invalid profile creator or name specified. They cannot contain an "\*".**

**Explanation:**

An error occurred upon attempting to save a profile. The profile name or creator cannot contain an asterisk.

**User response:**

Remove the asterisk from the profile name or creator and continue.

---

**BSYR041E**      **A problem was encountered in allocating the files necessary for ISPF file tailoring. Please try again**

**Explanation:**

An error occurred when dynamically allocating the ISPF work files ISPFIL, ISPWK1, or ISPWK2.

**User response:**

Retry the operation. Contact IBM Software Support if the problem persists.

---

**BSYR042E**      **Invalid Data set DSORG - The job can only be built into a sequential file or a PDS/PDSE. VSAM and other data types are not supported for job generation.**

**Explanation:**

The data set organization of the file you entered is not supported for job generation. The data set must be a sequential or a partitioned data set.

**User response:**

Specify a data set of the proper type.

---

**BSYR043E**      **Data set not found - Data set data set name was not found in the MVS catalog. Please enter a valid data set that is cataloged.**

**Explanation:**

The data set name entered in the **Build job in Data set** field does not exist.

**User response:**

Enter an existing cataloged data set name in the **Build job in Data set** field.

---

**BSYR044E**      **The data set could not be allocated or opened.**

**Explanation:**

The dynamic allocation of the specified data set failed.

**User response:**

Verify that the data set exists and is available for allocation.

---

**BSYR045E**      **Field Required - The data set entered is a partitioned data set and the member name is required.**

**Explanation:**

A required field was not specified. The data set entered is a PDS (partitioned data set) and a member in this PDS must be referenced.

**User response:**

Enter a valid member name for PDS access.

---

**BSYR046E**      **Data set must be a partitioned data set because multiple members will be generated.**

**Explanation:**

The data set entered is a sequential data set. Because multiple members will be generated, you must specify a PDS in this field.

**User response:**

Enter an existing cataloged PDS data set name in the **Build job in Data set** field.

---

**BSYR047E**      **The member name entered for the Restore job cannot be the same as the Restore System Utility member. Please enter a different member for one of the jobs.**

**Explanation:**

When building a restore job, a duplicate member name was entered for one of the member names. This is not allowed.

**User response:**

Enter three unique member names to hold the output from the restore system job build.

---

**BSYR048E**      **A member name is not allowed on a non-partitioned data set.**

**Explanation:**

A member name was included for the specified data set, but the data set is sequential, not a PDS.

**User response:**

Remove the member name or use a PDS.

---

**BSYR049E**      **The specified data set could not be opened for I/O.**

**Explanation:**

A VSAM open error occurred while attempting to open the IMS Recovery Expert VSAM repository.

**User response:**

Verify that the VSAM data set is accessible.

---

**BSYR050E**      **Profile profile creator.profile name already exists in the repository. Please enter a unique profile name or creator and press enter.**

**Explanation:**

When creating a new profile, a profile name was used that duplicates another profile name created by the same user ID.

**User response:**

Enter a unique profile name or creator and press Enter.

---

**BSYR051E**      **Invalid Value - Please enter a "Y" if you would like to delete profile profile creator.profile name or an "N" if you do not want to delete it.**

**Explanation:**

An invalid value was entered in the **Delete confirmation** field.

**User response:**

Enter a valid value as described in the message text.

---

**BSYR052I**      **Profile profile creator.profile name has been successfully deleted**

**Explanation:**

The profile named in the message text was successfully deleted.

**User response:**

None. This message is informational.

---

**BSYR053I**      **Object does not exist.**

**Explanation:**

The profile does not exist. It may have already been deleted.

**User response:**

None. This message is informational.

---

**BSYR054E**      **Invalid Value - Please enter the Unit Device (SYSDA, DISK, etc.) that you want used when generating a job.**

**Explanation:**

A value was not entered for the work file unit devices.

**User response:**

Specify a valid unit device that IMS Recovery Expert can use when generating utility JCL.

---

**BSYR055E**      **The entered device type is not recognized by OS/390® as a valid device type.**

**Explanation:**

An invalid device type was entered in the **Work File Unit Type** field.

**User response:**

Enter a valid device type or CART for tape devices.

---

**BSYR056E**      **The VOLSER qualifier should always be part of the data set name to ensure that each data set name is unique.**

**Explanation:**

When specifying data set names for offloaded backups, the VOLSER qualifier was not selected. The VOLSER qualifier should always be part of the data set name to ensure that each data set name is unique.

**User response:**

Add the VOLSER qualifier to the data set name.

---

**BSYR057E**      **Invalid Value - Please Enter a "N" if you want to Restore both Data and Logs or a "Y" if you want to restore only the data.**

**Explanation:**

An invalid value was entered in the **Restore Only** field.

**User response:**

Enter a valid value as described in the message text.

---

**BSYR058E**      **If restoring both Data and Logs you cannot select a timestamp recovery point.**

**Explanation:**

You cannot select a timestamp recovery point if you have specified to restore both data and logs.

**User response:**

IMS Recovery Expert changes the **Select Timestamp Recovery Point** field to N and makes the field read only. To select a timestamp recovery point, change the **Restore Only Data** field to Y.

---

**BSYR059E**      **A timestamp recovery point cannot be selected for a non data sharing IMS subsystem.**

**Explanation:**

You cannot select a timestamp recovery point when the subsystem you are restoring is not a data sharing subsystem.

**User response:**

None required; IMS Recovery Expert changes the **Select Timestamp Recovery Point** field to N.

---

**BSYR060E**      **Invalid Value - A valid IMS Subsystem ID must be specified.**

**Explanation:**

The **IMS Subsystem** field is blank. You must specify a subsystem.

**User response:**

Enter a valid IMS subsystem ID.

---

**BSYR061E**      **Invalid Value - Please Enter a "F" if you would like to perform a Full Backup (Data and Logs) or a "D" if you want to perform a Data only backup.**

**Explanation:**

An invalid value was entered in the **Backup Type** field.

**User response:**

Enter a valid value as described in the message text.

---

**BSYR062E**      **Invalid Value - The number of backup generations must be numeric.**

**Explanation:**

A non-numeric value was entered in the **Backup Generations** field.

**User response:**

Enter a numeric value in the specified range for the backup type.

---

**BSYR063E**      **Invalid Value - Backup Method should be "B" for BCV volumes, "S" for SNAP volumes, "F" for Flash Volumes or "D" for IMS SLB**

**Explanation:**

An invalid value was entered in the **Backup Method** field.

**User response:**

Enter a valid value as described in the message text.

---

**BSYR064E**      **Invalid Value - Please Enter a "Y" if you would like to perform a Log Suspend or a "N" if you do not want to perform a Log Suspend.**

**Explanation:**

An invalid value was entered in the **Issue Log Suspend** field.

**User response:**

Enter a valid value as described in the message text.

---

**BSYR065E**      **Invalid Value - Please Enter a "Y" if you would like to perform validations or a "N" if you do not want to perform validations.**

**Explanation:**

An invalid value was entered in the **Validate IMS Volumes** field.

**User response:**

Enter a valid value as described in the message text.

---

**BSYR066E**      **Invalid Value - Please Enter a "Y" if you would like to add offload options, a "N" if you do not want to add offload options or "U" to update offload options.**

**Explanation:**

An invalid value was entered.

**User response:**

Enter Y if you want to have the DASD backups offloaded to tape. Enter N if you do not want to offload the backups to tape. U to update previous offload options.

---

**BSYR067E**      **Invalid Value - The number of backup generations for a BCV target must be numeric and must be between 1 and 8.**

**Explanation:**

An invalid value was entered in the **Backup Generations** field.

**User response:**

Enter a valid value as described in the message text.

---

**BSYR068E**      **Invalid Value - Enter a "U" to allow other users to Update your profile, a "V" to allow other users to just View your profile or "N" to disallow other users from viewing or updating your profile.**

**Explanation:**

An invalid value was entered in the **Share Option** field.

**User response:**

Enter a valid value as described in the message text.

---

**BSYR069I**      **Profile profile creator.profile name saved**

**Explanation:**

The profile named in the message was successfully saved.

**User response:**

None. This message is informational.

---

**BSYR070E**      **An error occurred trying to allocate a repository data set data set name.**

**Explanation:**

An error occurred when allocating the IMS Recovery Expert VSAM repository data set.

**User response:**

Check the system log for additional error information.

---

**BSYR071E**      **At least one Volume Mapping must be entered.**

**Explanation:**

No volume mappings have been created for the profile. At least one volume mapping is required for successful running of the backup job.

**User response:**

Enter a volume mapping, or type CAN in the option line to exit the profile.

---

**BSYR072E**      **The Source Volume must not be blank.**

**Explanation:**

The value in the **Source Volume** field was removed, but the target volumes are still in place.

**User response:**

If you intended to remove the source volume and its mapping, use the D line command in the Cmd area. Otherwise, enter a source volume.

---

**BSYR073E**      **Invalid Value - Please Enter a "Y" if you would like to enable Database Restore or a "N" if you do not want to enable Database Restore.**

**Explanation:**

An invalid value was entered in the **Enable DB Restore** field.

**User response:**

Enter Y for Yes or N for No.

---

**BSYR074E**      **The Source Volume must start with an alphabetic or a national character.**

**Explanation:**

An invalid value was entered as the first character of the **Source Volumes** field. The first character must be alphabetic or a national character, and the remaining characters must be alphabetic or numeric.

**User response:**

Change the first character of the source volume.

---

**BSYR075E**      **The Source Volume must only contain alphanumeric characters.**

**Explanation:**

An invalid character was entered in the **Source Volumes** field.

**User response:**

The first character must be alphabetic and the remaining characters must be alphanumeric. Change the invalid value to an alphanumeric character.

---

**BSYR076E**      **The Target Unit must only contain valid hexadecimal characters.**

**Explanation:**

A non-hexadecimal value was entered in the **Target Unit** field.

**User response:**

Re-enter the **Target Unit** field using valid hexadecimal characters.

---

**BSYR077E**      **The Profile Creator is a required field. Please enter a valid profile creator.**

**Explanation:**

When creating a new profile, the **Profile Creator** field was left blank.

**User response:**

Enter a profile creator in the **Profile Creator** field.

---

**BSYR078E**      **The Profile Name is a required field. Please enter a unique profile name.**

**Explanation:**

When creating a new profile, the **Profile Name** field was left blank.

**User response:**

Enter a unique profile name in the **Profile Name** field.

---

**BSYR079E**      **Invalid Value - Enter a "U" to allow other users to Update your profile, a "V" to allow other users to just View your profile or "N" to disallow other users from viewing or updating your profile.**

**Explanation:**

When creating a new profile, an invalid value was entered the **Update Option** field.

**User response:**

Correct the value as described in the message text.

---

**BSYR080E**      **Invalid Value - The number of backup generations for a SNAP or Flash target must be numeric and must be between 1 and 99.**

**Explanation:**

An invalid value was entered for the number of backup generations for a SNAP or Flash target. The value must be numeric and must be between 1 and 99.

**User response:**

Enter a valid value as described in the message text.

---

**BSYR082E**      **The new Source Volume entered is a duplicate of an existing Source Volume.**

**Explanation:**

A source volume was added to the volume mapping, but the source volume is already listed in the volume mapping.

**User response:**

Remove the duplicate value or use the D line command to delete the volume mapping.

---

**BSYR083E**      **The unit of the new Source Volume entered is a duplicate of an existing Target Unit.**

**Explanation:**

A source volume is also specified as a target unit. The same device cannot be specified as both a source volume and target unit.

**User response:**

Change either the source volume or the target unit.

---

**BSYR084E**      **The new Target Unit entered is a duplicate of an existing Source Volume.**

**Explanation:**

A target unit was added to the volume mapping, but the target unit is also listed as a source volume in the mapping. The same device cannot be specified as both a source volume and target unit.

**User response:**

Change either the source volume or the target unit.

---

**BSYR085E**      **The new Target Unit entered is a duplicate of an existing Target unit.**

**Explanation:**

A target unit was added to the volume mapping, but the unit is already listed in the volume mapping as a target unit.

**User response:**

Remove the duplicate value or use the D line command to delete the volume mapping.

---

**BSYR086E**      **The Source Volume's device type is not the same as the Target Unit's device type.**

**Explanation:**

The source and target volume must be of the same volume type (such as both 3390 mod 9s).

**User response:**

Choose a target unit of the same volume type as the source unit.

---

**BSYR087E**      **The beginning target value must be less than the end target value.**

**Explanation:**

The value entered in the **Beginning Target Range** field is less than the value in the **Ending Target Range** field. This is not valid.

**User response:**

Correct the range and retry.

---

**BSYR088E**      **The Source Volume and the Target Unit are not on the same storage array.**

**Explanation:**

The source volume and its specified target unit are not located on the same storage array. The source volume and target unit must be on the same array.

**User response:**

Select a different target unit that is on the same array.

---

**BSYR089E**      **Invalid value - the Target Mapping field should be A for Auto Mapping or M for Manual Mapping.**

**Explanation:**

Invalid value - the **Target Mapping** field should be A for Auto Mapping or M for Manual Mapping.

**User response:**

Enter a valid value as described in the message text.

---

**BSYR090E**      **Invalid Device Number (CUU) entered.**

**Explanation:**

An invalid device number (CUU) was entered.

**User response:**

Check with your systems programmer for a valid list of device numbers.

---

**BSYR091E**      **Number of BCV devices must be numeric and between 1 and 9999 inclusive.**

**Explanation:**

An invalid value was entered for the number of BCV devices. The number of BCV devices entered must be numeric and between 1 and 9999.

**User response:**

Enter a valid value as listed in the message text.

---

**BSYR092E**      **The Enter By Generation field must be "Y" or "N".**

**Explanation:**

An invalid value was entered in the **Enter by Generation** field.

**User response:**

Correct the value and press Enter.

---

**BSYR093E**      **The Setup Job field must be "Y" or "N".**

**Explanation:**

An invalid value was entered in the **Setup Job** field.

**User response:**

Enter Y to build JCL to run profile setup only. Enter N to build JCL for backing up the systems.

---

**BSYR094E**      **The Backup Repository field must be "Y" or "N".**

**Explanation:**

An invalid value was entered in the **Backup Repository** field.

**User response:**

Enter Y to include job steps to backup the IMS Recovery Expert VSAM repository as the last step of the job. Enter N to omit these steps.

---

**BSYR095E**      **Invalid value. Enter "Y" or "N".**

**Explanation:**

An invalid value was entered.

**User response:**

Enter Y for Yes or N for No.

---

**BSYR096E**      **Profile *profile\_creator.profile\_name* is currently being used by another user or process.**

**Explanation:**

The profile listed in the message is being used by another user or another process.

**User response:**

Try again later.

---

**BSYR097E**      **The Start MVS Device Number must be less than or equal to the Stop MVS Device Number.**

**Explanation:**

An invalid value was entered for the start MVS device number must be less than or equal to the stop MVS device number.

**User response:**

Enter a valid value as listed in the message text.

---

**BSYR098E**      **Flash Query error, Return Code: *return\_code*, Reason Code *reason\_code***

**Explanation:**

An error occurred doing a Flash Query.

**User response:**

Refer to the Flash Query manual for a description and resolution to the error.

---

**BSYR100E**      **An error occurred trying to allocate the BSY Parmlib - Check the PARMLDSN and PARMLMBR in the startup CLIST and try again.**

**Explanation:**

The PARMLIB data set could not be allocated. There may be an error in the PARMLIB's data set name or member in the startup CLIST.

**User response:**



Ensure the PARMLDSN and PARMLMBR parameters are correctly specified in the CLIST. Ensure the PARMLIB data set exists and is available.

---

**BSYR101E**      **The CUU selection field must only contain valid hexadecimal characters.**

**Explanation:**

An invalid value was entered for the **CUU selection** field.

**User response:**

Enter a valid hexadecimal value.

---

**BSYR102E**      **The SYM# selection field must only contain valid hexadecimal characters.**

**Explanation:**

An invalid value was entered for the **CUU selection** field.

**User response:**

Enter a valid hexadecimal value.

---

**BSYR103E**      **The BCV Only selection field can only be "Y" or "N".**

**Explanation:**

An invalid value was entered.

**User response:**

Enter a valid value as listed in the message text.

---

**BSYR104E**      **The VOLSER selection field must start with an alphabetic character or a national character.**

**Explanation:**

An invalid value was entered for the **VOLSER selection** field.

**User response:**

Enter a valid value as described in the message text.

---

**BSYR105E**      **The VOLSER selection field must only contain alphanumeric characters.**

**Explanation:**

An invalid value was entered for the **VOLSER selection** field.

**User response:**

Enter a valid value as described in the message text.

---

**BSYR106E**      **This is a partial System Level Backup, it cannot be used for recovery.**

**Explanation:**

This is a partial System Level Backup. It cannot be used for a system level IMS recovery. It can only be used to recover individual databases or indexes.

**User response:**

None required.

---

**BSYR107E**      **The source unit must only contain valid hexadecimal characters.**

**Explanation:**

An invalid value was entered for the source unit.

**User response:**

Enter a valid source unit.

---

**BSYR108E**      **The beginning source unit must be less than the end source unit.**

**Explanation:**

An invalid value was entered for the source and/or the end unit. The beginning source unit must be less than the ending source unit.

**User response:**

Correct the invalid beginning or ending source unit.

---

**BSYR112I**      **Debug Mode is now activated.**

**Explanation:**

DEBUG mode is currently on. To turn off DEBUG mode, specify DEBUG on the **Option** line of the IMS Recovery Expert main menu panel and press Enter.

**User response:**

None. This message is informational.

---

**BSYR113I**      **Debug Mode is now Deactivated.**

**Explanation:**

DEBUG mode is currently off. To turn DEBUG mode on, specify DEBUG on the **Option** line of the IMS Recovery Expert main menu panel and press Enter.

**User response:**

None. This message is informational.

---

**BSYR114I**      **XDC Mode is now Activated.**

**Explanation:**

XDC mode is currently ON.

**User response:**

None. This message is informational.

---

**BSYR115I**      **XDC Mode is now Deactivated.**

**Explanation:**

XDC mode is currently OFF.

**User response:**

None. This message is informational.

---

**BSYR117E**      **Allocation Error - The ISPF DD is already allocated and cannot be deallocated - Process not completed.**

**Explanation:**

The ISPF DD allocation failed. The DD is already allocated and cannot be deallocated for this TSO session. The process did not complete successfully.

**User response:**

---

**BSYR118E** Allocation Error - An error was encountered allocating the ISPWRK1 or ISPWRK2 DD - Process not completed.

**Explanation:**

The ISPWRK1 or ISPWRK2 DD allocation failed. The process did not complete successfully.

**User response:**

Verify TSO session parameters are set correctly for your site prior to allocation of these DD statements.

---

**BSYR119E** Field Required - The data set entered is a partitioned data set and the member name is required.

**Explanation:**

A required field was not entered. The data set entered is a PDS (partitioned data set) and a member in this PDS must be referenced.

**User response:**

Enter a valid member name for PDS access.

---

**BSYR120I** A repository file has not been allocated for Subsystem Setup. No information regarding setup steps taken will be logged. Enter an IMS subsystem and press enter to continue or PF3 to exit.

**Explanation:**

The repository file to save information about subsystem setup has not been allocated. Refer to the documentation for installing and configuring IMS Recovery Expert for information on creating and allocating this file.

**User response:**

You may proceed with the setup, but no information will be saved for later use.

---

**BSYR121E** Invalid reply - Please enter a "Y" if you would re-analyze this subsystem or "N" to retrieve the information stored in the repository.

**Explanation:**

An invalid value was entered in the **Re-analyze IMS Subsystem Info** field.

**User response:**

Enter Y to re-analyze the subsystem. Enter N to view the previous history and analysis.

---

**BSYR122E** Invalid command - Please enter a "C" to create a new MVS user catalog, "A" to add an alias to the catalog, "D" to view a list of aliases assigned to this catalog or

"U" to change the name of the entered catalog, or "V" to view the aliases assigned to the catalog.

**Explanation:**

An invalid line command was entered.

**User response:**

Enter C to create a new MVS user catalog. Enter A to add an alias to the listed catalog. Enter D to view the aliases for the listed catalog. Enter U to change the name of the entered user catalog. Enter V to view the aliases assigned to the catalog.

---

**BSYR123E** Invalid command - Please enter an "V" to view all the aliases assigned to this catalog, or "D" to view all the data sets assigned to the catalog.

**Explanation:**

An invalid line command was entered.

**User response:**

Enter A to view the aliases assigned to the listed catalog. Enter D to view the data sets assigned to the listed catalog.

---

**BSYR124E** Invalid command - Please enter an "R" to rename all the BSDS or Active log data sets in the list or "M" to move all the data sets.

**Explanation:**

An invalid command was entered on the heading line.

**User response:**

Enter R to rename all of the BSDS or active log data sets listed. This will be done by specifying a new high-level qualifier. Enter M to move all of the BSDS or active log data sets listed.

---

**BSYR125E** Invalid command - Please enter an "R" to rename the data set or "M" to move the data set to another volume.

**Explanation:**

An invalid line command was entered.

**User response:**

Enter R to rename this data set or M to move it to a different MVS volume.

---

**BSYR127E** Invalid command - Please enter "D" to display all data sets using this alias, "M" to mergecat this alias into another catalog, or "R" to rename all IMS object data sets using this alias.

**Explanation:**

An invalid line command was entered.

**User response:**

Enter D to display all the data sets using the alias.  
Enter M to perform a MERGECAT to move this alias from one MVS usercat into another. Enter R to rename all the IMS database data sets using this alias.

---

**BSYR128E**      **Invalid command - Please enter "D" to display all data sets on this volume, or "M" to move data sets from this volume to another.**

**Explanation:**

An invalid line command was entered.

**User response:**

Enter the D line command to display all the MVS data sets on this volume, or M to move data sets from this volume to another.

---

**BSYR129E**      **Invalid Entry - An MVS User Catalog has already been created for this entry.**

**Explanation:**

The C command is not valid on this line because the MVS user catalog specified already exists and cannot be created.

**User response:**

None required.

---

**BSYR130E**      **Invalid Entry - This option is not allowed until the MVS User Catalog has been created. Create the usercat before attempting to view the aliases or data sets.**

**Explanation:**

The entered command requires that you first specify the MVS user catalogs to be used for both logs and data for this IMS subsystem.

**User response:**

None required.

---

**BSYR131I**      **Catalog Not Found - Press Enter to create this MVS user catalog.**

**Explanation:**

The entered MVS catalog was not found.

**User response:**

Press enter to be taken to a screen that will help you create a MVS user catalog with this name.

---

**BSYR132I**      **Subsystem Information was updated in the System Level Backup and Restore subsystem setup repository.**

**Explanation:**

The analysis and subsystem setup information was saved in the product repository for future use. You may leave IMS Recovery Expert and reenter this subsystem SSID when you return to continue working on the setup of this subsystem.

**User response:**

None. This message is informational.

---

**BSYR133E**      **Option not allowed - The command you entered is not allowed until the new MVS User Catalogs to be used by this subsystem have been entered above and created. Please enter the required catalog information above before entering this command.**

**Explanation:**

The entered command requires that you first specify the MVS user catalogs to be used for both logs and data for this IMS subsystem.

**User response:**

None required.

---

**BSYR134E**      **IMS Subsystem ssid is currently inactive. IMS must be active for a subsystem analysis. Please start IMS and try again.**

**Explanation:**

The IMS subsystem must be active to perform a subsystem analysis or re-analysis.

**User response:**

Start the IMS subsystem and try again.

---

**BSYR135E**      **Option not allowed - Data set Renaming or moving is not allowed while IMS is active. Please shut all IMS Subsystems down that will have data sets renamed or moved.**

**Explanation:**

The IMS subsystem must down to perform BSDS or active log renaming or moving.

**User response:**

Shut down the subsystem before renaming or moving these data sets.

---

**BSYR136E**      **Option not allowed - The MVS User catalog used for the IMS active logs and boot straps is not allowed to the same catalog used for the IMS Data.**

**Explanation:**

The specified MVS user catalogs must not be the same data set name. The active logs and BSDS data sets should use one MVS catalog, and all other IMS data sets should use another.

**User response:**

None required.

---

**BSYR137E**      **Invalid command - Please enter an "V" to view all the volumes assigned to this copy pool.**

**Explanation:**

An invalid command was entered. The only valid command is V to view all the volumes assigned to this copy pool.

**User response:**

Enter V to view all the volumes assigned to this copy pool.

---

**BSYR140E**      **A User Catalog name must be specified.**

**Explanation:**

The user catalog name must be specified in order to create a new MVS user catalog.

**User response:**

None required.

---

**BSYR141E**      **The User Catalog specified already exists.**

**Explanation:**

The specified user catalog name already exists.

**User response:**

Specify a new data set name.

---

**BSYR142E**      **A Volume or SMSCLASS must be specified.**

**Explanation:**

Either the User Catalog Volume or **SMS Storage Class** field must be specified to create a MVS user catalog.

**User response:**

Specify one of the required fields.

---

**BSYR143E**      **The Volume must start with an alphabetic character.**

**Explanation:**

The specified volume is not valid. It must start with an alphabetic character.

**User response:**

Correct the invalid volume.

---

**BSYR144E**      **The Volume must only contain alphanumeric characters.**

**Explanation:**

The specified volume is not valid. It must contain only alphanumeric characters.

**User response:**

Correct the invalid volume.

---

**BSYR145E**      **The Volume name supplied is not a valid volume at your MVS installation.**

**Explanation:**

The volume name supplied is not a valid volume at your MVS installation.

**User response:**

Check with your systems programmer for a valid list.

---

**BSYR146E**      **The data parameter for tracks or cylinders must be specified.**

**Explanation:**

A parameter is missing.

**User response:**

Specify either C for cylinders or T for tracks.

---

**BSYR147E**      **The data parameter for tracks and cylinders must be T or C.**

**Explanation:**

An invalid value was specified.

**User response:**

Specify either C for cylinders or T for tracks.

---

**BSYR148E**      **The data parameter for primary quantity must be specified.**

**Explanation:**

A parameter is missing.

**User response:**

The primary quantity must be specified and it must be numeric.

---

**BSYR149E**      **The data parameter for primary quantity must be numeric.**

**Explanation:**

An invalid value was specified.

**User response:**

The primary quantity must be specified and it must be numeric.

---

**BSYR150E**      **The data parameter for secondary quantity must be specified.**

**Explanation:**

A parameter is missing.

**User response:**

The secondary quantity must be specified and it must be numeric.

---

**BSYR151E**      **The data parameter for secondary quantity must be numeric.**

**Explanation:**

An invalid value was specified.

**User response:**

The secondary quantity must be specified and it must be numeric.

---

**BSYR152E**      **The data parameter for buffers must be specified.**

**Explanation:**

A parameter is missing.

**User response:**

The buffers value must be specified and it must be numeric.

---

**BSYR153E**      **The data parameter for buffers must be numeric.**

**Explanation:**

An invalid value was specified.

**User response:**

The buffers value must be specified and it must be numeric.

---

**BSYR154E**      **The index parameter for tracks or cylinders must be specified.**

**Explanation:**

A parameter is missing.

**User response:**

You must specify either C for cylinders or T for tracks.

---

**BSYR155E**      **The index parameter for tracks or cylinders must be T or C.**

**Explanation:**

An invalid value was specified.

**User response:**

You must specify either C for cylinders or T for tracks.

---

**BSYR156E**      **The index parameter for primary quantity must be specified.**

**Explanation:**

A parameter is missing.

**User response:**

The primary quantity must be specified and it must be numeric.

---

**BSYR157E**      **The index parameter for primary quantity must be numeric.**

**Explanation:**

An invalid value was specified.

**User response:**

The primary quantity must be specified and it must be numeric.

---

**BSYR158E**      **The index parameter for secondary quantity must be specified.**

**Explanation:**

A parameter is missing.

**User response:**

The secondary quantity must be specified and it must be numeric.

---

**BSYR159E**      **The index parameter for secondary quantity must be numeric.**

**Explanation:**

An invalid value was specified.

**User response:**

The secondary quantity must be specified and it must be numeric.

---

**BSYR160E**      **The RBA/LRSN selected must be greater than or equal to the RBA/LRSN of the Backup selected.**

**Explanation:**

The Recover To RBA/LRSN specified is at a point prior to the RBA/LRSN of the selected backup. This is not allowed.

**User response:**

Specify a recovery point RBA/LRSN equal to or greater than the listed RBA/LRSN, or choose an earlier backup.

---

**BSYR161E**      **This profile's data has been corrupted. It must be re-created.**

**Explanation:**

The profile you selected has been corrupted and is not usable.

**User response:**

Delete the profile and re-create it with a different name.

---

**BSYR162E**      **Subsystem *ssid* needs to be defined in the "SETUP" area of the product**

**Explanation:**

The subsystem listed in the message has not been configured using the product setup panel.

**User response:**

On the IMS Recovery Expert main menu panel (BSY\$MAIN), specify 0 (User Settings) and press Enter. On the **Backup Profile Defaults** panel, you can set up the subsystem. On the IMS Recovery Expert main menu panel (BSY\$MAIN), specify 0 (Administration) and press Enter. On the **Administration Menu** panel (BSY\$PNLO), specify 1 (Set System Backup Profile Defaults) and press Enter. On the **System Backup Profile Defaults**, you can set up the subsystem. Refer to the configuration documentation for information about the setup parameters.

---

**BSYR163E**      **Invalid Value - Please enter a "Y" if you want to backup the repository data sets during a backup, or "N" if you do not want to backup the repository data sets during a backup.**

**Explanation:**

An invalid value was entered in the **Backup Repository** field.

**User response:**

Enter a valid value as described in the message text.

---

**BSYR164E**      **Your selection of targets do not match any of the unmapped source volumes.**

**Explanation:**

The target range of volumes entered are not the same type as the source volumes, or the target range entered is not on the same Symmetrix array as the source volumes.

**User response:**

Enter a target range of the same volume type and/or on the same Symmetrix array.

---

**BSYR165E**      **An IMS subsystem ID must be specified with the Restore Command.**

**Explanation:**

When entering the **RESTORE** primary command, an IMS subsystem ID was not specified.

**User response:**

Add the subsystem ID after the **RESTORE** command.

---

**BSYR166E**      **The IMS subsystem entered is not found in any recovery point.**

**Explanation:**

The **RESTORE** primary command was entered, but the specified IMS subsystem does not have any IMS Recovery Expert recovery points. A valid IMS Recovery Expert backup has not yet been performed.

**User response:**

A valid IMS Recovery Expert backup must be performed before recovery is possible. If you believe this message is in error, contact IBM Software Support.

---

**BSYR167I**      **A recovery point has been selected**

**Explanation:**

The **RESTORE** primary command was entered and IMS Recovery Expert selected a valid recovery point.

**User response:**

None. This message is informational.

---

**BSYR168E**      **No recovery point that matches the selection criteria was found.**

**Explanation:**

The **RECOVER** ssid primary command was entered, but a recovery point was not found.

**User response:**

Enter an RBA/LRSN greater than or equal to the recovery point listed on the display for the subsystem.

---

**BSYR170E**      **The index parameter for buffers must be specified.**

**Explanation:**

A parameter is missing.

**User response:**

The buffers value must be specified and it must be numeric.

---

**BSYR171E**      **The index parameter for buffers must be numeric.**

**Explanation:**

An invalid value was entered.

**User response:**

The buffers value must be specified and it must be numeric.

---

**BSYR172E**      **The SMS Storage Class name specified is invalid, it must only contain alphanumeric characters.**

**Explanation:**

The SMS Storage Class specified is invalid. It must only contain alphanumeric characters. These include A-Z and 0-9.

**User response:**

Correct the invalid value.

---

**BSYR173E**      **At least one ALIAS needs to be specified.**

**Explanation:**

At least one alias name needs to be specified. The alias name is a high-level that will be tracked in this user catalog data set.

**User response:**

Specify an alias name.

---

**BSYR174E**      **The Alias name specified is invalid, it must only contain alphanumeric characters.**

**Explanation:**

The alias name specified is invalid. It must only contain alphanumeric characters. These include A-Z and 0-9.

**User response:**

Correct the invalid value.

---

**BSYR175E**      **The Action field should be E - Edit, O - Online Submission or B - Batch Submission.**

**Explanation:**

An invalid value was entered in the **Action** field.

**User response:**

Enter E to edit the shown information. Enter O to run the shown information online. Enter B to run the shown information in batch.

---

**BSYR176E**      **The specified alias already exists in your MVS installation.**

**Explanation:**

The entered alias name already exists in your MVS installation.

**User response:**

If you want to have this alias tracked by this user catalog, you must perform a MERGECAT to move the alias from another user catalog to this one.

---

**BSYR177E      Error allocating SYSIN data set.**

---

**Explanation:**

The entered alias name already exists in your MVS installation.

**User response:**

If you want to have this alias tracked by this user catalog, you must perform a MERGECAT to move the alias from another user catalog to this one.

---

**BSYR178E      Open failed for SYSIN data set**

---

**Explanation:**

An error occurred opening the SYSIN data set.

**User response:**

Check the system log for any further information.

---

**BSYR179E      Allocate failed for TEMPFILE**

---

**Explanation:**

An error occurred allocating the TEMPFILE data set.

**User response:**

Check the system log for any further information.

---

**BSYR180E      Open failed for TEMPFILE**

---

**Explanation:**

An OPEN failed on the temporary ISPF file tailoring data set.

**User response:**

Retry the operation. Contact IBM Software Support if the problem persists.

---

**BSYR181E      Error allocating SYSPRINT data set**

---

**Explanation:**

An error occurred trying to allocate the SYSPRINT data set.

**User response:**

Retry the operation. Contact IBM Software Support if the problem persists.

---

**BSYR182E      Open failed for SYSPRINT.**

---

**Explanation:**

An error occurred trying to open the SYSPRINT data set.

**User response:**

Retry the operation. Contact IBM Software Support if the problem persists.

---

**BSYR184E      An error occurred during file tailoring.**

---

**Explanation:**

An error occurred during file tailoring.

**User response:**

Retry the operation. Contact IBM Software Support if the problem persists.

---

**BSYR185E      Invalid Value - The number of offline generations must be numeric.**

---

**Explanation:**

The number of offline generations must be numeric.

**User response:**

Specify offline generations as a numeric value.

---

**BSYR186I      System restore will be performed from the offloaded backup.**

---

**Explanation:**

This backup is no longer on DASD and therefore the system restore will be performed from the backup that has been offloaded to tape.

**User response:**

None. This message is informational.

---

**BSYR187E      The new data set name data\_set\_name already exists.**

---

**Explanation:**

The alias entered will rename the data set to a data set name that already exists in your MVS installation.

**User response:**

Either choose another alias, or delete or rename the data set that already exists with this name.

---

**BSYR188E      A new User Catalog must be entered and must already exist before adding an alias.**

---

**Explanation:**

The MVS user catalog must be specified and created before you can add an alias to it.

**User response:**

Create or specify the new MVS user catalog, then add the alias.

---

**BSYR189E      An error occurred trying to retrieve the Active and Archive Log data sets**

---

**Explanation:**

An error occurred trying to retrieve the active and archive log data sets.

**User response:**

---

**BSYR190E      Invalid Value - Enter a "Y" to display the subsystem Log RBAs captured by the IMS Recovery Expert RBA Capture utility or "N" to bypass RBA display.**

---

**Explanation:**

An invalid value has been entered for Display Timestamp / RBA Captured Data.

**User response:**

Enter Y to display the subsystem log RBAs captured by the RBA capture utility or N to bypass the RBA display.

---

**BSYR191E**      **Option not allowed - The IMS Recovery Expert RBA repository file has not been allocated or the utility has not been run to capture log RBA data**

**Explanation:**

The IMS Recovery Expert RBA repository file has not been allocated or the utility has not been run to capture log RBA data.

**User response:**

Create the RBA repository file and run the RBA capture utility. Refer to the user documentation about configuring the RBA capture utility for more information.

---

**BSYR192E**      **Invalid Value - Enter a "Y" to display the Archive Log RBA information with their respective timestamps.**

**Explanation:**

An invalid value has been entered for Display Archive Logs times / RBAs.

**User response:**

Enter Y to display the Archive Log RBA information with their respective timestamps.

---

**BSYR193E**      **Invalid Value - Enter a "Y" to display the Checkpoint RBA information with their respective timestamps.**

**Explanation:**

An invalid value has been entered for Display Checkpoint times / RBAs.

**User response:**

Enter Y to display the Checkpoint RBA information with their respective timestamps.

---

**BSYR194E**      **Invalid Value - Enter a "Y" to enter a recovery timestamp and have the IMS LRSN generated for you or "N" to bypass timestamp to LRSN Utility.**

**Explanation:**

An invalid value has been entered for **Timestamp to IMS LRSN Utility** field.

**User response:**

Enter Y to enter a recovery timestamp and have the IMS LRSN generated for you or N to bypass the timestamp to LRSN utility.

---

**BSYR195E**      **Invalid Selection - You can enter the display timestamp screen or the Timestamp to LRSN utility, but not both. Please deselect one of the options.**

**Explanation:**

You cannot use both utilities.

**User response:**

Deselect one of the options.

---

**BSYR196W**      **There are no RBA capture times found in the repository for this IMS subsystem.**

**Explanation:**

No RBA capture times were found for the selected SSID.

**User response:**

Change the RBA value and retry the operation.

---

**BSYR197E**      **There were no RBA capture records for this IMS Subsystem found in the repository for the time ranges requested.**

**Explanation:**

There were no RBA capture records for the selected IMS subsystem in the repository for the time ranges requested.

**User response:**

Change the time range and retry the operation.

---

**BSYR198I**      **The RBA capture records display list was truncated because the capture times were greater than the backup times of another backup made after this one.**

**Explanation:**

The RBA capture records list was truncated because the capture times were greater than the capture times of a backup taken after this one.

**User response:**

None. This message is informational.

---

**BSYR199E**      **Invalid return code attempting to read the DSNZPARMs to acquire boot strap and checkpoint information. Check setup for this subsystem to ensure the information entered for this subsystem is correct.**

**Explanation:**

An invalid return code was received attempting to read the DSNZPARMs to acquire boot strap and checkpoint information.

**User response:**



Check setup for this subsystem to ensure the information entered for this subsystem is correct.

---

**BSYR200E**      **Invalid characters in new alias. It must be alphanumeric.**

**Explanation:**

The Alias entered is not a valid MVS alias.

**User response:**

It must start with an alphabetic character and contain only letters and numbers.

---

**BSYR201E**      **New alias must not have embedded blanks.**

**Explanation:**

The alias entered must not contain any embedded blanks.

**User response:**

Edit the alias and remove the blank(s).

---

**BSYR202E**      **The only & variable supported is &SSID.**

**Explanation:**

The only replaceable variable supported is &SSID. This variable will be replaced by the subsystem identifier to create the new alias name.

**User response:**

Change the variable to the supported type.

---

**BSYR203E**      **&SSID cannot be specified twice.**

**Explanation:**

The variable can only be specified once.

**User response:**

Remove one occurrence of the variable.

---

**BSYR204E**      **Alias alias is not in the specified Usercat user\_catalog. If you want to use this alias, you need to add it to the usercat first.**

**Explanation:**

The specified alias must exist in the specified MVS user catalog first.

**User response:**

You can add the alias to the usercat by using the A command next to the usercat in the New MVS User Catalogs section of the **System Setup Information** screen.

---

**BSYR205E**      **The old and new alias cannot be equal. Please specify a new alias that is different from the old alias.**

**Explanation:**

The old and new aliases cannot be equal.

**User response:**

Enter a different new alias.

---

**BSYR206E**      **The alias cannot be renamed if it contains LOG data. You can rename log files in the Boot Strap and Active Log Data set sections.**

**Explanation:**

The alias listed cannot be renamed because it contains IMS log or boot strap data set data.

**User response:**

You can rename IMS log/BSDS data sets from their respective sections on the **Subsystem Setup Information** panel.

---

**BSYR207E**      **Invalid Value - The value for Encryption Type must be "S" for Substitution, "C" for Cipher, "A" for AES, "1" for AES192, "2" for AES256, "F" for AES Fast or "T" for TDES.**

**Explanation:**

An invalid value was entered for the type of FDR encryption to use.

**User response:**

Enter a valid value as described in the message text.

---

**BSYR208E**      **If RSA encryption is selected, an RSA Label must be entered.**

**Explanation:**

If RSA encryption is selected, an RSA Label must be entered. An RSA label can be defined in the Integrated Cryptographic Service Facility (ICSF).

**User response:**

Enter a valid value for the label. An RSA label can be from 1 to 64 characters in length and must be specified as follows: the first character must be alphabetic or a national character and the remaining characters must be alphabetic, numeric, a national character or a period.

---

**BSYR209E**      **The first character of the Label must be alphabetic or a national character.**

**Explanation:**

An invalid value was entered for the first character of the RSA Label.

**User response:**

Enter a valid value for the label. An RSA label can be from 1 to 64 characters in length and must be specified as follows: the first character must be alphabetic or a national character and the remaining characters must be alphabetic, numeric, a national character or a period.

---

**BSYR210E**      **A new MVS user catalog for data needs to be specified.**

**Explanation:**

The new MVS user catalog for IMS database data must be specified before you can perform this action.

**User response:**

Create the new MVS user catalog for IMS database data.

---

**BSYR211E**      **A new MVS user catalog for logs needs to be specified.**

**Explanation:**

The new MVS user catalog for IMS logs and BSDS data must be specified before you can perform this action.

**User response:**

Create the new MVS user catalog for IMS log/BSDS data.

---

**BSYR212E**      **This alias contains both data and logs, the logs must be renamed using a different alias before a mergecat can be performed.**

**Explanation:**

The selected alias contains both IMS log and database data.

**User response:**

The log and/or boot strap data sets using this alias must be renamed before the mergecat can be performed.

---

**BSYR213E**      **Cannot mergecat alias information into the same user catalog.**

**Explanation:**

The current user catalog for this alias is the same user catalog specified in the New section. The mergecat function moves all data sets using an alias from one MVS user catalog to another. The target MVS user catalog is specified in the New MVS User catalog section.

**User response:**

Enter the correct MVS target user catalog in the New MVS User catalog section.

---

**BSYR214E**      **The Action field should be E - Edit, or B - Batch Submission.**

**Explanation:**

An invalid value was entered in the **Action** field.

**User response:**

The valid values for Action include: "E" - Edit the control cards before running. "B" - Generate JCL to run the job in Batch.

---

**BSYR215E**      **The new volume specified is not a valid device.**

**Explanation:**

The new volume specified is not valid or might be offline.

**User response:**

Enter a valid volume name or vary the volume online.

---

**BSYR216E**      **All characters after the first character must be alphabetic, numeric, a national character or a period.**

**Explanation:**

An invalid value was entered for the RSA Label.

**User response:**

Enter a valid value for the label. An RSA label can be from 1 to 64 characters in length and must be specified as follows: the first character must be alphabetic or a national character and the remaining characters must be alphabetic, numeric, a national character, or a period.

---

**BSYR217E**      **This command requires a current analysis to show which data sets are in use by IMS.**

**Explanation:**

The command entered requires a current analysis to be performed.

**User response:**

Enter the **REANALYZE** command from the **System Setup Information** screen to perform the analysis.

---

**BSYR218E**      **Entering a target volume requires a current analysis to determine which data sets are in use by IMS.**

**Explanation:**

The command entered requires a current analysis to be performed.

**User response:**

Enter the **REANALYZE** command from the **System Setup Information** screen to perform the analysis.

---

**BSYR219W**      **No data sets were selected to be moved.**

**Explanation:**

There were no data sets that satisfied the selection criteria. No data sets will be moved.

**User response:**

None required.

---

**BSYR220E**      **The Volume must start with an alphabetic character.**

**Explanation:**

The volume entered must start with an alphabetic character from A through Z.

**User response:**

Correct the invalid volume name.

---

**BSYR221E**      **The Volume must only contain alphanumeric characters.**

**Explanation:**

The volume entered must contain only alphanumeric characters, A through Z and 1 through 9.

**User response:**

Correct the invalid volume name.

---

**BSYR222E**      **The IMS Object Data field must be "Y" or "N".**

**Explanation:**

An invalid value was entered in the **IMS Object Data** field. Valid values are Y and N. Specifying Y will move all object data sets (database and index) for the IMS subsystem being analyzed to the target volume(s).

**User response:**

Correct the invalid value.

---

**BSYR223E**      **The Other Data field must be "Y" or "N".**

**Explanation:**

An invalid value was entered in the **Other Data** field. Valid values are Y and N. Specifying Y will move all non-IMS data sets not related to the IMS subsystem being analyzed to the target volume(s). You cannot move VSAM data sets for other IMS subsystems or MVS user catalogs via this interface.

**User response:**

Correct the invalid value.

---

**BSYR224E**      **The new volume entered must not be the same as the old volume.**

**Explanation:**

The entered volume is the same name as the source volume.

**User response:**

Enter a different target volume name.

---

**BSYR225E**      **Invalid Value - Please enter a "1" to see a display of IMS RBA data, "2" to send a modify command to current utility, "3" to build a job to clean up the RBA captured repository, "4" to build the RBA capture utility JCL/proc or "5" to exit IMS RBA**

**Explanation:**

An invalid selection was entered.

**User response:**

Enter a valid selection as listed in the message text.

---

**BSYR226E**      **Option not available - An RBA Capture Repository file has not been added to the startup clist. If a repository file has been created, add it to the IMS Recovery Expert startup clist and try this option again.**

**Explanation:**

The selection entered requires that you create the RBA capture utility repository.

**User response:**

Refer to the installation chapter of the user guide for more information about the RBA capture utility.

---

**BSYR227E**      **Option not available - There is no RBA Capture Utility currently running on this MVS LPAR.**

**Explanation:**

The RBA capture utility must be running before entering this selection.

**User response:**

Refer to the installation chapter of the user guide for more information about the RBA capture utility.

---

**BSYR228E**      **A volume of "-NONE-" or "MIGRAT" can not be moved.**

**Explanation:**

A volume of "-NONE-" indicates IMS data sets that could not be located. The can be viewed via the "D" command, but cannot be viewed. A volume of "MIGRAT" indicates IMS data sets that have been migrated by DFSMSHSM and cannot be moved.

**User response:**

Clear the invalid line command.

---

**BSYR229E**      **Recovery Resources must be "A" for all resources, "S" for SLB, or "I" for image copies.**

**Explanation:**

An invalid value was entered in the **Recover Resources** field.

**System action:**

**User response:**

Enter A for all resources (System Level Backups and image copies), S for System Level Backups only, or I for image copies only.

---

**BSYR230I**      **Valid line commands for New MVS User Catalogs are: C-Create User Catalog, A-Add Alias to User Catalog, D-Display Data sets in User Catalog, U-Update User Catalog Name, V-View Aliases associated with the User Catalog.**

**Explanation:**

This message is displayed when ? is entered in the line command area to get help on valid line commands. The following line commands are valid in this line command area: Enter C to create a new MVS user catalog. Enter A to add an alias to the listed catalog. Enter D to view the aliases for the listed catalog. Enter

U to change the name of the entered user catalog.  
Enter V to view the aliases assigned to the catalog.

**User response:**

None. This message is informational.

---

**BSYR231I**      **Valid line commands for Existing MVS User Catalogs are: D-Display Data sets in User Catalog, V-View Aliases associated with the User Catalog.**

**Explanation:**

This message is displayed when ? is entered in the line command area to get help on valid line commands. The following line commands are valid in this line command area: Enter A to view the aliases assigned to the listed catalog. Enter D to view the data sets assigned to the listed catalog.

**User response:**

None. This message is informational.

---

**BSYR232I**      **Valid line commands for All BSDS or Active Log Data sets are: R-Rename all the Data sets, M-Move all the Data sets.**

**Explanation:**

This message is displayed when ? is entered in the line command area to get help on valid line commands. The following line commands are valid in this line command area: Enter R to rename all of the BSDS or Active Log data sets listed. Enter M to move all of the BSDS or Active Log data sets listed.

**User response:**

None. This message is informational.

---

**BSYR233I**      **Valid line commands for individual BSDS or Active Log Data sets are: R-Rename the Data set, M-Move the Data set**

**Explanation:**

This message is displayed when ? is entered in the line command area to get help on valid line commands. The following line commands are valid in this line command area: Enter R to rename this data set. Enter M to move it to a different MVS volume.

**User response:**

None. This message is informational.

---

**BSYR234I**      **Valid line commands for Aliases are: D-Display Data sets associated with Alias, M-Mergecat Data sets from one User Catalog to another, R-Rename the Alias.**

**Explanation:**

This message is displayed when ? is entered in the line command area to get help on valid line commands. The following line commands are valid in this line

command area: Enter D to display all the data sets using the alias. Enter M to perform a MERGECAT to move this alias from one MVS usercat into another. Enter R to rename all the IMS database data sets using this alias.

**User response:**

None. This message is informational.

---

**BSYR235I**      **Valid line commands for Volumes are: D-Display Data sets on the Volume, M-Move all data sets on the volume**

**Explanation:**

This message is displayed when ? is entered in the line command area to get help on valid line commands. The following line commands are valid in this line command area: Enter the D line command to display all the MVS data sets on this volume, or M to move data sets from this volume to another.

**User response:**

None. This message is informational.

---

**BSYR236E**      **If you select a recovery point of Last Copy, Last Incremental or Last Full Copy you cannot specify a Recovery Resource of SLB.**

**Explanation:**

If you select a recovery point of last copy, last incremental or last full copy, you cannot specify a System Level Backup as a recovery resource.

**User response:**

Either change the recovery point or change the recovery resource.

---

**BSYR237E**      **You are not authorized to use application Profile profile\_creator.profile\_name; - build process aborted.**

**Explanation:**

The Update option for the indicated profile is either View or No, and your user ID does not match the creator ID of the profile. Your user ID must match the creator ID of the profile with an update option of View or No. The job cannot be built

**User response:**

Examine the profile in question. If you are not authorized to use the profile, select a different profile to use.

---

**BSYR238E**      **The application profile profile\_creator.profile\_name has been deleted.**

**Explanation:**

The application profile included in the job has been deleted. The job cannot be built.

**User response:**

Recreate the application profile.

---

**BSYR239W**      **Build of application profile  
profile\_creator.profile\_name has  
resulted in no selected objects.**

**Explanation:**

The build of application profile  
*profile\_creator.profile\_name* produced no selected  
objects.

**User response:**

Check the profile to make sure an object is selected or  
the object mask(s) specified are correct.

---

**BSYR250E**      **Invalid Value - Please enter Y if  
you want to take a Local Primary  
Offload or N if you do not want to  
perform offload.**

**Explanation:**

An invalid value was entered.

**User response:**

Enter Y if you want to take a local primary (LP) offload  
or N if you do not want to perform offload.

---

**BSYR251E**      **Invalid Value - Please Enter a "Y"  
if you want to take a Local Backup  
Offload or "N" if you do not want  
to perform offload.**

**Explanation:**

An invalid value was entered.

**User response:**

Enter a valid value as listed in the message text.

---

**BSYR252E**      **Invalid Value - Please Enter a "Y"  
if you want to take a Recovery  
Primary Offload or "N" if you do  
not want to perform offload.**

**Explanation:**

An invalid value was entered.

**User response:**

Enter a valid value as described in the message text.

---

**BSYR253E**      **Invalid Value - Please Enter a "Y"  
if you want to take a Recovery  
Backup Offload or "N" if you do not  
want to perform offload.**

**Explanation:**

An invalid value was entered.

**User response:**

Enter a valid value as described in the message text.

---

**BSYR254E**      **Invalid Value - Please enter a "Y"  
if you want to encrypt the offload  
data, "U" to update the encryption  
options or "N" if you do not want  
to perform encryption.**

**Explanation:**

An invalid value was entered.

**User response:**

Enter a valid value as described in the message text.

---

**BSYR255E**      **Invalid Value - Please enter a "Y"  
if you want to use KEYPASSWORD  
for encryption, or else enter "N".**

**Explanation:**

An invalid value was entered.

**User response:**

Enter a valid value as described in the message text.

---

**BSYR256E**      **Invalid Value - The value for  
ICOUNT must be numeric and  
must be between 1 and 10000.**

**Explanation:**

An invalid value was entered.

**User response:**

Enter a valid value as described in the message text.

---

**BSYR257E**      **Invalid Value - The value for  
KEYPASSWORD type must be  
"C" for CLRAES128 or "D" for  
CLRTDES.**

**Explanation:**

An invalid value was entered.

**User response:**

Enter a valid value as described in the message text.

---

**BSYR258E**      **Invalid Value - Please enter a  
"Y" if you want to use RSA for  
encryption else enter "N".**

**Explanation:**

An invalid value was entered.

**User response:**

Enter a valid value as described in the message text.

---

**BSYR259E**      **Invalid Value - The value for RSA  
type must be "C" for CLRAES128,  
"D" for CLRTDES or "E" for  
ENCTDES.**

**Explanation:**

An invalid value was entered.

**User response:**

Enter a valid value as described in the message text.

---

**BSYR260E**      **Either KEYPASSWORD or RSA  
encryption should be selected, but  
not both.**

**Explanation:**

Y was specified in both the **Keypasswd** and the **RSA**  
field. This combination is not allowed.

**User response:**

Enter Y in either the **Keypasswd** or **RSA** field.

---

**BSYR261E**      **One encryption method, either  
KEYPASSWD or RSA, should be  
selected.**

**Explanation:**

N was specified in both the **Keypasswd** and the **RSA** field.

**User response:**

Enter Y in either the **Keypasswd** or **RSA** field, or type CAN in the Option line to exit.

---

**BSYR262E**      **A Local Backup offload can not be  
selected unless a Local Primary  
offload is selected.**

**Explanation:**

A local backup offload was specified, but a local primary offload must be selected first.

**User response:**

Enter Y in the **Local Primary** field, then enter Y in the **Local Backup** field.

---

**BSYR263E**      **A Recovery Backup offload can  
not be selected unless a Recovery  
Primary offload is selected.**

**Explanation:**

A recovery backup offload was specified, but a recovery primary offload must be selected first.

**User response:**

Enter Y in the **Recovery Primary** field, then enter Y in the **Recovery Backup** field.

---

**BSYR264E**      **An offload unit and an offload  
symbolic data set name must be  
entered when selecting this type  
of offload.**

**Explanation:**

An offload unit and an offload symbolic data set name must be entered when selecting this type of offload.

**User response:**

Enter valid values as described in the message text.

---

**BSYR265E**      **Invalid Value - Please Enter a "Y"  
if you want to update the data  
set create specification otherwise  
enter "N".**

**Explanation:**

An invalid value was entered in the **Update DSN Specification** field.

**User response:**

Enter a valid value as listed in the message text.

---

**BSYR266E**      **The unit type must be specified.**

**Explanation:**

In order to update the data set name specification, you must specify the unit type.

**User response:**

Enter a valid unit type in the **Unit Type** field.

---

**BSYR267E**      **Invalid Value - Please Enter a "Y"  
if you want the data set to be  
Cataloged otherwise enter "N".**

**Explanation:**

An invalid value was entered in the **Catalog** field.

**User response:**

Enter a valid value as listed in the message text.

---

**BSYR268E**      **The entered device type is not  
recognized by OS/390 as a valid  
device type.**

**Explanation:**

An invalid value was entered in the **Unit Type** field.

**User response:**

Enter a valid device type.

---

**BSYR269E**      **When using Disk type devices,  
expiration date and retention  
period are not valid.**

**Explanation:**

A disk device was specified for the unit type, but values were also entered in the **Expiration date** and/or **Retention period** fields. This is not a valid combination.

**User response:**

Remove the values from the **Expiration date** or **Retention period** fields, or change the unit type to a tape devices.

---

**BSYR270E**      **If a Tape device is selected, either  
retention period or expiration date  
can be specified.**

**Explanation:**

You selected a tape device without specifying retention period or expiration date.

**User response:**

Select either a retention period or expiration date.

---

**BSYR271E**      **The retention period and  
expiration date fields cannot be  
entered at the same time.**

**Explanation:**

You entered both a retention period or expiration date. Only one of those is permitted.

**User response:**

Select either a retention period or expiration date.

---

**BSYR272E**      **The entered value for Retention  
Period must be numeric.**

**Explanation:**

A non-numeric value was entered for Retention Period.

**User response:**

Enter a numeric retention period.

---

**BSYR273E**      **The entered value for Expiration Date must be numeric.**

**Explanation:**

A non-numeric value was entered for Expiration Date.

**User response:**

Enter a numeric expiration date period.

---

**BSYR274E**      **The day in the expiration date must be in the range of 1 to 366.**

**Explanation:**

An invalid value was entered in the **Expiration date** field. The day portion of the value is incorrect.

**User response:**

Enter a valid value as described in the message text.

---

**BSYR275E**      **The year in the expiration date must be in a range of 1999 and higher.**

**Explanation:**

An invalid value was entered in the **Expiration date** field. The year portion of the value is incorrect.

**User response:**

Enter a valid value as described in the message text.

---

**BSYR276E**      **Invalid Value - Please Enter a "Y" if you want to display the data set otherwise enter "N".**

**Explanation:**

An invalid value was entered in the **Show DSN** field.

**User response:**

To display the data set name as generated using the current qualifiers, enter Y in the **Show DSN** field and press Enter.

---

**BSYR277E**      **The specified qualifier code is not a supported value.**

**Explanation:**

An invalid value was entered in the **Qualifier code** field.

**User response:**

Enter one of the valid qualifier code numbers listed at the bottom of the panel.

---

**BSYR278E**      **The GDG limit must be numeric.**

**Explanation:**

The GDG limit must be numeric.

**User response:**

Enter a numeric value between 1 and 255 as the GDG limit.

---

**BSYR279E**      **The GDG limit value must be either blank or a number in the range of 1-255.**

**Explanation:**

An invalid value was entered in the **GDG Limit** field.

**User response:**

Enter a numeric value between 1 and 255 as the GDG limit.

---

**BSYR280W**      **The symbolic data set name generation field is full**

**Explanation:**

The symbolic input area is out of space. The maximum number of characters allowed is 159.

**User response:**

Reduce the number or type of symbolics in the generated data set name.

---

**BSYR281E**      **Truncation has occurred in building the data set qualifier.**

**Explanation:**

The data set name for the image copy is too long as constructed.

**User response:**

Shorten the data set name by using less or shorter qualifiers.

---

**BSYR282E**      **Invalid starting position entered. Enter a numeric value for the starting position in the symbolic to substring.**

**Explanation:**

An invalid value was entered in the **Enter Starting Position** field.

**User response:**

Enter a valid numeric as specified in the message text.

---

**BSYR283E**      **Invalid substring length entered. Enter a numeric value greater than 1 to substring the symbolic.**

**Explanation:**

An invalid value was entered in the **Enter Substring Length** field.

**User response:**

Enter a valid numeric as specified in the message text.

---

**BSYR284E**      **Invalid ending period detected.**

**Explanation:**

The data set name as resolved contains a period as the last character, which is invalid.

**User response:**

Correct the data set name.

---

**BSYR285E**      **Invalid data set node detected - first character not alphabetic or national.**

**Explanation:**

The first character of the entered substring resolved to an invalid character. Data set nodes must begin with alphabetic or national characters.

**User response:**

Change the starting character to a valid character.

---

**BSYR286E**      **Data set truncation may occur.**

**Explanation:**

When resolved, the data set name may be too long. The maximum number of characters allowed for data set names is 44.

**User response:**

Shorten the data set name so it resolves to less than 44 characters.

---

**BSYR287E**      **Invalid data set node detected length greater than 8 characters.**

**Explanation:**

The substring entered caused a data set node to be greater than eight characters.

**User response:**

Shorten the substring to less than eight characters.

---

**BSYR288E**      **Invalid data set node detected - 2 consecutive periods.**

**Explanation:**

The qualifier string contains two consecutive periods as resolved. Data set names cannot contain two consecutive periods.

**User response:**

Change the qualifier string so that two periods are not displayed consecutively.

---

**BSYR289E**      **Invalid characters detected in data set node.**

**Explanation:**

The first character must be alphabetic or national and the remaining seven characters must be alphabetic, numeric, national, or a hyphen.

**User response:**

Correct the data set name.

---

**BSYR290E**      **Invalid starting position entered. Enter a numeric value for the starting position in the symbolic to substring.**

**Explanation:**

An invalid starting position was entered.

**User response:**

Enter a numeric value for the starting position in the symbolic to substring.

---

**BSYR291E**      **Invalid substring length entered. Enter a numeric value greater than 1 to substring the symbolic**

**Explanation:**

An invalid value was entered for the substring length.

**User response:**

Enter a numeric value greater than 1 to substring the symbolic.

---

**BSYR292E**      **Invalid substring starting position entered. Enter a starting position that is within the range of generated symbolic.**

**Explanation:**

An invalid value was entered for the substring starting position.

**User response:**

Enter a starting position that is within the range of the generated symbolic.

---

**BSYR293E**      **Invalid substring length. Length exceeds end of data. Enter a length where the starting position plus length are less than or equal to the maximum length of data.**

**Explanation:**

An invalid value was entered in the **Enter Substring Length** field.

**User response:**

Enter a length where the starting position plus length are less than or equal to the maximum length of data.

---

**BSYR294E**      **Recovery point must be a value from 1 through 6**

**Explanation:**

An invalid value was entered in the **Recovery Point** field.

**User response:**

Enter a valid recovery point as listed in the message text.

---

**BSYR295E**      **Site must be "Z", "L", or "R"**

**Explanation:**

An invalid value was entered for the **Site** field.

**User response:**

Enter L for local site, R for recovery site, or Z to use the site specified in the ZPARM member for this IMS subsystem.

---

**BSYR296E**      **Reuse must be "Y" or "N"**

**Explanation:**

An invalid value was entered for the **Reuse** field.



**User response:**

Enter Y to specify that the IBM RECOVER utility is to logically reset and reuse IMS-managed data sets without deleting and redefining them. If you enter N, IMS-managed data sets are deleted and redefined.

---

**BSYR297E      Edit Rebuild Indexes Options must be "Y" or "N"**

**Explanation:**

An invalid value was entered in the **Edit Rebuild IX Options** field.

**User response:**

Enter Y in this field to set options for REBUILD INDEX.

---

**BSYR298E      Value must be between 01 and 99**

**Explanation:**

An invalid value was entered.

**User response:**

Enter a numeric between 01 and 99.

---

**BSYR299E      Reuse must be "Y" or "N"**

**Explanation:**

An invalid value was entered in the **Reuse existing data sets** field.

**User response:**

Enter Y in this field to specify that IMS-managed data sets will be logically reset and reused without deleting and redefining them. Enter N to specify that IMS-managed data sets will be deleted and redefined to reset them.

---

**BSYR310W      Line commands were cleared for a cursor sensitive screen command.**

**Explanation:**

Line commands were cleared for a cursor sensitive screen command.

**User response:**

None required.

---

**BSYR311E      An invalid line command was entered.**

**Explanation:**

An invalid line command was entered.

**User response:**

Enter a valid line command.

---

**BSYR312E      You are not authorized to enter any line commands for this profile. The creator of the profile is restricting all activity.**

**Explanation:**

The creator of the selected profile specified that no other user is to view or update the selected profile.

**User response:**

Choose a different profile to work with.

---

**BSYR313E      You are not authorized to update or delete this profile. Enter a "V" if you would like to view this profile.**

**Explanation:**

A profile was selected that has restricted access. The creator of the selected profile specified that no other user is to update or delete the selected profile.

**User response:**

Enter V if you would like the view the profile.

---

**BSYR314E      If RSA encryption is not selected the RSA label should not be specified.**

**Explanation:**

Keypassword was selected for the encryption type, but a value was entered in the **Label** field for RSA.

**User response:**

Enter Y in the **RSA** field to specify RSA, or remove the value from the **Label** field.

---

**BSYR315E      The Profile Creator is a required field. Please enter a valid creator.**

**Explanation:**

When creating a new profile, the **Profile Creator** field was left blank.

**User response:**

Enter a profile creator in the **Profile Creator** field.

---

**BSYR316E      The Profile Name is a required field. Please enter a unique name.**

**Explanation:**

When creating a new profile, the **Profile Name** field was left blank.

**User response:**

Enter a unique profile name in the **Profile Name** field.

---

**BSYR317E      Invalid Value - Enter a "U" to allow other users to update your profile, a "V" to allow other users to just view your profile or "N" to disallow other users from viewing or updating your profile.**

**Explanation:**

When creating a new profile, an invalid value was entered the **Update Option** field.

**User response:**

Correct the value as described in the message text.

---

**BSYR318E      Invalid Value - Enter a value of "Y" to enter a new Target Pool selection, enter a "U" to update the Target Pool selection, a value of "N" indicates that a Target Pool selection does not exist.**

**Explanation:**

An invalid value was entered for the **Target Pool** field. If a target pool already exists, this value will be set to Y.

**User response:**

Correct the value as described in the message text.

---

**BSYR319I**      **Profile**  
**"profile\_creator.profile\_name"**  
**saved.**

**Explanation:**

The profile named in the message was successfully saved.

**User response:**

None. This message is informational.

---

**BSYR320E**      **Invalid Value - The only valid**  
**values are "Y" or "N".**

**Explanation:**

An invalid value was entered in the **Process RI** field.

**User response:**

Enter a valid value as described in the message text.

---

**BSYR321E**      **Invalid Value - The only valid**  
**values are "Y" or "N".**

**Explanation:**

An invalid value was entered in the **Process Indexes** field.

**User response:**

Enter a valid value as described in the message text.

---

**BSYR322E**      **Invalid Value - Please enter a "Y"**  
**if you would like to delete profile**  
**"profile\_creator.profile\_name" or**  
**an "N" if you do not want to delete**  
**it.**

**Explanation:**

An invalid value was entered in the **Delete** field.

**User response:**

Enter a valid value as described in the message text.

---

**BSYR323I**      **Profile**  
**"profile\_creator.profile\_name" has**  
**been successfully deleted.**

**Explanation:**

The profile named in the message text was successfully deleted.

**User response:**

None. This message is informational.

---

**BSYR324E**      **Required Field - Please enter a**  
**Profile Creator.**

**Explanation:**

When renaming a profile, the new profile creator was not specified.

**User response:**

Enter the new profile creator in the **Creator** field.

---

**BSYR325E**      **Required Field - Please enter a**  
**Profile Name.**

**Explanation:**

When renaming a profile, the new profile name was not specified.

**User response:**

Enter the new profile name in the **Profile Name** field.

---

**BSYR326E**      **Duplicate Profile - Please change**  
**the Profile Creator or Profile Name**  
**to make it unique.**

**Explanation:**

The combination of profile name and profile creator entered is identical to another profile.

**User response:**

Enter a different profile creator or name to make the profile unique.

---

**BSYR327I**      **Profile was successfully renamed.**

**Explanation:**

The profile was successfully renamed.

**User response:**

None. This message is informational.

---

**BSYR328E**      **Only (A)ll or (P)art are valid**  
**explode options.**

**Explanation:**

An invalid value was entered in the **Explode** field.

**User response:**

Only (A)ll or (P)art are valid explode options.

---

**BSYR329E**      **Invalid value - Enter "Y" to add**  
**databases or "N" to not add**  
**databases.**

**Explanation:**

An invalid value was added in the **Add Databases** field.

**User response:**

Enter a valid value as described in the message text.

---

**BSYR330E**      **Invalid value - Enter "Y" to add**  
**indexes or "N" to not add indexes.**

**Explanation:**

An invalid value was added in the **Add Indexes** field.

**User response:**

Enter a valid value as described in the message text.

---

**BSYR331E**      **Invalid line command entered.**

**Explanation:**

An invalid line command was entered.

**User response:**

Enter A to add objects to the profile, D to delete objects from the profile, or E to explode a list of all objects in a detail line.

---

**BSYR332E Invalid Value - The only valid values are "Y", "N" or "B".**

**Explanation:**

An invalid value was entered.

**User response:**

Enter a valid value listed in the message text.

---

**BSYR333E Application profile contains no objects to view.**

**Explanation:**

This application profile is empty; there is nothing to view.

**User response:**

Press PF3 to exit the profile.

---

**BSYR334E Requested object not found.**

**Explanation:**

The selected object was not found in this IMS subsystem.

**User response:**

Check to see if it has since been dropped.

---

**BSYR335E An excluded object cannot be exploded.**

**Explanation:**

This object has been explicitly excluded from the profile. The Explode operation cannot be performed upon it.

**User response:**

To continue, clear the line command from the excluded object.

---

**BSYR336W There are no databases that meet the wildcard selection criteria. Press Enter to accept the wildcard anyway or change the selection criteria.**

**Explanation:**

There are currently no databases or indexes in this IMS system that meet the specified wildcard that you have entered. This might be acceptable if you know there will be objects that match it in the future.

**User response:**

Press Enter to accept the wildcard as is, or change your selection criteria.

---

**BSYR337E Requested object not found.**

**Explanation:**

The requested object was not found.

**User response:**

Change the selection criteria and retry the process.

---

**BSYR338I Object queue has been modified.**

**Explanation:**

The selected objects have been added to the queue of objects to be restored.

**User response:**

None. This message is informational.

---

**BSYR339E Invalid line command entered.**

**Explanation:**

Invalid line command has been entered.

**User response:**

Check the list of valid line commands.

---

**BSYR340W Object already exists.**

**Explanation:**

The selected object already has been included in this application profile.

**User response:**

Select a different object.

---

**BSYR341E Cannot specify both Process RI and Process Clones, change one of the values to "N".**

**Explanation:**

A Y was entered in both the **Process RI** and **Process Clones** field; this is an invalid combination. RI is not allowed on clone objects.

**User response:**

Change one or both values to N.

---

**BSYR342E No objects meet wildcard criteria.**

**Explanation:**

You entered the Explode line command next to an object detail line that contains wildcard selection criteria. However, no databases exist on the IMS system that meet the wildcard criteria. The object or objects may have been dropped.

**User response:**

Press Enter to continue.

---

**BSYR343E Object already excluded.**

**Explanation:**

The specified object has already been excluded in a previous exclude selection.

**User response:**

To continue, clear the line command from the excluded object.

---

**BSYR345E Invalid line command entered.**

**Explanation:**

An invalid line command has been detected.

**User response:**

Enter one of the listed values.

---

**BSYR346E**      **An encryption type of key must be specified when selecting offloads to be encrypted.**

**Explanation:**

'Encrypt Data' = Y was specified for the Offload options and an attempt to save the backup profile was made prior to specifying encryption values.

**User response:**

Either change 'Encrypt Data' to N or specify the encryption options by pressing Enter on the **Offload options** panel.

---

**BSYR360E**      **An APF authorization failure occurred.**

**Explanation:**

IMS Recovery Expert requires that all the load libraries in the start up CLIST for ISPLLIB LIBDEF be APF authorized. Certain product functions will not work without this requirement. If a data set name is listed in this message help, it is the first one in the ISPLLIB LIBDEF concatenation detected as not being APF authorized.

**User response:**

Refer to the installation instructions for more information. If additional assistance is needed, contact IBM Software Support.

---

**BSYR369E**      **Invalid value. Delete Aged Backup should be Yes or No.**

**Explanation:**

An invalid value was entered in the **Delete Aged Backup** field.

**User response:**

Enter Y to have the product automatically delete any offload files when it is removed from the IMS Recovery Expert repository. For example, if you specify two offload generations and the third backup is offloaded, the first (or oldest) offloaded backup would be removed from the IMS Recovery Expert repository. If this option is Y, then IMS Recovery Expert will also delete the offload files from the MVS catalog.

---

**BSYR370E**      **Invalid value - Enter "D" to select DFSMSDSS as the offload vendor, enter a "F" to select FDR as the offload vendor or "I" to use FDRInstant.**

**Explanation:**

An invalid value was entered in the **Data Mover** field.

**User response:**

Enter D to use DFSMSdss to perform the offload of volumes. Enter F to use FDR to perform the offload of volumes. Enter I to use FDRInstant to perform the offload of volumes. You must have a license for FDR to use it as the data mover.

---

**BSYR371E**      **Invalid value - Enter a "Y" to stack tapes otherwise enter "N"**

**Explanation:**

An invalid value was entered in the **Stack Backups on Tape** field.

**User response:**

Enter Y to direct IMS Recovery Expert to stack multiple volume backups (or offloads) onto one tape. Most tape cartridges will hold multiple volume backups. You can specify how many volume backups to stack on each tape under the options for each backup type (local primary, local backup, remote primary, and remote backup).

---

**BSYR372E**      **The RBA/LRSN entered must be greater than or equal to the RBA/LRSN of the Backup selected.**

**Explanation:**

The value in the **Roll Forward to RBA/LRSN** field is at a point prior to the RBA/LRSN of the selected backup. This is not allowed.

**User response:**

Specify a roll forward RBA/LRSN equal to or greater than the listed RBA/LRSN.

---

**BSYR373E**      **Invalid value - The tape stack limit must be numeric.**

**Explanation:**

An invalid value was entered in the **Tape Stack Limit** field. The tape stack limit controls how many volume offloads will be stacked onto one tape before the next tape mount is requested.

**User response:**

Calculate approximately how many volume backups will fit onto one tape. There are performance concerns also. When performing data set restore from offloaded backups that have been stacked to tape, there will be a time delay while the tape is forwarded to the correct location to perform the restore.

---

**BSYR374E**      **Invalid value - the Perform Offload field must be "Y" or "N".**

**Explanation:**

An invalid value was entered in the **Perform Offload** field.

**User response:**

Enter Y if you want to make this type of backup. You may want to make multiple backups for use at a disaster recovery site. If each backup is going to disk, make sure you have enough tape units to satisfy the request. If you take all four backup types, and have specified Max Tasks of 1, then you will need FOUR tape units.

---

**BSYR375E**      **No mapping information found for this IMS subsystem.**

**Explanation:**

No volume information was found for this IMS environment.

**User response:**

Enter the **VOLUME** command or make sure the IMS environment has been properly configured for the IMS system backup utility within SMS and HSM.

---

**BSYR376E**      **Invalid Value - Enter an "O" to generate the job online or "B" to build the job in Batch.**

**Explanation:**

An invalid value was entered.

**User response:**

Enter O to build the JCL online. Enter B to generate JCL that will build the recovery job in batch.

---

**BSYR377E**      **The member name selected for the generated job cannot be the same as the member name used for the generation job (which was specified in the data set shown at the text at the beginning of this window)**

**Explanation:**

The same member name was used for the output of the job to build the JCL as for the built JCL.

**User response:**

You must enter different member names for location of the JCL to perform the batch job generation and the location where the batch job will place its generated JCL.

---

**BSYR378E**      **Invalid value - Update Recovery Options should be "Y" or "N".**

**Explanation:**

An invalid value was entered in the **Update Recovery Options** field.

**User response:**

Enter Y to update recovery options.

---

**BSYR379E**      **Invalid value - Compress Data should be Yes or No.**

**Explanation:**

An invalid value was entered in the **Compress Data** field.

**User response:**

Enter Y to have DFSMSdss or FDR compress the volume backup while it is being copied to tape. If you have hardware tape compression, you should set this value to N.

---

**BSYR380E**      **Gather index statistics must be "Y" or "N".**

**Explanation:**

An invalid value was entered in the **Gather Index Statistics** field.

**User response:**

Enter Y to have the index rebuild utility collect inline object statistics (RUNSTATS values).

---

**BSYR381E**      **Report messages must be "Y" or "N".**

**Explanation:**

An invalid value was entered in the **Report Messages** field.

**User response:**

Enter Y to have the index rebuild utility generate a report on the collected statistics values.

---

**BSYR382E**      **Update catalog tables must be "A", "P", "S" or "N".**

**Explanation:**

An invalid value was entered in the **Update catalog tables** field.

**User response:**

Enter these values to have the REBUILD INDEX utility record the following values in the Statistics tables: A - All values; P - Access path values; S - Space-related values; N - Update none of the values (Only valid when Report = Y)

---

**BSYR383E**      **Update history tables must be "A", "P", "S" or "N".**

**Explanation:**

An invalid value was entered in the **Update history tables** field.

**User response:**

Enter these values to have the REBUILD INDEX utility record the following values in the Statistics history tables: A - All values; P - Access path values; S - Space-related values; N - Update none of the values (Only valid when Report = Y)

---

**BSYR384E**      **Collect all distinct values must be "Y" or "N".**

**Explanation:**

An invalid value was entered in the **Collect all distinct values** field.

**User response:**

Enter Y to have the REBUILD INDEX utility collect distinct counts for each index key.

---

**BSYR385E**      **Invalid value - Edit Recovery Options should be "Y" or "N".**

**Explanation:**

An invalid value was entered in the **Edit Recovery Options** field.

**User response**

Enter Y to update the recovery options for this application profile.

**Note:** All recovery options changed here will automatically be saved into the application profile.

---

**BSYR386E**      **At least one DUMP Class needs to be specified.**

**Explanation:**

No dump classes were specified for an HSM offload.

**User response:**

You must specify at least one HSM dump class in order to perform an offload. The HSM dump class is a construct that can be created in the HSM setup panel.

---

**BSYR387E**      **This volume is offline. You cannot move data sets from it while it is offline.**

**Explanation:**

The specified volume is offline. Data sets cannot be moved from offline volumes.

**User response:**

Bring the volume online before attempting to move the listed data sets to different volumes.

---

**BSYR389E**      **Invalid Value - The only valid value for a Disaster Recovery Profile is "B" to build the job in Batch.**

**Explanation:**

An invalid value was entered in the **Build Online or Batch** field.

**User response:**

Enter B to build the job in batch.

---

**BSYR390E**      **The entered value must be numeric.**

**Explanation:**

A non-numeric value was entered in a numeric field.

**User response:**

Enter a numeric value.

---

**BSYR391E**      **This field cannot be left blank.**

**Explanation:**

A value must be specified for this field.

**User response:**

Enter a valid value.

---

**BSYR392E**      **The maximum value for the drain wait is 1800 seconds.**

**Explanation:**

An invalid value was entered in the **Drain Wait** field.

**User response:**

Enter a valid value that is less than or equal to the maximum of 1800 seconds.

---

**BSYR393E**      **The maximum value for the number of retries is 255.**

**Explanation:**

An invalid value was entered in the **Retry** field.

**User response:**

Enter a valid value that is less than or equal to the maximum of 255.

---

**BSYR394E**      **The maximum value for the retry delay is 1800 seconds.**

**Explanation:**

An invalid value was entered in the **Retry Delay** field.

**User response:**

Enter a valid value that is the range of 1 to 1800 seconds.

---

**BSYR395E**      **The valid values for MaxRO are "DEFER" or a number.**

**Explanation:**

An invalid value was entered for the **Maxro** field.

**User response:**

Enter a valid value as specified in the message text.

---

**BSYR396E**      **Sharelevel has valid values of "R"eferece, and "C"hange.**

**Explanation:**

An invalid value was entered in the **Sharelevel** field.

**User response:**

Enter a valid value as specified in the message text.

---

**BSYR397E**      **The valid values for Long Log are "C"ontinue, "T"erm, and "D"rain.**

**Explanation:**

An invalid value was entered for the **Longlog** field.

**User response:**

Enter a valid value as specified in the message text.

---

**BSYR398E**      **Online Rebuild Index must be "Y" or "N".**

**Explanation:**

An invalid value was entered in the **Online Rebuild Index** field.

**User response:**

Enter Y to specify an online REBUILD INDEX.

---

**BSYR399E**      **Edit Online Rebuild Index Options must be "Y" or "N".**

**Explanation:**

An invalid value was entered in the **Edit Online Rebuild Index Options** field.

**User response:**

Enter Y to edit options for an online REBUILD INDEX utility.

---

**BSYR400E** Invalid Value - Enter a "C" if you would like System Level Backup to copy your archive logs, "1" if you will be using Local Archive Log 1, or "2" if you will be using Local Archive Log 2 logs at the DR.

**Explanation:**

An invalid value was entered in the **Archive Logs used at DR** field.

**User response:**

Enter a valid value as listed in the message text.

---

**BSYR401E** Invalid Value - Enter a "1" if you want to copy only Archive Log 1, "2" if you want to copy only Archive Log 2, "B" if you want to copy both Archive Log 1 and 2, or "C" to create both Archive Log 1 and 2 from Local Archive Log 1.

**Explanation:**

An invalid value was entered in the **Copy Localsite Logs** field.

**User response:**

Enter a valid value as listed in the message text.

---

**BSYR402E** Invalid Value - Enter a valid nbr of days of Archive Logs you will need at the DR site. Valid values are 0 thru 999.

**Explanation:**

An invalid value was entered in the **Archive Logs needed at DR (days)** field.

**User response:**

Enter a valid value as listed in the message text.

---

**BSYR403E** Invalid Value - Enter a valid nbr of hours back of Archive Logs you will need at the DR site. This field can be added to the nbr of days needed. Valid Values are 0 thru 999.

**Explanation:**

An invalid value was entered in the **Archive Logs needed at DR (hours)** field.

**User response:**

Enter a valid value as listed in the message text.

---

**BSYR404E** Please Enter Required Field - A new Archive Log 1 prefix is required for copying Local Logs for the DR site.

**Explanation:**

No archive log prefix was entered in the **DR Archive Log Prefix 1** field. This field is required.

**User response:**

Enter the archive log prefix that the new archive logs will have at the recovery site.

---

**BSYR405E** Please Enter Required Field - A new Archive Log 2 prefix is required for copying Local Logs for the DR site.

**Explanation:**

No archive log prefix was entered in the **DR Archive Log Prefix 2** field. This field is required.

**User response:**

Enter the archive log prefix that the new archive logs will have at the recovery site.

---

**BSYR406E** Please Enter Required Field - A valid unit is required for copying Local Logs for the DR site.

**Explanation:**

No unit device was entered in the **Unit for copying Archive Logs** field. This field is required.

**User response:**

Enter a valid unit device to be used to copy the archive logs.

---

**BSYR407E** Invalid Unit - Unit entered must be a tape or disk device that will be used for copying local logs for the DR site.

**Explanation:**

An invalid unit device was entered in the **Unit for copying Archive Logs** field.

**User response:**

Enter a valid unit device to be used to copy the archive logs.

---

**BSYR408E** Invalid Value - Please enter the nbr of days back that you would like your image copies cataloged at the DR site.

**Explanation:**

An invalid value was entered in the **Catalog x days of Image Copies at DR** field.

**User response:**

Enter a valid numeric that specifies how many days of image copies back from current are to be cataloged at the recovery site.

---

**BSYR409E** Invalid Value - Please enter an "L" if you will be using Local site backups at the DR or "R" if you will be using Recovery site backups at the DR.

**Explanation:**

An invalid value was entered in the **Image Copies (or SLB) used at DR** field.

**User response:**

Enter a valid value as described in the message text.

---

**BSYR410E**      **In order to process Disaster Recovery via the archive log method, we need to know the archive logs that will be needed at the DR site. You must enter either nbr of days or nbr of hours or both days and hours of logs you need available for disaster recovery.**

**Explanation:**

An invalid value was entered in the **Archive Logs needed at DR** field.

**User response:**

Enter a valid value as described in the message text.

---

**BSYR411E**      **This IMS subsystem is a member of a Datasharing group. A symbolic of &SSID is required in the Archive Log Prefix in order for the new logs symbolic to be unique across subsystems.**

**Explanation:**

If the subsystem is a member of a data sharing group, you must have &SSID somewhere in the archive log prefix.

**User response:**

Enter &SSID in the archive log prefix.

---

**BSYR412E**      **Invalid Value - Please Enter a "Y" if you would like to force a check point before issuing the archive log command - It is recommended that you check point if the current active logs contain the information from the last image copy of the IMS catalog and directory. Enter an "N" to bypass this step.**

**Explanation:**

An invalid value was entered in the **Force a checkpoint before Archiving** field.

**User response:**

Enter a valid value as described in the message text.

---

**BSYR413W**      **Setting the force check point without issuing the archive log command has no meaning. This option will be ignored at run time.**

**Explanation:**

A Y was entered in the **Force a checkpoint before Archiving** field, but the **Force the Active Log to Archive** field was set to N. This combination is not

allowed; the checkpoint cannot be generated without an archive log process.

**User response:**

If you want to force a checkpoint, make sure the **Force the Active log to Archive** field is set to Y.

---

**BSYR414E**      **Invalid Value - Please Enter a "Y" if you would like to archive the current active logs on each subsystem, or an "N" to bypass archiving of the active logs.**

**Explanation:**

An invalid value was entered in the **Force the Active log to Archive** field.

**User response:**

Enter a valid value as described in the message text.

---

**BSYR415E**      **The entered value must be numeric.**

**Explanation:**

An invalid value was entered in a numeric field.

**User response:**

Enter a valid numeric value.

---

**BSYR416E**      **Invalid Value - Please Enter a "Y" if you would like this DR profile to only process the capturing of new archive logs. Enter an "N" if you would like all phases of the DR process built.**

**Explanation:**

An invalid value was entered in the **Only run Archive Log Update Process** field.

**User response:**

Enter a valid value as described in the message text.

---

**BSYR417E**      **Invalid Value - Please enter an "S" if you would like to process only this IMS subsystem, an "A" to process all subsystems in the datasharing group or "L" to process only subsystems in the datasharing group that are currently running on this MVS LPAR.**

**Explanation:**

An invalid value was entered in the **Process Datasharing Subsystems** field.

**User response:**

Enter a valid value as described in the message text.

---

**BSYR418E**      **Invalid Value - Please Enter an "S" if you are using copies made from a System Level Backup utility or "I" if you will be using native IMS**



**image copies to recover your data at the DR site.**

**Explanation:**

An invalid value was entered in the **Recovery Method** field.

**User response:**

Enter an "S" if you have backups made with IMS Recovery Expert that have offloaded dumps or "I" if the environment will be recovered with native IMS image copies.

---

**BSYR419I**      **Profile profile\_creator.profile\_name has been successfully updated.**

**Explanation:**

The profile listed in the message has been successfully updated in the repository with the changes you made.

**User response:**

None. This message is informational.

---

**BSYR420E**      **Updating Profile profile\_creator.profile\_name has encountered an unrecoverable error. Check the system log for additional information and correct the problem.**

**Explanation:**

An unexpected error was encountered updating your profile in the VSAM repository data set.

**User response:**

Check the system log for additional MVS messages related to this error. Correct the error and try the update again.

---

**BSYR421E**      **A DASD device is only allowed if Copy Archive Logs to DASD option is set to 0 days/hours.**

**Explanation:**

A DASD device is entered in the **Unit for Copying Archive Logs** field, and a value greater than 0 has been specified for the number of days in the **Copy Archive Logs to DASD** field. This combination is not valid; the **Copy Archive Logs** field specifies the number of days to be copied *from tape* at the recovery site.

**User response:**

Either change the **Copy Archive Logs to DASD** field to 0, or enter a tape device in the **Unit for Copying Archive Logs** field.

---

**BSYR422W**      **There are no registered systems defined to the product.**

**Explanation:**

A list of subsystems that were defined in setup was requested, however there are no registered systems defined to the product.

**User response:**

Subsystems must be defined in setup to use System Backup and Restore Services. Refer to the user documentation for information on subsystem setup.

---

**BSYR423E**      **Invalid value - Edit Recovery Options should be "Y" or "N"**

**Explanation:**

An invalid value was entered in the **Edit Recovery Options** field.

**User response:**

Enter Y in this field to update the recovery options to be used for the Recover Pending and Rebuild Pending job.

---

**BSYR424I**      **Backup Scope has changed, the volume mappings may also need to be changed to reflect the Backup Scope change.**

**Explanation:**

The backup scope has been changed; therefore, the volume mappings may also need to be changed.

**User response:**

You can change the volume mappings in several ways. If the scope changed from Full to Data only, the log volumes may need to be removed. One method of removing volumes is to clear out all the mappings using the **CLEAR** primary command, and then enter the **VOLUME** primary command to bring in only data volumes. If the scope changed from Data Only to Full, you may need to add the log volumes. One method is to enter the **VOLUME** primary command, which will add the log volumes.

---

**BSYR430E**      **Invalid Value - Enter an "O" to generate the report online or "B" to generate the report in Batch.**

**Explanation:**

An invalid value was entered in the **Build Online or Batch** field.

**User response:**

Enter a valid value as described in the message text.

---

**BSYR431E**      **Invalid value - Enter a "Y" to validate the Image Copy Dataset, otherwise enter "N".**

**Explanation:**

An invalid value was entered in the **Validate IC Datasets** field.

**User response:**

Enter a valid value as described in the message text.

---

**BSYR432E**      **The Image Copy Dataset can only be validated when building the report in batch.**

**Explanation:**

A Y was entered in the **Validate IC Datasets** field, but the **Build Online or Batch** field contains O for online build. Image copy data sets can only be validated when building the health check report in batch.

**User response:**

If you want to validate image copy data sets, enter B in the **Build Online or Batch** field and Y in the **Validate IC Datasets** field.

---

**BSYR433E**      **This backup does not support object restore. You must set the option to support object restore in the backup profile before creating the backup.**

**Explanation:**

The selected backup does not support the restoring of individual objects from the backup.

**User response:**

Objects cannot be recovered from this backup. You must specify Y for **Enable DB Restore** in the backup profile before creating the backup to enable this support.

---

**BSYR434E**      **At least one backup type must be selected with a Y.**

**Explanation:**

No backup type is selected. At least one backup type is required.

**User response:**

At least one backup type must be selected with a Y. Select the Local Primary, Local Backup, Remote Primary or Remote Backup with a Y.

---

**BSYR435E**      **The start unit is a duplicate of the end unit.**

**Explanation:**

The start unit is a duplicate of the end unit.

**User response:**

Change either the start unit or the end unit.

---

**BSYR436E**      **A target pool must be specified.**

**Explanation:**

A target pool must be specified to use automapping.

**User response:**

Enter a Y in the **Update Target Pool** field; then enter either ranges of target units or stogroups.

---

**BSYR437E**      **Your region size must be greater than 1000K.**

**Explanation:**

Your region size must be greater than 1000K.

**User response:**

Increase your region size and try again.

---

**BSYR438E**      **The SSID of the object profile selected does not match the SSID of the backup profile selected.**

**Explanation:**

You selected an object profile that has a different SSID than the System Level Backup you selected. The object profile must have the same SSID as the backup selected.

**User response:**

Select a different object profile that has the same SSID as the System Level Backup.

---

**BSYR439E**      **Invalid value - Edit Image Copy Options should be "Y" or "N".**

**Explanation:**

An invalid value was entered in the **Edit Image Copy Options** field.

**User response:**

Enter Y in this field to update the image copy options to be used when creating image copies from the selected System Level Backup.

---

**BSYR440E**      **Invalid value - The maximum tapes value must be numeric.**

**Explanation:**

The maximum tapes value must be numeric.

**User response:**

Enter a numeric value.

---

**BSYR441E**      **Invalid value - The maximum tapes value must be between 1 and 256.**

**Explanation:**

The maximum tapes value must be between 1 and 256.

**User response:**

Enter a valid value as listed in the message text.

---

**BSYR442E**      **Invalid Entry - The Date entered is invalid.**

**Explanation:**

An invalid date was entered.

**User response:**

Enter a valid date in the form of CCYYMMDD.

---

**BSYR443E**      **Invalid entry - Enter Cancel or End to return to System Restore.**

**Explanation:**

The specified primary command is not valid.

**User response:**

Correct and retry the operation.

---

**BSYR444E**      **Invalid value - The tape stack limit must be between 1 and 999.**

**Explanation:**

The tape stack limit must be between 1 and 999.

**User response:**

Enter a valid value as listed in the message text.

---

**BSYR445E**      **Invalid Value - Enter a "G" if the time you are entering is machine time (GMT) or enter an "L" if you are entering a Local Time.**

**Explanation:**

An invalid value was entered in the **Timestamp is in GMT or Local Time** field.

**User response:**

Enter a valid value as listed in the message text.

---

**BSYR446E**      **Invalid Value - The number of offload generations must be numeric and must be between 1 and 99.**

**Explanation:**

An invalid value was entered for the number of offload generations.

**User response:**

Enter a valid value.

---

**BSYR447E**      **Invalid Value - The number of tasks must be numeric and must be between 1 and 99.**

**Explanation:**

An invalid value was entered for the number of tasks. The number of tasks controls how many tasks IMS Recovery Expert will run simultaneously to offload the backup to tape. It will control how quickly the offload operation completes.

**User response**

Enter a valid value for the number of tasks.

**Note:** You must have enough tape units to satisfy the mount requests that will result. For example, if you specify 4 tasks, and are making both Local Primary and Remote Primary copies, you must have EIGHT tape units available. If you specify 2 tasks and are making Local Primary and Remote Primary copies, you must have FOUR tape units available.

---

**BSYR449E**      **"From Offload" is only valid when recovering an object from a System Level Backup.**

**Explanation:**

An I was entered in the **Recovery Resources** field to select image copies as a recovery resource, and Y was entered in the **From Offload** field.

**User response:**

Change the **Recovery Resources** field to A(IL) or S(LB), or change the **From Offload** field to N.

---

**BSYR450E**      **Image copies can not be created from an offloaded backup created using FDR.**

**Explanation:**

Image copies cannot be created from an offloaded backup when the backup was created using FDR.

**User response:**

Select a different backup from which to make image copies.

---

**BSYR451E**      **The Backup Type should be LP for Local Primary, LB for Local Backup, RP for Remote Primary or RB for Remote Backup.**

**Explanation:**

An invalid backup type was entered in the **Backup Type** field.

**User response:**

Enter a valid value as described in the message text.

---

**BSYR452E**      **Invalid Value - Please Enter a "Y" if you want the image copies to be registered in SYSCOPY otherwise enter "N".**

**Explanation:**

An invalid value was entered in the **Register in SYSCOPY** field.

**User response:**

If you want the image copies created by IMS Recovery Expert to be registered in SYSCOPY, enter Y.

---

**BSYR453E**      **A work volume must be specified.**

**Explanation:**

No value was entered in the **Work Volume** field.

**User response:**

A work volume must be specified. Enter the volume serial number of a volume that can be used as a work volume.

---

**BSYR454E**      **Image copies cannot be created from a System Level Backup that did not have Object Collection set to Yes.**

**Explanation:**

An "I" was entered next to a System Level Backup that did not have object restore enabled when the backup was taken. No image copies can be created from this System Level Backup.

**User response:**  
Select a different backup with object restore enabled.

---

**BSYR455E**      **JCL generation failed.**

**Explanation:**  
Object restore job generation failed.

**User response:**  
There are several possible reasons that the object restore job might fail. There may be no objects found in object profile. Verify that the job profile contains objects. The object profile is not found in the repository. Verify that the object profile is listed on the Object Profile Display. If it is listed, contact IBM Software Support. The user is not authorized to use the object profile. You must ensure that the share option for the object profile allows access. An error occurred connecting to IMS. In this case you must ensure that the IMS subsystem is up, the plan is bound, and that you have authority to run the plan.

---

**BSYR456E**      **The work volume is invalid or not online.**

**Explanation:**  
The work volume that was entered is either invalid or not online.

**User response:**  
Ensure that the correct work volume is entered and that the volume is online.

---

**BSYR457E**      **If the work volume(s) are SMS-managed an SMS storage class must also be specified.**

**Explanation:**  
The work volume(s) entered are SMS-managed work volumes.

**User response:**  
Enter the SMS storage class for the work volume(s) in the **Work Storage Class** field(s).

---

**BSYR458E**      **Only one Object Profile can be selected.**

**Explanation:**  
An S was entered next to more than one object profile. Only object profile can be selected at a time.

**User response:**  
Enter S next to the profile you want to use to make image copies, and deselect the other profiles.

---

**BSYR459E**      **A storage class must not be specified if the work volume(s) are not SMS-managed.**

**Explanation:**  
A non SMS-managed work volume(s) were entered in the **Work Volume** field(s).

**User response:**

Remove SMS storage classes from the **Work Storage Class** field(s).

---

**BSYR460E**      **A duplicate volume was entered.**

**Explanation:**  
The same volume serial was entered more than once in the **Work Volume** fields.

**User response:**  
Ensure that each work volume is only specified once in the **Work Storage Class** fields.

---

**BSYR461E**      **The specified work volume(s) cannot be a mixture of SMS-managed and non-SMS-managed.**

**Explanation:**  
A mixture of SMS-managed and non-SMS managed volumes was entered in the **Work Volume** fields.

**User response:**  
Ensure that the work volumes are either all SMS-managed or all non-SMS managed.

---

**BSYR462E**      **The requested backup was in use by another process. Please try again later.**

**Explanation:**  
The backup was not available for rename or delete processing.

**User response:**  
Retry the process again later.

---

**BSYR464E**      **The first character of the IMS subsystem id must be alphabetic or a national character.**

**Explanation:**  
The backup was not available for rename or delete processing. An invalid value was entered for the IMS subsystem ID. A IMS subsystem ID can be from 1 to 4 characters in length and must be specified as follows: the first character must be must be an alphabetic or a national character and the remaining characters must be alphabetic, numeric or a national character.

**User response:**  
Correct the invalid value.

---

**BSYR465E**      **All characters after the first character must be alphabetic, numeric or a national character.**

**Explanation:**  
An invalid value was entered for the IMS subsystem ID. A IMS subsystem ID can be from 1 to 4 characters in length and must be specified as follows: the first character must be an alphabetic or a national character and the remaining characters must be alphabetic, numeric or a national character.

**User response:**

Correct the invalid value.

---

**BSYR466E**      **From Offload must be "Y" or "N".**

**Explanation:**

An invalid value was entered for the **From Offload** field.

**User response:**

Enter Y to indicate that any data sets that need to be restored from a System Level Backup should be done using an offload copy of the System Level Backup. Enter N to have the data sets restored using the System Level Backup on disk.

---

**BSYR467E**      **Update catalog tables None is not valid with Report messages No.**

**Explanation:**

Update catalog tables = None is not valid when Report messages is set to No.

**User response:**

You can change the Update catalog tables option to another value, such as All, Path, or Space, or you can change the Report messages option to Yes.

---

**BSYR469E**      **The Recover to RBA/LRSN must be equal to the RBA/LRSN of the Backup which is backup\_RBA.**

**Explanation:**

The Recover to RBA/LRSN must be equal to the RBA/LRSN of the backup RBA, which is listed in the messages.

**User response:**

Change the Recover to RBA/LRSN.

---

**BSYR470E**      **The GDG symbolic can only be used once in a data set mask.**

**Explanation:**

The GDG symbolic can only be used once in a data set mask. The second GDG symbolic is removed from the mask.

**User response:**

Enter a different symbolic.

---

**BSYR471E**      **When a GDG symbolic is used it must be the last symbolic specified.**

**Explanation:**

The GDG symbolic must be the last symbolic in the data set mask.

**User response:**

Ensure that the GDG symbolic is the last symbolic in the string.

---

**BSYR472I**      **A reanalysis should be performed to refresh the displayed information.**

**Explanation:**

A reanalyze should be performed to update the displayed information. One of the following functions was selected: Rename/Move Boot Strap Datasets; Rename/Move Active Log; Datasets; Merge Catalog entries; Rename an Alias; Moved datasets.

**User response:**

If the batch job for this function has been submitted, once the batch job has completed, a reanalyze should be performed to reflect the recent changes. If IMS is not started, it must be started before performing the reanalyze.

---

**BSYR473E**      **No alias with this name was found on this system. The data set with this high level may be cataloged in the master catalog.**

**Explanation:**

No alias with the specified name was found on this system.

**User response:**

Check the master catalog to see if data sets starting with the high level qualifier are already cataloged in the master catalog. If so, determine if the data sets exist.

---

**BSYR474E**      **This command is not supported for data sets with no alias or data sets cataloged in the master catalog.**

**Explanation:**

There is no alias entry for this data set. The entered command is not supported in this case.

**User response:**

Clear the command from the line command area.

---

**BSYR476E**      **Invalid value. The Source Stogroup selection field should be either Y, U, or N.**

**Explanation:**

The value entered in the **Source Stogroup selection** field is invalid. You must specify either a Y to enter a new Source Stogroup selection, a U to update the Source Stogroup selection, or an N to specify that a Source Stogroup selection does not exist.

**User response:**

Enter a valid value.

---

**BSYR480E**      **Invalid value. The Update Image Copy Options should be either Y or N.**

**Explanation:**

The value entered in the **Update Image Copy Options** field is invalid. You must specify either a Y to update the image copy options or a N which indicates that you will not update the image copy options.

**User response:**  
Enter a valid value.

---

**BSYR481E** Invalid value. Valid values for the Local Primary Image Copy field are Y or N.

**Explanation:**  
The value entered in the **Local Primary Image Copy** field is invalid. You must specify either a Y to take a local primary image copy or a N if you do not want to take an image copy.

**User response:**  
Enter a valid value.

---

**BSYR482E** Invalid value. Valid values for the Local Backup Image Copy field are Y or N.

**Explanation:**  
The value entered in the **Local Backup Image Copy** field is invalid. You must specify either a Y to take a local backup image copy or a N if you do not want to take an image copy.

**User response:**  
Enter a valid value.

---

**BSYR483E** Invalid value. Valid values for the Recovery Primary Image Copy field are Y or N.

**Explanation:**  
The value entered in the **Recovery Primary Image Copy** field is invalid. You must specify either a Y to take a recovery primary image copy or a N if you do not want to take an image copy.

**User response:**  
Enter a valid value.

---

**BSYR484E** Invalid value. Valid values for the Recovery Backup Image Copy field are Y or N.

**Explanation:**  
The value entered in the **Recovery Backup Image Copy** field is invalid. You must specify either a Y to take a recovery backup image copy or a N if you do not want to take an image copy.

**User response:**  
Enter a valid value.

---

**BSYR485E** A Local Backup Image Copy cannot be selected unless a Local Primary Image Copy is selected.

**Explanation:**  
You cannot create a local backup image copy without also creating a local primary image copy.

**User response:**

In addition to the Y specified in the **Local Backup Image Copy** field, specify a Y in the **Local Primary Image Copy** field.

---

**BSYR486E** A Recovery Backup Image Copy cannot be selected unless a Recovery Primary Image Copy is selected.

**Explanation:**  
You cannot create a recovery backup image copy without also creating a recovery primary image copy.

**User response:**  
In addition to the Y specified in the **Recovery Backup Image Copy** field, specify a Y in the **Recovery Primary Image Copy** field.

---

**BSYR487E** Invalid unit and symbolic data set name specified for the image copy.

**Explanation:**  
The unit and symbolic data set name specified for the image copy are invalid.

**User response:**  
Specify a valid unit and symbolic data set name for the image copy.

---

**BSYR488E** Invalid value has been specified for the fast replication method.

**Explanation:**  
You have specified an invalid fast replication method. Valid fast replication methods can be either an S for EMC Snap fast replication or a D for DFSMSdss fast replication.

**User response:**  
Specify a valid fast replication method. You can specify an S for EMC Snap fast replication or a D for DFSMSdss fast replication.

---

**BSYR489E** Invalid value has been specified for the fast replication update option.

**Explanation:**  
You have specified an invalid fast replication update option. You can specify a Y to update using fast replication or N if you do not want to do a fast replication update.

**User response:**  
Specify a valid fast replication update value.

---

**BSYR490E** Invalid value has been specified for the Sharelevel field.

**Explanation:**  
You have specified an invalid value for the sharelevel. You can specify a R for sharelevel reference or C for sharelevel change.

**User response:**

Specify a valid sharelevel value.

---

**BSYR491E** Invalid value has been specified for the Scope field.

**Explanation:**

You have specified an invalid value for the scope. You can specify an A for all or a P for pending.

**User response:**

Specify a valid value for scope.

---

**BSYR492E** Invalid value has been specified for the Register VSAM Copy field.

**Explanation:**

You have specified an invalid value for the **Register VSAM Copy** field. You can specify a Y to register a VSAM copy or an N to not register the VSAM copy.

**User response:**

Specify a valid value.

---

**BSYR493E** Invalid value has been specified for the Stack tapes field.

**Explanation:**

You have specified an invalid value for the **Stack tapes** field. You can specify a Y to stack tapes or an N to not stack the tapes.

**User response:**

Specify a valid value.

---

**BSYR494E** Invalid value has been specified for the stack limit.

**Explanation:**

You have specified a value that is not numeric for the stack limit.

**User response:**

Specify a valid numeric value.

---

**BSYR495E** Invalid value has been specified for the Number of tasks field.

**Explanation:**

You have specified an invalid value for the **Number of tasks** field. The value that you specify must be numeric and must be between 1 and 99.

**User response:**

Specify a valid value.

---

**BSYR496E** Invalid value - All parts in one copy should be Y or N.

**Explanation:**

You have specified an invalid value for the **All parts in one copy** field. You can specify a value of Y to include all parts in one copy or an N to indicate separate copies.

**User response:**

Specify a valid value.

---

**BSYR497E** Invalid value has been specified for the Edit Image Copy Options field.

**Explanation:**

You have specified an invalid value for the **Edit Image Copy Options** field. You can specify a value of Y to edit the image copy options or an N to not edit the image copy options.

**User response:**

Specify a valid value.

---

**BSYR498E** At least one image copy type must be selected.

**Explanation:**

You must select at least one image copy type. The types that are available are Local Primary Image Copy or Remote Primary Image Copy.

**User response:**

Select at least one image copy type.

---

**BSYR499E** An invalid value has been specified for the number of VSAM generations.

**Explanation:**

The value specified for the **Number of VSAM generations** field is invalid. The value specified must be numeric and be between the numeric values of 1 and 9999.

**User response:**

Specify a valid value for the number of VSAM generations.

---

**BSYR500E** An invalid value has been specified for the Use SLBs for recovery field.

**Explanation:**

The value specified for the **Use SLBs for recovery** field is invalid. The value specified must be a Y to specify that a system level backup will be used for recovery or an N to specify that a system level backup is not available for use as a backup.

**User response:**

Specify a valid value.

---

**BSYR501E** An invalid value has been specified for the Use ICs for recovery field.

**Explanation:**

The value specified for the **Use ICs for recovery** field is invalid. The value specified must be a Y to specify that an image copy will be used for recovery or an N to specify that an image copy is not available for use as a backup.

**User response:**

Specify a valid value.

---

**BSYR502E**      **An invalid value has been specified for the Use VSAM ICs for recovery field.**

**Explanation:**

The value specified for the **Use VSAM ICs for recovery** field is invalid. The value specified must be a Y to specify that a VSAM image copy will be used for recovery or an N to specify that a VSAM image copy is not available for use as a backup.

**User response:**

Specify a valid value.

---

**BSYR503E**      **At least one of the types of recovery resources must be selected.**

**Explanation:**

You must select at least one of the types of recovery resources. The recovery resource fields from which you can select are the **Use SLBs for recovery**, the **Use ICs for recovery**, and the **Use VSAM ICs for recovery** fields. You may select all three if they are available to use for recovery.

**User response:**

Select one or more of the types of recovery resources.

---

**BSYR504E**      **At least one object could not be recovered.**

**Explanation:**

At least one object could not be recovered.

**User response:**

Recreate the recovery resource.

---

**BSYR507E**      **Source stogroups must be specified.**

**Explanation:**

When creating this type of automap profile, at least one source storage group must be specified.

**User response:**

Update the profile and add at least one source storage group.

---

**BSYR508E**      **Stogroup mapping is not valid for IMS type targets, BCV type targets, or phased SNAP type targets.**

**Explanation:**

The Source/Target mapping option Stogroup discover/auto mapping is not valid when creating IMS, BCV, or phased SNAP backup profiles.

**User response:**

Change the value of the **Source/Target mapping** field to M when creating IMS, BCV, or phased SNAP backup profiles.

---

**BSYR600E**      **Invalid Value - Enter "Y" if you want to use Multiple jobs for performing offload and restore, or "N" if you want to use a single job.**

**Explanation:**

An invalid value was specified for the **Use Multiple Jobs** option.

**User response:**

You must specify Y (Yes) to use Multiple Jobs during the OFFLOAD process, or N (No) if you do not want to use Multiple Jobs.

---

**BSYR601E**      **Invalid Value – The number of jobs must be numeric**

**Explanation:**

The value specified for maximum number of jobs to be submitted on this LPAR for Multijob Processing is not valid.

**User response:**

You must specify a number between 01 and 99.

---

**BSYR602E**      **Invalid Value – The number of jobs must be between 1 and 99**

**Explanation:**

The value specified for maximum number of jobs to be submitted on this LPAR for Multijob Processing is not valid.

**User response:**

You must specify a number between 01 and 99.

---

**BSYR603E**      **Invalid Value – The number of tasks must be numeric**

**Explanation:**

The value specified for maximum number of tasks to be used per job on this LPAR for Multijob Processing is not valid.

**User response:**

You must specify a number between 01 and 99.

---

**BSYR604E**      **Invalid Value – The number of tasks must be between 1 and 99.**

**Explanation:**

The value specified for maximum number of tasks to be used per job on this LPAR for Multijob Processing is not valid.

**User response:**

You must specify a number between 01 and 99.

---

**BSYR605E**      **Invalid Value – Update Multijob Options value must be "Y" or "N"**

**Explanation:**

The value specified for the **Update Multijob** option is not valid.

**User response:**



You must specify Y (Yes) to update the Multijob options or N (No) if you do not want to update them.

---

**BSYR606E**      **You must specify both RECON Copy 1 and RECON Copy 2**

**Explanation:**

No value was specified for the **RECON Copy 1** field or the **RECON Copy 2** field, or both.

**User response:**

You must specify valid data set names for both **RECON Copy 1** and **RECON Copy 2**.

---

**BSYR607E**      **Invalid Value – The value for the Use Multijob for DR Restore option must be “Y”, “N”, or “U”**

**Explanation:**

The value specified for the **Use Multijob for DR Restore** option is not valid.

**User response:**

You must specify Y (Yes) to use Multiple Jobs for performing the DR Restore, N (No) if you do not want to use Multiple Jobs, or U (Update) to update the options.

---

**BSYR608E**      **The first character of the Multijob Prefix must be an alphabetic or national character.**

**Explanation:**

The value specified for the Multijob Prefix must be a valid z/OS job name and must begin with either an alphabetic character or a national symbol (#, @, or \$).

**User response:**

Specify a valid z/OS job name.

---

**BSYR610E**      **Invalid Value – Specify Y if you want to have DBs for which no ICs exist reported on, or N if you do not.**

**Explanation:**

The specified value is not valid.

**User response:**

Specify either Y or N.

---

**BSYR611E**      **Invalid value - The number of days must be numeric.**

**Explanation:**

The specified value is not valid.

**User response:**

Specify a numeric value.

---

**BSYR612E**      **Invalid value - The number of days must be between 1 and 999.**

**Explanation:**

The specified value is not valid.

**User response:**

Specify a value between 1 and 999.

---

**BSYR613E**      **Invalid Value – Specify Y to include DBs for which ICs are required in the report. Otherwise, specify N.**

**Explanation:**

The specified value is not valid.

**User response:**

Specify either Y or N.

---

**BSYR614E**      **Invalid Value – Specify Y to include DBs for which ICs are recommended in the report. Otherwise, specify N.**

**Explanation:**

The specified value is not valid.

**User response:**

Specify either Y or N.

---

**BSYR615E**      **Invalid Value – Specify Y to include DBs that do not have the minimum number of batch image copies in the report. Otherwise, specify N.**

**Explanation:**

The specified value is not valid.

**User response:**

Specify either Y or N.

---

**BSYR616E**      **Invalid Value – Specify Y to include DBs that do not have the minimum number of online image copies in the report. Otherwise, specify N.**

**Explanation:**

The specified value is not valid.

**User response:**

Specify either Y or N.

---

**BSYR617E**      **Invalid Value – Specify Y to include DBs that are not in a CA group in the report. Otherwise, specify N.**

**Explanation:**

The specified value is not valid.

**User response:**

Specify either Y or N.

---

**BSYR618E**      **Invalid Value – Specify Y to include CA groups that do not have any valid change accumulations in the report. Otherwise, specify N.**

**Explanation:**

The specified value is not valid.

**User response:**  
Specify either Y or N.

---

**BSYR619E** Invalid Value – Specify Y to include HALDBs that have a disabled partition in the report. Otherwise, specify N.

**Explanation:**  
The specified value is not valid.

**User response:**  
Specify either Y or N.

---

**BSYR620E** Invalid Value - Specify Y to include HALDBs that have a partition with initialization needed in the report. Otherwise, specify N.

**Explanation:**  
The specified value is not valid.

**User response:**  
Specify either Y or N.

---

**BSYR621E** Invalid Value - Specify Y to include DEDBs that have an error queue element (EEQE) in the report. Otherwise, specify N.

**Explanation:**  
The specified value is not valid.

**User response:**  
Specify either Y or N.

---

**BSYR622E** Invalid Value - Specify Y to include DEDBs that do not have any AREA data sets defined in the report. Otherwise, specify N.

**Explanation:**  
The specified value is not valid.

**User response:**  
Specify either Y or N.

---

**BSYR623E** Invalid Value - Specify Y to include in the report DEDBs that do not have any AREA data sets available. Otherwise, specify N.

**Explanation:**  
The specified value is not valid.

**User response:**  
Specify either Y or N.

---

**BSYR624E** Invalid Value - Specify Y to include in the report DBs that have BACKOUT NEEDED. Otherwise, specify N.

**Explanation:**  
The specified value is not valid.

**User response:**

Specify either Y or N.

---

**BSYR625E** Invalid Value - Specify Y to include in the report DBs that have prohibit authorization setting. Otherwise, specify N.

**Explanation:**  
The specified value is not valid.

**User response:**  
Specify either Y or N.

---

**BSYR626E** Invalid Value - Specify Y to include in the report data sets that have an IC1 but no IC2. Otherwise, specify N.

**Explanation:**  
The specified value is not valid.

**User response:**  
Specify either Y or N.

---

**BSYR627E** Invalid Value - Specify Y to include in the report PRILOGs that have no SECLOGs. Otherwise, specify N.

**Explanation:**  
The specified value is not valid.

**User response:**  
Specify either Y or N.

---

**BSYR628E** Invalid Value - Specify Y to include in the report PRISLDSs that have no SECSDLDSs. Otherwise, specify N.

**Explanation:**  
The specified value is not valid.

**User response:**  
Specify either Y or N.

---

**BSYR629E** Invalid Value - Specify Y to verify that any assets needed to recover the databases are cataloged. Otherwise, specify N.

**Explanation:**  
The specified value is not valid.

**User response:**  
Specify either Y or N.

---

**BSYR630E** Invalid Value - Specify Y to include in the report DBs that do not have a minimum number of CA data sets. Otherwise, specify N.

**Explanation:**  
The specified value is not valid.

**User response:**  
Specify either Y or N.

---

**BSYR631E**      **Invalid value - The number specified must be numeric.**

**Explanation:**

The specified value is not valid.

**User response:**

Specify a numeric value.

---

**BSYR632E**      **Invalid value - The number specified must be between 1 and 999.**

**Explanation:**

The specified value is not valid.

**User response:**

Specify a numeric value between 1 and 999.

---

**BSYR700E**      **The specified data set could not be found in the MVS catalog.**

**Explanation:**

The specified data set could not be found in the MVS catalog.

**User response:**

Ensure that the data set name is correct.

---

**BSYR701E**      **An unexpected return code from VSAM was encountered while doing an add operation to the control file. RC1=return\_code RC2=return\_code\_2.**

**Explanation:**

A VSAM error occurred while attempting to perform an add operation to the specified IMS control data set.

**User response:**

The RC1 and RC2 (VSAM return codes) are provided for investigation. Refer to the z/OS DFSMS Macro Instructions for Data Sets documentation for more information.

---

**BSYR702E**      **an IMS subsystem ID has to be entered for processing.**

**Explanation:**

There was no valid value entered for IMS subsystem ID.

**User response:**

Enter a valid subsystem ID and continue.

---

**BSYR704E**      **The specified data set could not be opened for I/O.**

**Explanation:**

A VSAM open error occurred while attempting to open the data set specified for the IMS control data set.

**User response:**

Verify that the VSAM data set is accessible and continue.

---

**BSYR705E**      **An unexpected return code from VSAM was encountered while doing a read of the control file. RC=return code.**

**Explanation:**

A VSAM READ error occurred while attempting to access the data set specified for the IMS control data set.

**User response:**

The return code (VSAM return code) is provided for investigation. Refer to the z/OS DFSMS Macro Instructions for Data Sets documentation for more information.

---

**BSYR706I**      **The control file record for IMS subsystem ssid has been successfully updated.**

**Explanation:**

The control file named in the **IMS control data set** field has been successfully updated to include the specified changes and definitions for the specified IMS subsystem.

**User response:**

None. This message is informational.

---

**BSYR707E**      **An unexpected return code from VSAM was encountered while doing an update operation of the control file. RC1=return\_code\_1 RC2=return\_code\_2**

**Explanation:**

A VSAM update error occurred while attempting to update the data set specified for the IMS control data set.

**User response:**

The RC1 and RC2 (VSAM return codes) are provided for investigation. Refer to the z/OS DFSMS Macro Instructions for Data Sets documentation for more information.

---

**BSYR708I**      **The control file record for IMS subsystem ssid has been successfully added.**

**Explanation:**

The control file named in the **IMS control data set** field has been successfully updated to include the new record, based on the specified definitions for the specified IMS subsystem.

**User response:**

None. This message is informational.

---

**BSYR709E**      **Invalid value. Valid options are 1 and 2.**

**Explanation:**

The specified panel option is not valid.

**User response:**

Valid options are 1 and 2.

---

**BSYR711E Duplicate mask data set. Enter a unique data set mask.**

**Explanation:**

The specified mask data set name already exists in the include/exclude list.

**User response:**

Specify a different, unique data set mask.

---

**BSYR712E Abend during MVS catalog lookup process, ABEND=abendcode-reasoncode**

**Explanation:**

An ABEND occurred while processing the MVS catalog entry for the specified data set. The data set cannot be added at this time.

**User response:**

Look up the abend code and reason code, correct the problem, and retry the process.

---

**BSYR720E File tailoring open returned a file tailoring already in progress condition.**

**Explanation:**

An attempt to perform file tailoring for utility customization failed. There was file tailoring session already in progress. File tailoring sessions cannot be performed concurrently.

**User response:**

None required.

---

**BSYR721E File tailoring open returned the output file already in use condition -- ENQ failed.**

**Explanation:**

An attempt to open the IMS control data set failed with an ENQ error. The data set is already open for output.

**User response:**

Verify that you are the only user attempting to access this file.

---

**BSYR722E File tailoring open returned the skeletal file or output file not allocated condition.**

**Explanation:**

An attempt to perform file tailoring failed because either the tailoring skeleton file or output file is not allocated.

**User response:**

Verify that all required files are allocated prior to performing file tailoring.

---

**BSYR723E File tailoring open returned a severe error condition.**

**Explanation:**

An attempt to perform file tailoring failed because a severe error condition was encountered on open.

**User response:**

Verify that all required files are allocated and accessible prior to performing file tailoring.

---

**BSYR724E File tailoring open returned an unknown code -- severe error.**

**Explanation:**

An attempt to perform file tailoring failed because a severe error condition was encountered on open.

**User response:**

Verify that all required files are allocated and accessible prior to performing file tailoring.

---

**BSYR725E File tailoring close returned a file not open condition -- severe error.**

**Explanation:**

An attempt to perform file tailoring failed because a file-not-open condition was encountered on close.

**User response:**

Verify that all required files are allocated and accessible, and that there are no other tailoring sessions running concurrently with your session.

---

**BSYR726E File tailoring close returned an output file in use condition.**

**Explanation:**

An attempt to perform file tailoring failed because an output-file-in-use condition was encountered on close.

**User response:**

Verify that all required files are allocated and accessible, and that there are no other tailoring sessions running concurrently with your session.

---

**BSYR727E File tailoring close returned a skeletal file or output file not allocated condition**

**Explanation:**

An attempt to close file tailoring failed because either a tailoring skeleton file or output file was not allocated.

**User response:**

Verify that all required files are allocated and accessible, and that there are no other tailoring sessions running concurrently with your session.

---

**BSYR728E File tailoring close returned a severe error.**

**Explanation:**

An attempt to perform file tailoring failed because a severe error condition was encountered on close.

**User response:**

Verify that all required files are allocated and accessible prior to performing file tailoring.

---

**BSYR729E**      **File tailoring close returned an unknown code -- severe error.**

---

**Explanation:**

An attempt to perform file tailoring failed because a severe error condition was encountered on close.

**User response:**

Verify that all required files are allocated and accessible prior to performing file tailoring.

---

**BSYR730E**      **File tailoring close returned a output member exists in the output library and NOREPL was specified.**

---

**Explanation:**

An attempt to perform file tailoring failed because the close process could not replace the pre-existing tailored member in the output file.

**User response:**

Change the output member name to a new name or ensure that the output library allows for member replacement.

---

**BSYR731E**      **File tailoring include returned a skeleton does not exist condition.**

---

**Explanation:**

An attempt to perform file tailoring failed because the tailoring process could not locate a required tailoring skeleton.

**User response:**

Ensure that all required files are allocated to perform file tailoring.

---

**BSYR732E**      **File tailoring include returned a skeleton in use -- ENQ failed condition.**

---

**Explanation:**

An attempt to access a tailoring skeleton failed with an ENQ error (member in use).

**User response:**

Verify that all required tailoring files are allocated, and that there are no other tailoring sessions running concurrently.

---

**BSYR733E**      **File tailoring include returned a data truncation or skeleton library or output file not allocated condition.**

---

**Explanation:**

An attempt to perform file tailoring failed because either the tailoring skeleton file or output file is not allocated.

**User response:**

Verify that all required files are allocated prior to performing file tailoring.

---

**BSYR734E**      **File tailoring include returned a severe error condition.**

---

**Explanation:**

An attempt to perform file tailoring failed because a severe error condition was encountered on an include operation.

**User response:**

Verify that all required files are allocated and accessible prior to performing file tailoring.

---

**BSYR735E**      **File tailoring include returned an unknown condition -- severe error.**

---

**Explanation:**

An attempt to perform file tailoring failed because a severe error condition was encountered on an include operation.

**User response:**

Verify that all required files are allocated and accessible prior to performing file tailoring.

---

**BSYR736E**      **No matching data sets were found in the MVS catalog.**

---

**Explanation:**

No matching data sets were found in the MVS catalog.

**User response:**

Ensure that the specified data set mask is valid.

---

**BSYR737I**      **Profile saved for system ssid.**

---

**Explanation:**

The profile was saved for the system SSID.

**User response:**

None. This message is informational.

---

**BSYR739E**      **Error reading the MVS catalog for the specified data set.**

---

**Explanation:**

An error occurred while processing the MVS catalog entry for the specified data set. The data set cannot be added at this time.

**User response:**

Use the ISPF data set list utility option 3.4 to obtain further details about the error, and correct the problem.

---

**BSYR753W**      **IBM IMS Recovery Expert for z/OS is not currently set up to use Coordinated Application Profiles. PF1 for more information.**

---

**Explanation:**

IMS Recovery Expert is not set up to use Coordinated Application Profiles.

**User response:**

In **User Settings**, under IMS Recovery Expert connection, verify that the required CLIST information

for IMS Recovery Expert is specified. You can also specify information in the CLIST with the **CLISTLIB** and **CLISTNAM** parameters.

---

**BSYR754E**      **Coordinated Application Profiles VSAM data set not found in CLIST.**

**Explanation:**

The Coordinated Application Profiles VSAM data set was not found in CLIST.

**User response:**

Verify that the CLIST parameter **BSYBCPRF** specifies the VSAM data set that is used to save Coordinated Application Profile information.

---

**BSYR768E**      **Unable to retrieve CPROFILE data set name**

**Explanation:**

The attempt to retrieve the name of the Coordinated Application Profiles VSAM data set failed due to a prior error.

**User response:**

Verify that the CLIST parameter **BSYBCPRF** specifies the VSAM data set used to save Coordinated Application Profile information, and ensure that the data set name is valid. This error can also occur if the execution load library is not APF authorized.

---

**BSYR801E**      **Invalid Value - Specify a valid number of qualifiers you want to replace for each DR archive log. Valid values are 0-9.**

**Explanation:**

The value that you specified in the **Number of qualifiers to replace** field is not valid.

**User response:**

Specify a value from 0-9 in this field.

---

**BSYR802E**      **Invalid Value - Specify Y if you want to edit allocation parameters, or N if you do not want to update allocation parameters.**

**Explanation:**

The value you specified in the **Edit Allocation Parameters** field is not valid.

**User response:**

Specify Y or N in this field.

---

**BSYR803E**      **Please Enter Required Field - A valid unit is required for copying Image Copies for the DR site**

**Explanation:**

No unit device was specified in the **Unit for copying Image Copies** field. This field is required.

**User response:**

Specify a valid unit device to use to copy the Image Copies.

---

**BSYR804E**      **Could not find any registered subsystems. Register IMS subsystems before defining the BSY group.**

**Explanation:**

There are no registered IMS subsystems.

**User response:**

Register your IMS subsystems before creating a BSY group.

---

**BSYR805W**      **SSID not added. SSID already associated with this BSY group.**

**Explanation:**

A SSID is already associated with this BSY group.

**User response:**

Specify a different SSID to associate with this group.

---

**BSYR806W**      **SSID not added. SSID already associated with a different BSY group.**

**Explanation:**

The selected IMS system was not added because it is already associated with a different group.

**User response:**

Choose a different system and continue.

---

**BSYR807E**      **Group not added. Selected group name already defined.**

**Explanation:**

The selected IMS system was not added because it is already associated with this group.

**User response:**

Specify a different group name.

---

**BSYR808I**      **The control file record has been successfully updated.**

**Explanation:**

The Control File Record has been successfully updated.

**User response:**

None. This message is informational.

---

**BSYR809E**      **Error encountered while writing the control file record. Look for SYSLOG messages.**

**Explanation:**

An error occurred while writing the control file record.

**User response:**

Inspect the system log for any informational messages related to the problem. Fix the problem and then try again.

---

**BSYR810E**      **Invalid Value - Specify Y if you want to copy archives to DASD at DR site, N if you do not want to copy archives to DASD at the DR site, or U to update the copy options.**

**Explanation:**

The value that you specified in the **Copy Archives to DASD at DR site** field was not valid.

**User response:**

Specify Y, N, or U in this field.

---

**BSYR811E**      **Invalid Unit - Specified unit must be a Disk unit that will be used for copying archives to DASD at the DR site**

**Explanation:**

The value that you specified in the **Unit for Copying Archives to DASD** field was not valid. The unit must be of a Disk unit.

**User response:**

Specify a valid disk unit type.

---

**BSYR812E**      **Invalid Value - Specify S if you want to process only this IMS system, or A to process all systems in the BSY group.**

**Explanation:**

The value you specified in the **Process Datasharing Subsystems** field is not valid.

**User response:**

Specify S or A in this field.

---

**BSYR813E**      **Invalid Value - Specify a valid number of tasks for archive log copy. Valid values are 1 - 32.**

**Explanation:**

The value that you specified in the **Number of Copy Tasks** field was not valid.

**User response:**

Specify a valid number between 1-32.

---

**BSYR814E**      **Invalid Value - Specify C if you want DR Prep to copy your IC, Y if all ICs will be available at DR site, 2 if you want to use IC2 at DR site, or N if you want DR Prep to invalidate all registered ICs for DR.**

**Explanation:**

The value you specified in the **Image Copied Used at DR** field is not valid.

**User response:**

Specify a valid value: C, Y, 2, or N.

---

**BSYR815E**      **To process Disaster Recovery via the archive log method, you must specify the IC that will be needed at the DR site. You must specify either number of days or number of hours, or both days and hours of the IC that you need available for disaster recovery.**

**Explanation:**

You specified 0 for **days and hours** in the **Image Copies Needed at DR** field. This value is not valid.

**User response:**

Specify either the number of days or the number of hours, or both days and hours in this field.

---

**BSYR816E**      **Invalid Value - Specify B if you want to prepare JCL to perform DR recovery to the offloaded Backup, or P if you want to generate JCL to perform recovery to a later Point in Time.**

**Explanation:**

The value you specified in the **DR Site Recovery Point** field is not valid.

**User response:**

Specify a valid value: B or P.

---

**BSYR817E**      **Invalid Value - Specify Y if you want to process *\*type\**, N if you do not want to process *\*type\**, or U to update *\*type\** options.**

**Explanation:**

The value you specified in the **Process *\*type\** for DR** field is not valid. The *\*type\** value can be either Archive Logs, Change Accums, or Image Copies.

**User response:**

Specify a valid value: Archive Logs, Change Accums, or Image Copies.

---

**BSYR818E**      **Invalid Value - Specify Y if you will be sending your CAs to the DR site, specify C if you want DR Prep to copy your CA, or N if you want DR Prep to invalidate all registered CAs for DR.**

**Explanation:**

The value you specified in the **Change Accums Used at DR** field is not valid.

**User response:**

Specify a valid value: Y, C, or N.

---

**BSYR819E**      **Recovery point must be a value from 1 through 4.**

**Explanation:**

The value you specified in the **Recovery Point** field was not valid.

**User response:**

Specify a valid number between 1 - 4.

---

**BSYR820E**      **Recovery Utility must be I for IMS, D for DRF, or U for User.**

**Explanation:**

The value you specified in the **Recovery utility** field is not valid.

**User response:**

Specify a valid value: I, D, or U.

---

**BSYR821E**      **Invalid Value for Edit Options, valid values are Y to edit Recovery Utility options, or N.**

**Explanation:**

The value you specified in the **Edit Options** field is not valid.

**User response:**

Specify a valid value: Y or N.

---

**BSYR822E**      **Invalid Value. Specify a member name.**

**Explanation:**

No value was specified in the **GENJCL member name** field.

**User response:**

Specify a valid member name in this field.

---

**BSYR823E**      **Invalid Value, a minimum of 12 numeric characters in the format yydddhhmmsst must be specified.**

**Explanation:**

The value that you specified in the **Timestamp** field is not valid.

**User response:**

Specify a valid value in *yydddhhmmsst* format.

---

**BSYR824E**      **Invalid timestamp day value. ddd must be between 001 and 365, or between 001 and 366 for a leap year.**

**Explanation:**

The value that you specified in the **Timestamp** field is not valid.

**User response:**

Specify a valid value between 001 and 366.

---

**BSYR825E**      **Invalid timestamp hours value. hh must be between 00 and 23.**

**Explanation:**

The value that you specified in the **Timestamp** field is not valid.

**User response:**

Specify a valid value between 00 and 23.

---

**BSYR826E**      **Invalid timestamp minutes value. mm must be between 00 and 59.**

**Explanation:**

The value that you specified in the **Timestamp** field is not valid.

**User response:**

Specify a valid value between 00 and 59.

---

**BSYR827E**      **Invalid timestamp seconds value. ss must be between 00 and 59.**

**Explanation:**

The value that you specified in the **Timestamp** field is not valid.

**User response:**

Specify a valid value between 00 and 59.

---

**BSYR828E**      **Invalid UTC timestamp. All characters after the sign must be numeric.**

**Explanation:**

The value that you specified in the **Timestamp** field is not valid.

**User response:**

Specify a valid numeric value.

---

**BSYR829E**      **Invalid Local timestamp precision value.**

**Explanation:**

The value that you specified in the **Timestamp** field is not valid.

**User response:**

Specify a valid value.

---

**BSYR830E**      **Invalid value. Specify Y to rebuild indexes after recovery, or N if you do not want to rebuild indexes after recovery.**

**Explanation:**

The value that you specified in the **Always Rebuild Indexes** field is not valid.

**User response:**

Specify a valid value: Y or N.

---

**BSYR831E**      **Invalid value. Choose Y to rebuild HALDB PINDEX/ILDS after recovery to current, or N if you do not to rebuild PINDEX/ILDS after recovery to current.**

**Explanation:**

The value that you specified in the **Rebuild PINDEX/ILDS on recovery to current** field is not valid.

**User response:**



Specify a valid value: Y or N.

---

**BSYR832E**      **Index Rebuild Utility must be I for IIB, U for User, or N for None.**

**Explanation:**

The value that you specified in the **Index Rebuild Utility** field is not valid.

**User response:**

Specify a valid value: I, U, or N.

---

**BSYR833E**      **HALDB PINDEX/ILDS Rebuild Utility must be I for IMS, U for User, or N for None.**

**Explanation:**

The value that you specified in the **HALDB PINDEX/ILDS rebuild** field is not valid.

**User response:**

Specify a valid value: I, U, or N.

---

**BSYR834E**      **Change Accum Utility must be I for IMS, H for HPCA, U for User, or N for None.**

**Explanation:**

The value that you specified in the **Change Accum Utility** field is not valid.

**User response:**

Specify a valid value: I, H, U, or N.

---

**BSYR835E**      **Invalid Value - The only valid value for an Object Recovery Profile is B to build the job in Batch.**

**Explanation:**

The value that you specified in the **Build Online or Batch** field is not valid.

**User response:**

Specify a valid value: B.

---

**BSYR836E**      **Error while reading from repository.**

**Explanation:**

An error occurred while reading the repository.

**User response:**

Inspect the system log for any informational messages related to the problem. Fix the problem and then try again.

---

**BSYR837E**      **Profiles found for this group. Group cannot be renamed.**

**Explanation:**

The BSY group cannot be renamed. Backup profiles exist for this group.

**User response:**

To rename the group, you must delete all the profiles that are associated with it.

---

**BSYR838I**      **System removed from BSY group. Restoring to an existing backup will still restore the removed SSID. A full System Level Backup is recommended.**

**Explanation:**

The IMS subsystem was removed from the BSY group and is not associated with any groups. Any system restores from existing backups will still restore the removed subsystem.

**User response:**

It is highly recommended that you run a new system backup.

---

**BSYR839E**      **Invalid Value - Specify Y if you want to delete profiles, or N if you do not want to delete them.**

**Explanation:**

The value that you specified in the **Confirm Delete** field is not valid.

**User response:**

Specify a valid value: Y or N.

---

**BSYR840E**      **Error encountered while deleting backups for subsystem. System not added to the BSY group.**

**Explanation:**

An error encountered while deleting backups for the IMS subsystem. The system was not added to the BSY group.

**User response:**

Inspect the system log for any informational messages related to the problem. Fix the problem and then try again.

---

**BSYR841I**      **New system added to group. Any recovery from existing backups will not recover the newly added systems. Run System Level Backup.**

**Explanation:**

A new IMS subsystem was added to the BSY group, but any recovery from existing backups still will not recover the newly added subsystem.

**User response:**

It is highly recommended that you run a full system backup for the BSY group.

---

**BSYR842I**      **Profile cleanup canceled.**

**Explanation:**

Profile cleanup was canceled by the user.

**User response:**

None. This message is informational.

---

**BSYR843E**      **Error encountered while deleting backups for BSY group. Group not deleted.**

**Explanation:**

An error was encountered while deleting backups or profiles for the BSY group.

**User response:**

Inspect the system log for any informational messages related to the problem. Fix the problem and then try again.

---

**BSYR844E**      **Post Recovery IC Utility must be I for IMS, H for HPIC, U for User, or N for None.**

**Explanation:**

The value that you specified in the **Post Recovery IC** field is not valid.

**User response:**

Specify a valid value: I, H, U, or N.

---

**BSYR845E**      **Invalid subsystem name. A BSY group with this name already exists.**

**Explanation:**

The subsystem name that you specified is not valid because a BSY group with that name already exists.

**User response:**

Specify a different group name.

---

**BSYR846E**      **Error encountered while retrieving information for the IMS subsystem.**

**Explanation:**

An error occurred while trying to retrieve information about the IMS subsystem from the Control File.

**User response:**

Inspect the system log for any informational messages related to the problem. Fix the problem and then try again.

---

**BSYR847E**      **Invalid Group name, an IMS subsystem with this name is already registered in BSY.**

**Explanation:**

The group name that you specified is not valid because an IMS subsystem with that name is already registered in BSY.

**User response:**

Specify a different group name.

---

**BSYR848I**      **The specified IMS system is associated with a group. The profile is created with the group name.**

**Explanation:**

You specified an IMS subsystem that is part of a BSY group. The SSID was substituted with the group name.

**User response:**

None. This message is informational.

---

**BSYR849E**      **Invalid SSID entered. The SSID must be a registered IMS SSID or a registered BSY group name.**

**Explanation:**

The SSID you specified is not valid. The SSID must be registered in the SETUP section of BSY, or can be a BSY group name.

**User response:**

Register the SSID, or specify a different SSID.

---

**BSYR850E**      **Invalid value. Options cannot be updated when utility selection is set to None.**

**Explanation:**

Utility options cannot be updated when you specify None in the utility selection.

**User response:**

Change the utility selection.

---

**BSYR851E**      **Invalid value. Specify a data set name.**

**Explanation:**

The value that you specified in the **Delete/Define PDS DSN** field is not valid.

**User response:**

Specify a data set name.

---

**BSYR852E**      **No line commands available for IMS RECON and Active Log data sets.**

**Explanation:**

There are no supported line commands for IMS RECON and Active Log data sets.

**User response:**

None required.

---

**BSYR853E**      **Invalid command. Valid command is D to display all data sets on this volume.**

**Explanation:**

The command you specified is not valid.

**User response:**

Specify D to display all data sets on this volume.

---

**BSYR854E**      **Invalid UTC timestamp. Hours value after the - sign, hh must be between 00 and 11. Or, Invalid UTC timestamp. Hours value after**

the + sign, *hh* must be between 00 and 14.

**Explanation:**

Invalid UTC timestamp. The format of a UTC timestamp is *yydddHHMMSSstshmm*. After the - sign, the *hh* value must be between 00 and 11. After the + sign, the *hh* value must be between 00 and 14.

**User response:**

Specify a valid value for *hh*.

---

**BSYR855E** Invalid UTC timestamp minutes value after the sign. *mm* must be 00, 15, 30, or 45.

**Explanation:**

Invalid UTC timestamp. The format of a UTC timestamp is *yydddHHMMSSstshmm*. For the *mm* after the sign, you must specify a value of 00, 15, 30, or 45.

**User response:**

For the *mm* after the sign, specify a value of 00, 15, 30, or 45.

---

**BSYR856E** Invalid value. Specify C to continue, W to issue a WTOR, or A to abort.

**Explanation:**

The value you specified in the **Action on Warnings** field is not valid.

**User response:**

Specify a valid value: C, W, or A.

---

**BSYR857I** The control file record for IMS subsystem *\*ssid\** has been successfully added.

**Explanation:**

The Control File Record has been successfully updated.

**User response:**

None. This message is informational.

---

**BSYR858E** Creation of profile failed.

**Explanation:**

The Creation of a profile failed. Look for JOBLOG messages.

**User response:**

Inspect the system log for any informational messages related to the problem. Fix the problem and then try again.

---

**BSYR859E** Invalid Value. Specify Y to update Object recovery options, or N if you do not want to update Object recovery options.

**Explanation:**

The value you specified in the **Update Recovery options** field is not valid.

**User response:**

Specify a valid value: Y or N.

---

**BSYR860E** Invalid value. Specify A to always run CA, or N to run CA only if needed for recovery.

**Explanation:**

The value you specified in the **Run CA** field is not valid.

**User response:**

Specify a valid value: A or N.

---

**BSYR861E** Invalid Value. Specify Y to display the Archive Log Timestamp information.

**Explanation:**

The value that you specified for **Display Archive Logs times** is not valid.

**User response:**

Specify Y to display the Archive Log Timestamp information.

---

**BSYR862E** Invalid Value. Specify Y to display the Checkpoint Timestamp information.

**Explanation:**

The value that you specified for **Display Checkpoint times** is not valid.

**User response:**

Specify Y to display the Checkpoint Timestamp information.

---

**BSYR863E** Invalid timestamp. Value must be lower than current time.

**Explanation:**

The timestamp that you specified is not valid. The timestamp cannot be later than the current timestamp.

**User response:**

Specify a timestamp that is earlier than the current time.

---

**BSYR864I** No log record timestamps found for this IMS subsystem for the requested time ranges.

**Explanation:**

No archive log records were found for this IMS subsystem for the requested time range.

**User response:**

Specify a different time range.

---

**BSYR865I** No checkpoint timestamps found for this IMS subsystem for the requested time ranges.

**Explanation:**

No checkpoints were found for this IMS subsystem for the requested time range.

**User response:**

Specify a different time range.

---

**BSYR866I**      **No log records found for this IMS subsystem for the requested time ranges.**

**Explanation:**

No log records were found for this IMS subsystem for the requested time ranges.

**User response:**

Specify a different time range.

---

**BSYR867E**      **Invalid value. Specify Y to use VSAM load mode, or N if you do not want to use VSAM load mode.**

**Explanation:**

The value that you specified in the **Use VSAM Load Mode** field is not valid.

**User response:**

Specify a valid value: Y or N.

---

**BSYR868E**      **Invalid value. Specify C to continue if an error is encountered, or S to stop.**

**Explanation:**

The value that you specified in the **Action on Error** field is not valid.

**User response:**

Specify a valid value: C or S.

---

**BSYR869E**      **Invalid value. Specify P for DISP(PDS), O for DISP(OLD), or N for DISP(NEW).**

**Explanation:**

The value that you specified in the **Database Dataset Characteristics Error** field is not valid.

**User response:**

Specify a valid value: P, O, or N.

---

**BSYR870E**      **Invalid character. DBSLxxx field must be alphanumeric with no spaces.**

**Explanation:**

The value that you specified in the **DBSLxxx** field is not valid.

**User response:**

Specify an alphanumeric value.

---

**BSYR871E**      **From Offload must be Y or N.**

**Explanation:**

The value that you specified in the **From Offload** field is not valid.

**User response:**

Specify Y to indicate that any data sets that need to be restored from a System Level Backup should be done using an offload copy of the System Level Backup. Specify N to have the data sets restored using the System Level Backup on disk.

---

**BSYR872E**      **BSY cannot be executed in split screen.**

**Explanation:**

BSY is already active. It cannot be invoked again in a split screen.

**User response:**

None required.

---

**BSYR873I**      **Recovery information saved for subsystem.**

**Explanation:**

Recovery information was saved for the IMS subsystem.

**User response:**

None. This message is informational.

---

**BSYR874E**      **Updating recovery information for the IMS subsystem encountered an unrecoverable error.**

**Explanation:**

An unexpected error was encountered while updating your profile in the VSAM repository data set.

**User response:**

Inspect the system log for any informational messages related to the problem. Fix the problem and then try again.

---

**BSYR875E**      **The IDCAMS DELDEF data set must be a PDS.**

**Explanation:**

The IDCAMS DELDEF data set must be a partitioned data set and contain all delete/define statements for the restored objects.

**User response:**

Specify a valid PDS.

---

**BSYR876W**      **ACBLIB member could not be found for one or more DBD. Indexes/Logicals might not be included.**

**Explanation:**

The ACBLIB member for one or more DBDs was not found. Indexes or Logical relationships for these databases could not be resolved and will not be included for recovery.

**User response:**

Ensure that the ACBLIB member is in the IMS ACBLIB data set.

---

**BSYR877W**      **ACBLIB member could not be found for the DBD. Indexes/Logicals might not be included.**

**Explanation:**

The ACBLIB member for the DBD was not found. Indexes or Logical relationships for this database could not be resolved and will not be included for recovery.

**User response:**

Ensure that the ACBLIB member is in the IMS ACBLIB data set.

---

**BSYR878E**      **Invalid value. Specify Y to add groups, or N to not add groups.**

**Explanation:**

The value that you specified in the **Add Group** field is not valid.

**User response:**

Specify Y to add a DBRC group, or N if you do not want to add a group.

---

**BSYR879W**      **Objects that are member of a DBRC group cannot be excluded.**

**Explanation:**

An object that is a member of an included DBRC group was excluded from recovery.

**User response:**

Group objects cannot be excluded. To exclude a group object, the object must be removed from the group.

---

**BSYR880E**      **Invalid value. A value must be specified for DBDSLxxx if DBSL DISP is selected.**

**Explanation:**

The value that you specified for **DBSLxxx** is not valid. If a DBSP DISP is selected, then you must specify a value for **DBSLxxx**.

**User response:**

Specify a valid value for **DBSLxxx**.

---

**BSYR881E**      **Invalid command. Specify D to display all data sets using this alias**

**Explanation:**

The line command that you specified was not valid. D is the only valid command. This command will display all data sets using this alias.

**User response:**

Specify D to display all data sets using this alias.

---

**BSYR882E**      **No line commands available for user included/excluded data sets.**

**Explanation:**

The line command that you specified is not valid. There are no line commands that are supported for this type.

**User response:**

None required.

---

**BSYR883E**      **SLB Used at DR must be L for Local Site, or R for Remote Site.**

**Explanation:**

The value that you specified for the **SLB Used for DR** field is not valid. Valid values are L for Local Site Backups, or R for Recovery Site Backups.

**User response:**

Specify a valid value: L or R.

---

**BSYR884E**      **Invalid value. Backup method must be (B)cv, (S)nap, (F)lash, or dfsmsdss(L).**

**Explanation:**

The value that you specified for **Backup Method** is not valid. Valid values are (B)cv, (S)nap, (F)lash, or dfsmsdss(L).

**User response:**

Specify a valid value: B, S, F, or L.

---

**BSYR885E**      **Invalid Value. Backup Method must be B for BCV volumes, S for SNAP volumes, F for Flash Volumes, or L for DFSMSdss Disk copy.**

**Explanation:**

The value that you specified in the **Backup Method** field is not valid.

**User response:**

Specify a valid value: B, S, F, or L.

---

**BSYR886E**      **Invalid value. Backup method must be (B)cv, (S)nap, (F)lash, or dfsmsdss(L)**

**Explanation:**

The value that you specified in the **Backup Method** field is not valid.

**User response:**

Specify a valid value: B, S, F, or L.

---

**BSYR887E**      **Invalid value. Specify Y to add databases, or N to not add databases.**

**Explanation:**

The value that you specified to add databases is not valid.

**User response:**

Specify Y to add databases, or N to not add databases.

---

**BSYR888E**      **Auto mapping and Stogroup discover are not valid for BCV type targets or phased SNAP type targets.**

**Explanation:**

Auto mapping and Stogroup discover are not valid for BCV type targets or phased SNAP type targets.

**User response:**

Specify a different discovery method.

---

**BSYR889E**      **Invalid Value. Specify Y to process RLDS data sets for DR, or N if you do not want to process RLDS data sets for DR.**

**Explanation:**

The value that you specified in the **Use RLDS data sets at DR Site** field is not valid.

**User response:**

Specify a valid value: Y or N.

---

**BSYR890E**      **Invalid Value. Specify Y to customize conditioned RECON data set names, or N if you do not want to update conditioned RECON data set names.**

**Explanation:**

The value that you specified in the **Customize RECON data set name** field is not valid.

**User response:**

Specify a valid value: Y or N.

---

**BSYR891W**      **No groups found in DBRC.**

**Explanation:**

No groups are defined in DBRC.

**User response:**

You cannot specify DBRC groups.

---

**BSYR892E**      **No Objects Meet Wildcard Criteria, or DBRC group not found or empty.**

**Explanation:**

When performing the explode operation, no objects were found in the IMS subsystem that matched the specified object mask, a DBRC group was not found in DBRC, or a specified DBRC group was empty.

**User response:**

Specify a valid value.

---

**BSYR893E**      **Excluded objects cannot be exploded.**

**Explanation:**

All the items in the application profile are for excluded objects, and cannot be exploded.

**User response:**

None required.

---

**BSYR894E**      **Invalid Value. Specify Y if you want to run Health Check, N if you do not want to run Health Check, or U to edit Health Check Report options.**

**Explanation:**

The specified value in the **Run Health Check** field is not valid.

**User response:**

Specify a valid value: Y, N, or U.

---

**BSYR895E**      **Invalid Value. Specify Y to verify recovery, or N if you do not want to verify recovery.**

**Explanation:**

The value that you specified in the **Verify before Recovery** field is not valid.

**User response:**

Specify a valid value: Y or N.

---

**BSYR896E**      **Recovery Utility must be D for DRF, or U for User.**

**Explanation:**

The value that you specified in the **Recovery utility** field is not valid.

**User response:**

Specify a valid value: D or U.

---

**BSYR897E**      **Change Accum Utility must be H for HPCA, U for User, or N for None.**

**Explanation:**

The value that you specified in the **Change Accum Utility** field is not valid.

**User response:**

Specify a valid value: H, U, or N.

---

**BSYR898E**      **Post Recovery IC Utility must be H for HPCA, U for User, or N for None.**

**Explanation:**

The value that you specified in the **Post Recovery IC** field is not valid.

**User response:**

Specify a valid value: H, U, or N.

---

**BSYR899E**      **Invalid value. Specify L for type(list) verify, A for type(alloc) verify, or O for type(open) verify.**

**Explanation:**

The value that you specified in the **Verification Level** field is not valid.

**User response:**

Specify a valid value: L, A, or O.

---

**BSYR900E**      **Invalid Value. Specify Y to invoke Pointer Checker, or N to not invoke it.**

**Explanation:**

The value that you specified in the **Invoke Pointer Checker** field is not valid.

**User response:**

Specify a valid value: Y or N.

---

**BSYR901E**      **Invalid entry. Only one recovery range can be selected for the Application Recovery utility. Select only one line, or select none and specify a recovery timestamp.**

**Explanation:**

Only one recovery range can be selected for the Application Recovery utility.

**User response:**

Select only one line, or select none and specify a recovery timestamp.

---

**BSYR902E**      **Invalid Value. Specify Y to display the Valid Recovery Point information.**

**Explanation:**

The value that you specified in the **Display Valid Recovery Points** field is not valid.

**User response:**

Specify Y to display the Valid Recovery Points information.

---

**BSYR903I**      **No Valid Recovery Points found for this IMS subsystem for the time ranges requested.**

**Explanation:**

No valid recovery points were found for this IMS subsystem for the requested time range.

**User response:**

Specify a different time range.

---

**BSYR904E**      **Invalid value. Specify Y to use the Index Rebuild utility, or N to use the standard IMS utility.**

**Explanation:**

The value that you specified in the **Use Index Utility** field is not valid.

**User response:**

Specify a valid value: Y or N.

---

**BSYR908E**      **Invalid value. Specify Y for CHECK, or N for NOCHECK.**

**Explanation:**

The value that you specified in the **CHECK** field is not valid.

**User response:**

Specify a valid value: Y or N. This field can also be left blank.

---

**BSYR909E**      **Invalid value. PIT recovery is only allowed for Recovery Utility DRF.**

**Explanation:**

PIT recovery is only allowed with the DRF recovery utility.

**User response:**

Choose a different recovery point.

---

**BSYR910E**      **Invalid Value – Archive Logs must be processed when External Subsystem is selected.**

**Explanation:**

Coordinated disaster recovery with an external subsystem requires remote site recovery to include archive logs.

**User response:**

Specify either Y or U for **Archive Logs Processed at DR** so that disaster recovery preparation and remote site recovery will include archive logs. If you do not want coordinated disaster recovery with an external subsystem, ensure that the **External Subsystem** field is blank.

---

**BSYR912E**      **Invalid Value - Enter a "Y" to enable issuing NOTIFY.ICs or "N" if you do not want to enable using NOTIFY.ICs.**

**Explanation:**

An invalid value was entered for **Issue NOTIFY.IC**.

**User response:**

Specify either Y or N for the **Issue NOTIFY.IC** option.

---

**BSYR928E**      **Recovery Resources cannot be set to "I" if SLB Processing Only is set to "Y".**

**Explanation:**

Recovery Resources cannot be set to I - Image Copy only, if SLB Processing only is set to Y.

**User response:**

Either change SLB Processing Only to N or include SLBs in the Recovery Resources.

---

**BSYR929E**      **End timestamp must be later than Start timestamp.**

**Explanation:**

If the End Timestamp is specified, it cannot be a time that precedes the Start Timestamp.

**User response:**

Correct either the Start or End Timestamp, and press PF3 for a list of quiet times.

---

**BSYR931E**      **Invalid Value - Specify "B" if you want to prepare JCL to perform DR recovery using an SLB, or "I" if you want to generate JCL to perform recovery using image copies.**

**Explanation:**

The value specified for DR Method is not valid.

**User response:**

Specify B if SLBs will be sent offsite and are to be included in the remote site recovery. Or, specify I if IMS database recovery should be done with image copies, and any available change accums and archive logs.

---

**BSYR932E**      **Invalid Value – Image Copies must be processed when Image Copy DR Method is specified.**

**Explanation:**

An image copy DR method requires remote site recovery to include image copies.

**User response:**

Specify either Y or U for **Image Copies Processed at DR** so that disaster recovery preparation and remote site recovery will include image copies. If you do not want to use the Image Copy DR Method, change the DR method to B.

---

**BSYR933E**      **The Health Check function is not available.**

**Explanation:**

If the IBM IMS Recovery Solution Pack is not available, then the Health Check function is not available.

**User response:**

The library where the IBM Recovery Solution Pack is installed must be specified in the IMSTOOLx variables in the BSYV220 CLIST. Update the CLIST and then restart IMS Recovery Expert.

---

**BSYR934E**      **INIT Health Check build JCL failed.**

**Explanation:**

An error occurred while initializing the function to create the JCL required to create the Health Check Report.

**User response:**

The library where the IBM Recovery Solution Pack is installed must be specified in the IMSTOOLx variables in the BSYV220 CLIST. Update the CLIST and then restart IMS Recovery Expert.

---

**BSYR935E**      **Error occurred building Health Check Report JCL.**

**Explanation:**

An error occurred while creating the JCL required to create the Health Check Report.

**User response:**

The library where the IBM Recovery Solution Pack is installed must be specified in the IMSTOOLx variables in the BSYV220 CLIST. If this is configured correctly, review any additional WTOs that were issued that indicate a problem.

---

**BSYR936E**      **Error occurred creating Health Check Report JCL.**

**Explanation:**

An error occurred while creating the JCL required to create the Health Check Report.

**User response:**

The library where the IBM Recovery Solution Pack is installed must be specified in the IMSTOOLx variables in the BSYV220 CLIST. If this is configured correctly, review any additional WTOs that were issued that indicate a problem.

---

**BSYR937E**      **Invalid value - Edit Health Check Options should be Y or N.**

**Explanation:**

The specified value is not valid.

**User response:**

Specify Y if you want to edit the Health Check Report options. Otherwise, specify N.

---

**BSYR939E**      **Invalid UTC timestamp - range is from -1100 through +1400**

**Explanation:**

The specified timezone offset portion of the UTC timestamp is not valid. You must specify an offset between -1100 and +1400.

**User response:**

Specify a valid timestamp and retry the operation.

---

**BSYR960E**      **Invalid value - Disable old backup in DR PDS must be set to "Y" or "N".**

**Explanation:**

An invalid value was specified for the **Disable old backup in DR PDS** option.

**User response:**

Enter Y if you want to disable the previously built backup of RECON and the IMS Recovery Expert repository. If not, enter N.

---

**BSYR961E**      **Invalid value - Key label replication must be set to "Y" or "N".**

**Explanation:**

An invalid value was specified for the **Key label replication** option.



**User response:**

Enter Y if you want the existing key label information to be set on the KEYLABEL parameter of the **DEFINE CLUSTER** command. If not, enter N.

---

**BSYR962E** Invalid value - Archive OLDS at DR site must be set to "Y" or "N".

**Explanation:**

An invalid value was specified for the **Archive OLDS at DR site** option.

**User response:**

Enter Y if you want OLDS archiving at the DR site. If not, enter N. Enter U if you want to update OLDS archiving options.

---

**BSYR963E** Invalid value - Delete all SUBSYS in RECON must be set to "Y" or "N".

**Explanation:**

An invalid value was specified for the **Delete all SUBSYS in RECON** option.

**User response:**

Enter Y if you want to delete all SUBSYS records in the DR RECON. Enter N if you want to delete only SUBSYS records for the subsystems defined in the DR profile.

---

**BSYR964E** Invalid value - Recover IMS catalog first must be set to "Y" or "N".

**Explanation:**

An invalid value was specified for the **Recover IMS catalog first** option.

**User response:**

Enter Y if you want to recover IMS catalog database prior to other databases. If not, enter N.

---

**BSYR965E** UIC STOP Timestamp must be greater than UIC RUN Timestamp.

**Explanation:**

Invalid timestamp values were specified. **UIC STOP Timestamp** must be greater than **UIC RUN Timestamp**.

**User response:**

Specify valid timestamp values.

---

**BSYR966E** UIC STOP Timestamp must be less than Recovery Timestamp.

**Explanation:**

Invalid timestamp values were specified. **UIC STOP Timestamp** must be less than **Recovery Timestamp**.

**User response:**

Specify valid timestamp values.

---

**BSYR967E** Recovery Resources cannot be set to "U" for DR or System Restore.

**Explanation:**

**Recovery Resources** cannot be set to U for Disaster Recovery or System Restore.

**User response:**

Specify a valid value for **Recovery Resources**.

---

**BSYS530I** Repository backup starting

**Explanation:**

The repository backup utility has started processing.

**User response:**

None. This message is informational.

---

**BSYS531I** Repository backup has ended. Return code = nnnnnnnn

**Explanation:**

The repository backup utility has ended. The return code is displayed.

**User response:**

None. This message is informational.

---

**BSYS532E** Unable to locate REPRO INFILE DD ddname

**Explanation:**

The repository backup utility could not locate the specified DD name for processing.

**User response:**

Ensure that the specified ddname is allocated in the JCL.

---

**BSY901E** The default load library could not be located

**Explanation:**

The data set name entered for the load library was not found.

**User response:**

Enter a valid load library data set name and continue.

---

**BSY902E** an IMS subsystem ID has to be entered for processing

**Explanation:**

There was no valid value entered for IMS subsystem ID.

**User response:**

Enter a valid IMS subsystem name.

---

**BSY904E** The specified data set could not be opened for I/O

**Explanation:**

A VSAM open error occurred while attempting to open the data set specified for the IMS control data set.

**User response:**

Verify that the VSAM data set is accessible.

---

**BSY905E** An unexpected return code from VSAM was encountered while

doing a read of the control file.  
**RC=return code**

**Explanation:**

A VSAM read error occurred while attempting to access the data set specified for the IMS control data set. The VSAM return code is provided for diagnostic purposes.

**User response:**

Use the return code to resolve the VSAM read error before continuing.

---

**BSY906I**            **The control file record for IMS subsystem ssid has been successfully updated**

**Explanation:**

The control file named in the **IMS control data set** field has been successfully updated to include the specified changes and definitions for the listed IMS subsystem.

**User response:**

None. This message is informational.

---

**BSY907E**            **An unexpected return code from VSAM was encountered while doing an update operation of the control file. RC1=return code 1 RC2=return code 2**

**Explanation:**

A VSAM update error occurred while attempting to update the data set specified for the IMS control data set. The RC1 and RC2 (VSAM return codes) are provided for diagnostic purposes.

**User response:**

Use the return codes to resolve the VSAM errors before continuing.

---

**BSY908I**            **The control file record for IMS subsystem ssid has been successfully added**

**Explanation:**

The control file named in the **IMS control data set** field has been successfully updated to include the new record, based on the specified definitions for the listed IMS subsystem.

**User response:**

None. This message is informational.

---

**BSY909E**            **Invalid value. Valid options are 1 and 2.**

**Explanation:**

The value you specified is not valid. Valid values are 1 and 2.

**User response:**

Enter a valid value.

---

**BSY910E**            **An unexpected return code from VSAM was encountered while doing an add operation to the control file. RC1= return code 1 RC2=return code 2**

**Explanation:**

A VSAM error occurred while attempting to perform an add operation to the specified IMS control data set. The RC1 and RC2 (VSAM return codes) are provided for diagnostic purposes.

**User response:**

Use the return codes to resolve the VSAM errors before continuing.

---

**BSY911E**            **The FIND command requires specification of a target string.**

**Explanation:**

No parameters were specified with the **F (ind)** command. No match can be made unless you specify a string to find.

**User response:**

Enter a FIND parameter.

---

**BSY912I**            **The requested find string was not found.**

**Explanation:**

No matches were found for the string you specified with the **FIND** command.

**User response:**

None. This message is informational.

---

**BSY913I**            **The control file record has been successfully updated.**

**Explanation:**

The control file was updated successfully.

**User response:**

None. This message is informational.

---

**BSY914E**            **An unknown column was specified using the SORT command.**

**Explanation:**

The column you specified with the **SORT** command is not known.

**User response:**

Verify that you correctly typed the name of the column or select another column.

---

**BSY915E**            **SORT is not supported for the specified column.**

**Explanation:**

The column you attempted to SORT is not supported as a column on which to sort.

**User response:**

Refer to the sort columns listed on the **Define Sort Columns** panel for a list of valid columns on which the sort can be based and redefine the sort.

---

**BSY916E**            **Sort column not entered. Column name or number must be specified.**

**Explanation:**

A column was not specified with the **SORT**. A column name or number must be specified for the **SORT** command.

**User response:**

Ensure that if the column name is used, that all spaces in the name are replaced with an underscore.

---

**BSY917E**            **Incomplete string: Put an ending quote at the end of the string.**

**Explanation:**

The ending quote was omitted from the string.

**User response:**

Put an ending quote at the end of the string.

---

**BSY918I**            **Bottom of Data reached: CHARS string not found. Press PF5 to continue from top.**

**Explanation:**

The indicated character string was not found.

**User response:**

To continue searching for the character string from the top of the dialog, press PF5.

---

**BSY919I**            **Top of data reached: CHARS string not found. Press PF5 to continue from bottom.**

**Explanation:**

The indicated character string was not found.

**User response:**

To continue searching for the character string from the bottom of the dialog, press PF5.

---

**BSY920E**            **File tailoring open returned a file tailoring already in progress condition.**

**Explanation:**

An attempt to perform file tailoring for utility customization failed. There was a file tailoring session already in progress. File tailoring sessions cannot be performed concurrently.

**User response:**

None required.

---

**BSY921E**            **File tailoring open returned the output file already in use condition -- ENQ failed.**

**Explanation:**

An attempt to open the IMS control data set failed with an ENQ error. The data set is already open for output.

**User response:**

Verify that you are the only user attempting to access this file.

---

**BSY922E**            **File tailoring open returned the skeletal file or output file not allocated condition.**

**Explanation:**

An attempt to perform file tailoring failed because either the tailoring skeleton file or output file is not allocated.

**User response:**

Verify that all required files are allocated prior to performing file tailoring.

---

**BSY923E**            **File tailoring open returned a severe error condition.**

**Explanation:**

An attempt to perform file tailoring failed because a severe error condition was encountered on open.

**User response:**

Verify that all required files are allocated and accessible prior to performing file tailoring.

---

**BSY924E**            **File tailoring open returned an unknown code -- severe error.**

**Explanation:**

An attempt to perform file tailoring failed because a severe error condition was encountered on open.

**User response:**

Verify that all required files are allocated and accessible prior to performing file tailoring.

---

**BSY925E**            **File tailoring close returned a file not open condition -- severe error.**

**Explanation:**

An attempt to perform file tailoring failed because a file-not open condition was encountered on close.

**User response:**

Verify that all required files are allocated and accessible and that there are no other tailoring sessions running concurrently with your session.

---

**BSY926E**            **File tailoring close returned an output file in use condition.**

**Explanation:**

An attempt to perform file tailoring failed because an output file- in use condition was encountered on close.

**User response:**

Verify that all required files are allocated and accessible and that there are no other tailoring sessions running concurrently with your session.

---

**BSY927E**      **File tailoring close returned a skeletal file or output file not allocated condition.**

**Explanation:**  
An attempt to close file tailoring failed because either a tailoring skeleton file or output file was not allocated.

**User response:**  
Verify that all required files are allocated and accessible and that there are no other tailoring sessions running concurrently with your session.

---

**BSY928E**      **File tailoring close returned a severe error.**

**Explanation:**  
An attempt to perform file tailoring failed because a severe error condition was encountered on close.

**User response:**  
Verify that all required files are allocated and accessible prior to performing file tailoring.

---

**BSY929E**      **File tailoring close returned an unknown code -- severe error.**

**Explanation:**  
An attempt to perform file tailoring failed because a severe error condition was encountered on close.

**User response:**  
Verify that all required files are allocated and accessible prior to performing file tailoring.

---

**BSY930E**      **File tailoring close returned a output member exists in the output library and NOREPL was specified.**

**Explanation:**  
An attempt to perform file tailoring failed because the close process could not replace the pre-existing tailored member in the output file.

**User response:**  
Change the output member name to a new name or ensure that the output library allows for member replacement.

---

**BSY931E**      **File tailoring include returned a skeleton does not exist condition.**

**Explanation:**  
An attempt to perform file tailoring failed because the tailoring process could not locate a required tailoring skeleton.

**User response:**  
Assure that all required files are allocated to perform file tailoring.

---

**BSY932E**      **File tailoring include returned a skeleton in use -- ENQ failed condition.**

**Explanation:**  
An attempt to access a tailoring skeleton failed with an ENQ error (member-in-use).

**User response:**  
Verify that all required tailoring files are allocated and that there are no other tailoring sessions running concurrently.

---

**BSY933E**      **File tailoring include returned a data truncation or skeleton library or output file not allocated condition.**

**Explanation:**  
An attempt to perform file tailoring failed because either the tailoring skeleton file or output file is not allocated.

**User response:**  
Verify that all required files are allocated prior to performing file tailoring.

---

**BSY934E**      **File tailoring include returned a severe error condition.**

**Explanation:**  
An attempt to perform file tailoring failed because a severe error condition was encountered on an include operation.

**User response:**  
Verify that all required files are allocated and accessible prior to performing file tailoring.

---

**BSY935E**      **File tailoring include returned an unknown condition -- severe error.**

**Explanation:**  
An attempt to perform file tailoring failed because a severe error condition was encountered on an include operation.

**User response:**  
Verify that all required files are allocated and accessible prior to performing file tailoring.

---

**BSY936E**      **Allocation Error - The ISPF DD is already allocated and cannot be deallocated - Process not completed.**

**Explanation:**  
The ISPF DD allocation failed. The DD is already allocated and cannot be deallocated for this TSO session. The process did not complete successfully.

**User response:**  
None required.

---

**BSY937E**      **Allocation Error - An error was encountered allocating the ISPWRK1 or ISPWRK2 DD - Process not complete.**

**Explanation:**

The ISPWRK1 or ISPWRK2 DD allocation failed.

**User response:**

Verify TSO session parameters are set correctly for your site prior to allocation of these DD statements. The process did not complete successfully.

---

**BSY938E**                    **Field Required - The data set entered is a partitioned data set and the member name is required.**

**Explanation:**

A required field was not specified. The data set entered is a PDS (partitioned data set) and a member in this PDS must be referenced.

**User response:**

Enter a valid member name for PDS access.

---

**BSY940E**                    **The specified data set could not be found in the MVS catalog.**

**Explanation:**

The specified data set could not be found in the z/OS (MVS) catalog.

**User response:**

Ensure that the data set name is correct.

---

**BSY941**                    **The RFIND key works only after a FIND character string is entered.**

**Explanation:**

A repeat **FIND** (**RFIND**) was issued before a **FIND** command was issued. You must issue **FIND** before **RFIND** will work.

**User response:**

Issue **FIND** prior to attempting to issue **RFIND**.

---

**BSY942E**                    **Invalid Sort number. Enter a valid digit.**

**Explanation:**

An invalid character was entered in the Srt column. Valid characters are the digits 1, 2, 3,... up to 9, or the number of sortable columns, whichever is less.

**User response:**

Specify a valid sort number.

---

**BSY943E**                    **Same Sort number entered twice.**

**Explanation:**

The same sort number was entered for more than one column. The screen is positioned to the second instance. Sort sequence numbers must be unique.

**User response:**

Specify a valid sort number.

---

**BSY944E**                    **Sort sequence skips a number.**

**Explanation:**

The selected sorting sequence skips a number. This is not allowed. The screen is positioned to a selection

whose number is lacking an immediate predecessor. The sort sequence is completely rebuilt from the Cmd (and Dir) information. Any previously existing sort sequence is entirely replaced. It is not added to or extended by the new entries.

**User response:**

Specify a valid sort sequence that does not skip a number.

---

**BSY945E**                    **Invalid Dir entered. Must be A or D (ascending/descending).**

**Explanation:**

The selected sorting direction is invalid. Only A (ascending) or D (descending) can be specified. A blank indicates ascending (default).

**User response:**

Specify a valid sorting direction.

---

**BSY946E**                    **Dir not valid without Ord.**

**Explanation:**

A sorting direction was selected for a column that was not selected to be sorted. Sorting direction is only a valid choice for selected columns.

**User response:**

Select a sorting direction and order.

---

**BSY947E**                    **Max Sort Columns exceeded. Sorting first 10 columns.**

**Explanation:**

More columns were selected for sorting than are supported. Nine columns can be selected. Under certain circumstances the limit is less than nine, due to internal constraints. For example, sorting a date field can be implemented by three sorts of partial column fields. In that case, the column would count as three toward the maximum of nine, not one.

**User response:**

Specify the appropriate allowable maximum number of sort columns.

---

**BSY948E**                    **Fix Columns cannot exceed screen size.**

**Explanation:**

More columns were selected to be fixed than will fit on the screen.

**User response:**

Remove the (F) selection character from one or more columns.

---

**BSY950E**                    **Invalid selection character. "F" and "U" are valid.**

**Explanation:**

An invalid Cmd character was entered. Valid characters are F (fix) and U (unfix). Fix causes the column to move to the fixed area on the left side of the

screen. Fixed columns do not scroll horizontally when **LEFT** or **RIGHT** scrolling commands are issued. Unfix moves the column out of the fixed area, and allows it to scroll horizontally when **LEFT** and **RIGHT** scroll commands are issued.

**User response:**

Either remove the invalid character or enter a valid one.

---

**BSY951E**            **Invalid entry. Must be numeric.**

**Explanation:**

An invalid Cmd value was entered. Cmd values must be numeric. If the column is fixed, the number must be in the fixed range. If the column is not fixed, the number must be in the unfixed range.

**User response:**

Either remove the invalid number or enter a valid one.

---

**BSY952E**            **Invalid entry for fixed column.**

**Explanation:**

An invalid Cmd value was entered for a fixed column. Valid selections for fixed column are up to the number of fixed columns.

**User response:**

Either remove the invalid number or enter a valid one.

---

**BSY953E**            **Invalid entry for unfixed column.**

**Explanation:**

An invalid Cmd value was entered for an unfixed column. The number must be less than the number of columns, and greater than the number of fixed columns.

**User response:**

Either remove the invalid number or enter a valid one.

---

**BSY954E**            **Invalid value entered for column size: non-numeric data.**

**Explanation:**

An invalid Cmd value was entered. This must be a number between the values in the **MIN** and **MAX** fields.

**User response:**

Either remove the invalid number or enter a valid one.

---

**BSY955E**            **Invalid value entered for column size: out of range.**

**Explanation:**

An invalid Cmd value was entered. This must be a number between the values in the **MIN** and **MAX** fields. MIN is the smallest acceptable value. MAX is the largest acceptable value.

**User response:**

Either remove the invalid number or enter a valid one.

---

**BSY956E**            **Total fixed column sizes cannot exceed screen size.**

**Explanation:**

The Cmd values entered would result in the sum of the fixed column sizes to exceed the screen size. This is not allowed. The fixed columns are those with an or in the Fix column. Fixed columns are always displayed, and so must fit on the screen.

**User response:**

Either change the fixed column sizes so that the total is less than the screen size or cancel to return to the previous panel.

---

**BSY957E**            **New configuration makes column size invalid.**

**Explanation:**

The requested column sizes make at least one unfixed column undisplayable. The cursor is positioned on the value where the problem was detected. The unfixed area on the screen would be too small to show the column where the cursor is placed.

**User response**

Do one of the following:

- Make the column where the cursor is smaller so that it can fit in the available unfixed area
- Set it to its maximum size (width)
- Make the fixed area smaller
- Cancel to return to the previous panel

---

**BSY958E**            **Column does not fit in unfixed area in new configuration.**

**Explanation:**

The requested column sizes would make the unfixed column where the cursor is positioned undisplayable. The unfixed area on the screen would be too small to show this column.

**User response:**

Shrink the fixed area by either unfixing columns or making fixed columns smaller. The column where the cursor is cannot be partially displayed (min-max) so its size cannot be changed.

---

**BSY959E**            **New configuration makes this column size invalid.**

**Explanation:**

Fixing the requested columns would shrink the available area for unfixed columns unacceptably. One or more unfixed columns would not fit in the remaining unfixed area of the screen. The cursor is placed on a row that represents one such column. Therefore, the requested configuration is not allowed.

**User response:**

To change column sizes, cancel out of the CFIX function and invoke the CSIZE function. Either cancel to exit CFIX with no change or blank out one or more FIX selections until an allowable fixed size is reached.

---

**BSY960E**            **Invalid fixed selections. Would not leave enough space for this column.**

**Explanation:**

Fixing the columns requested would make at least one unfixed column undisplayable. The cursor is positioned on the row that represents one such unfixed column, whose minimum displayable size would not fit in the available screen area.

**User response**

Shrink the requested fixed area by either:

- Requesting fewer fixed columns
- Unfixing one or more fixed columns
- Cancel out of CFIX and invoke CSIZE in order to shrink one or more fixed columns enough so that all unfixed columns have the space they require

---

**BSY962E**            **Duplicate Cmd values entered.**

**Explanation:**

Duplicate Cmd numbers were entered. The cursor points to the second instance of a Cmd value.

**User response:**

Either change this value, clear it, or exit the CORDER function.

---

**BSY963E**            **Cursor not on data element.**

**Explanation:**

**CEXPAND** was issued and the cursor was not located on a valid (expandable) area. **CEXPAND** requires the cursor to be positioned on a data element (non-heading area) in the dynamic area of the display. Or **CEXPAND** can be issued specifying the row and column of the data element to expand.

**User response:**

Ensure the cursor is located on a valid (expandable) area prior to issuing the **CEXPAND** command.

---

**BSY964E**            **Invalid scroll amount for CRIGHT. Must be numeric.**

**Explanation:**

Invalid (non-numeric) parameter to **CRIGHT** specified. **CRIGHT** accepts one numeric parameter: the number of columns to scroll right. If no parameter is entered a value of 1 is assumed.

**User response:**

Specify a numeric parameter to the **CRIGHT** command.

---

**BSY965E**            **Invalid scroll amount for CLEFT. Must be numeric.**

**Explanation:**

Invalid (non-numeric) parameter to **CLEFT** specified. **CLEFT** accepts one numeric parameter: the number of columns to scroll left. If no parameter is entered, a value of 1 is assumed.

**User response:**

Specify a numeric parameter to the **CLEFT** command.

---

**BSY966E**            **Invalid parameter to ICRIGHT; Must be numeric.**

**Explanation:**

A parameter to ICRIGHT is not numeric. ICRIGHT (inner column scroll right) accepts either zero, one, or two numeric parameters. ICRIGHT can be abbreviated as ICR.

**User response:**

Specify a valid, numeric parameter for ICRIGHT.

---

**BSY967E**            **Parameter to ICRIGHT too long. Invalid.**

**Explanation:**

A parameter to ICRIGHT is too long. ICRIGHT does not process more than eight digits in a parameter, which is more than double any reasonable value.

**User response:**

Specify a valid parameter for ICRIGHT.

---

**BSY968E**            **Parameter to ICRIGHT is zero. Invalid.**

**Explanation:**

A parameter to ICRIGHT has the value zero. This is not supported.

**User response:**

Specify non-zero parameters to ICRIGHT.

---

**BSY969E**            **ICRIGHT: unspecified column.**

**Explanation:**

ICRIGHT was invoked with no parameters and the cursor is not positioned in the dynamic panel area.

**User response:**

Either put the cursor in the column that should be scrolled or specify the column by number. Column numbers can refer to visible columns (in the current display window) only. Number starts at 1, on the left side.

---

**BSY971E**            **ICRIGHT: Column number specified is too big.**

**Explanation:**

A column number parameter to ICRIGHT must be between 1 and the number of columns currently on the display screen.

**User response:**

To refer to a column by number, you must first position the display window so that the desired column is visible.

---

**BSY972E Invalid parameter to ICLEFT; Must be numeric.**

**Explanation:**

A parameter to ICLEFT is not numeric. ICLEFT (inner column scroll left) accepts either zero, one, or two numeric parameters. ICLEFT can be abbreviated as ICL.

**User response:**

Specify a valid parameter for ICLEFT.

---

**BSY973E Parameter to ICLEFT too long. Invalid.**

**Explanation:**

A parameter to ICLEFT is too long. ICLEFT does not process more than eight digits in a parameter which is more than double reasonable value.

**User response:**

Specify a parameter less than or equal to eight digits for ICLEFT.

---

**BSY974E Parameter to ICLEFT is zero. Invalid.**

**Explanation:**

A parameter to ICLEFT has the value zero. This is not supported.

**User response:**

Specify a non-zero number for ICLEFT.

---

**BSY975E ICLEFT: unspecified column.**

**Explanation:**

ICLEFT was invoked with no parameters and the cursor is not positioned in the dynamic panel area.

**User response:**

Either put the cursor in the column that should be scrolled or specify the column by number. Column numbers can refer to visible columns (in the current display window) only. Numbering starts at 1 on the left side.

---

**BSY976E Column selected not sortable. Sort selection list presented.**

**Explanation:**

You cannot preform a SORT on the column you selected. Valid sort columns are displayed in the sort selection list.

**User response:**

Sort on one of the valid columns displayed in the selection list.

---

**BSY977E ICLEFT: Column number specified is too big.**

**Explanation:**

A column number parameter to ICLEFT must be between 1 and the number of columns currently on the display screen.

**User response:**

To refer to a column by number, you must first position the display window so that the desired column is visible.

---

**BSY978E Invalid column number specified for SORT (not numeric).**

**Explanation:**

Invalid column number parameter to CSORT specified (non-numeric).

**User response:**

Specify a column number parameter to CSORT that is between 1 and the number of columns currently on the display screen. This can be followed by a direction value A or D (ascending/ descending).

---

**BSY979E Invalid Column number specified. Too many digits.**

**Explanation:**

Invalid parameter to CSORT specified. More than eight digits were specified. Parsing stops at eight digits.

**User response:**

Specify a column number parameter between 1 and the number of columns currently on the display screen. This can be followed by a direction value A or D (ascending/descending).

---

**BSY980E Invalid Column number specified: zero.**

**Explanation:**

Invalid parameter to CSORT was specified (zero)

**User response:**

Specify a column number parameter to CSORT that is between 1 and the number of columns currently on the display screen. This can be followed by a direction value A or D (ascending/ descending).

---

**BSY981E Invalid Column number specified: out of range.**

**Explanation:**

Invalid parameter to CSORT was specified (zero).

**User response:**

Specify a column number parameter to CSORT that is between 1 and the number of columns currently on the display screen. This can be followed by a direction value A or D (ascending/ descending).

---

**BSY982E Invalid View. View adjusted.**

**Explanation:**

The current view was adjusted but not deleted. The saved view did not match the report requirements.



This could be caused by the report changing or the view file getting corrupted.

**User response:**

The adjusted view will be used. You can issue CSET to modify the view.

---

**BSY983E Invalid View. View deleted.**

**Explanation:**

Invalid data was found in a view for this report. The view was deleted and contents ignored. This could be caused by the report changing or the view file getting corrupted.

**User response:**

You can issue CSET to create a view that will match the current report.

---

**BSY984E Unexpected return code from TBSTATS: return code**

**Explanation:**

An unexpected failure issuing TBSTATS was received.

**User response:**

Refer to the *ISPF Services Guide* for (hex) return code descriptions. Also, review the ISPTLIB and ISPTABL allocations. For information about ISPTLIB and ISPBABL, see ISPF manuals.

---

**BSY985E View Library not allocated.**

**Explanation:**

A view input library has not been allocated. In order for a user to save and use report customizations that are created via the **CSET** command, ISPTABL and ISPTLIB must be allocated.

**User response:**

Refer to ISPF manuals for information on ISPTLIB and ISPTABL.

---

**BSY986E TBCREATE failed. RC=return code**

**Explanation:**

TBCREATE was issued to create a view. It failed with a (hex) return code as indicated in the message.

**User response:**

Review ISPTLIB allocation and data set characteristics. Review security controlled access to ISPTLIB data sets. For information about return codes, refer to the *ISPF Services Guide*.

---

**BSY987E TBOPEN failed. RC=return code**

**Explanation:**

TBOPEN was issued to open a view. It failed with a (hex) return code as indicated in the message.

**User response:**

Review ISPTLIB allocation and data set characteristics. Review security controlled access to ISPTLIB data sets. For information about return codes, refer to the *ISPF Services Guide*.

---

**BSY988E TBGET failed. RC=return code**

**Explanation:**

A TBGET produced a return code (as indicated in the message).

**User response:**

Review ISPTLIB allocation and data set characteristics. Review security controlled access to ISPTLIB data sets. For information about return codes, refer to the *ISPF Services Guide*.

---

**BSY989E TBMOD failed. RC=return code**

**Explanation:**

A TBMOD produced an error and return code (as indicated in the message).

**User response:**

Review ISPTLIB allocation and data set characteristics. Review security controlled access to ISPTLIB data sets. For information about return codes, refer to the *ISPF Services Guide*.

---

**BSY990E TBCLOSE failed. RC=return code**

**Explanation:**

TBCLOSE failed with a (hex) return code as indicated in the message.

**User response:**

Review ISPTLIB allocation and data set characteristics. Review security controlled access to ISPTLIB data sets. For information about return codes, refer to the *ISPF Services Guide*.

---

**BSY991E TBDELETE failed. RC=return code**

**Explanation:**

TBDELETE failed with a (hex) return code as indicated in the message.

**User response:**

Review ISPTLIB allocation and data set characteristics. Review security controlled access to ISPTLIB data sets. For information about return codes, refer to the *ISPF Services Guide*.

---

**BSY992E Invalid selection.**

**Explanation:**

A command that is not supported on this panel was selected.

**User response:**

Issue a valid command for the panel.

---

**BSY993I Permanent view not supported.**

**Explanation:**

IMS Recovery Expert has detected something that prevents views from being saved. The permanent view flag cannot be set to Y. The most likely cause of this is that either ISPTLIB or ISPTABL (or both) have not been properly allocated.

**User response:**

Review ISPTLIB allocation and data set characteristics. Review security controlled access to ISPTLIB data sets. For information about return codes, refer to the *ISPF Services Guide*.

---

**BSY994E Invalid row number.****Explanation:**

CEXPAND was issued with an invalid parameter of zero. CEXPAND can be issued with no parameters and the cursor on a data field, or with two parameters. The two parameters are the row number, followed by the column number of the data element to be expanded. The row number is counted down from the top, starting with the first scrollable row (heading not counted). The column number is counted from left to right, starting with the left column in the current display window.

**User response:**

Specify a valid parameter count for use with CEXPAND.

---

**BSY995E Invalid column number.****Explanation:**

CEXPAND was issued with an invalid parameter of zero. CEXPAND can be issued with no parameters and the cursor on a data field, or with two parameters. The two parameters are the row number, followed by the column number of the data element to be expanded. The row number is counted down from the top, starting with the first scrollable row (heading not counted). The column number is counted from left to right, starting with the left column in the current display window.

**User response:**

Specify a valid parameter count for use with CEXPAND.

---

**BSY996E Invalid digits.****Explanation:**

CEXPAND was issued with an invalid parameter of zero. CEXPAND can be issued with no parameters and the cursor on a data field, or with two parameters. The two parameters are the row number, followed by the column number of the data element to be expanded. The row number is counted down from the top, starting with the first scrollable row (heading not counted). The column number is counted from left to right, starting with the left column in the current display window.

**User response:**

Specify a valid parameter count for use with CEXPAND.

---

**BSY997E Too many digits.****Explanation:**

CEXPAND was issued with an invalid parameter of zero. CEXPAND can be issued with no parameters and the cursor on a data field, or with two parameters.

The two parameters are the row number, followed by the column number of the data element to be expanded. The row number is counted down from the top, starting with the first scrollable row (heading not counted). The column number is counted from left to right, starting with the left column in the current display window.

**User response:**

Specify a valid parameter count for use with CEXPAND.

---

**BSY998E Zero parameter invalid.****Explanation:**

CEXPAND was issued with an invalid parameter of zero. CEXPAND can be issued with no parameters and the cursor on a data field, or with two parameters. The two parameters are the row number, followed by the column number of the data element to be expanded. The row number is counted down from the top, starting with the first scrollable row (heading not counted). The column number is counted from left to right, starting with the left column in the current display window.

**User response:**

Specify a non-zero parameter.

---

**BSY999E Invalid parameter count: must be either two or zero parms.****Explanation:**

CEXPAND was issued with an invalid number of parameters. CEXPAND can be issued with no parameters and the cursor on a data field, or with two parameters. The two parameters are the row number, followed by the column number of the data element to be expanded. The row number is counted down from the top, starting with the first scrollable row (heading not counted). The column number is counted from left to right, starting with the left column in the current display window.

**User response:**

Specify a valid parameter count for use with CEXPAND.

---

**BSY001I IMS Recovery Expert Starting.****Explanation:**

The IMS Recovery Expert job has been started.

**User response:**

None. This message is informational.

---

**BSY002I IMS Recovery Expert System Backup and Restore Services complete. RC=return code.****Explanation:**

The IMS Recovery Expert job has completed. The highest return code is listed in the message.

**User response:**

The response depends on the return code: RC = 0 -- Successful completion RC = 4 -- Successful with warnings. The warning messages will end in "W" and can be reviewed in the SYSPRINT DD. RC > 4 -- Error. The error messages will end in "E" and can be reviewed in the SYSPRINT DD.

---

**BSY003I Control Cards:**

**Explanation:**

This message is a header message used to indicate that the successive messages list the control cards.

**User response:**

None. This message is informational.

---

**BSY004I control card**

**Explanation:**

This message follows BSY003I and contains the control card for the backup or restore job.

**User response:**

None. This message is informational.

---

**BSY005E The first control card must be "BACKUP" or "RESTORE"**

**Explanation:**

An error occurred when validating the control card. The first control card must be the BACKUP or RESTORE control card.

**User response:**

Ensure that the first control card on the SYSIN DD begins with either BACKUP or RESTORE.

---

**BSY007E Error opening SYSIN DD.**

**Explanation:**

An attempt to open the data set defined for the SYSIN DD failed. A WTO is also issued with this message.

**User response:**

The JCL must specify a SYSIN DD. Check the JCL for the presence of the SYSIN DD. Rebuild the job if necessary.

---

**BSY008E Invalid profile creator creator name specified. Profile creator must be 8 bytes or less.**

**Explanation:**

The profile creator name is more than 8 characters.

**User response:**

Correct the profile creator name and retry.

---

**BSY009E Invalid profile name profile name specified. Profile name must be 30 bytes or less.**

**Explanation:**

The profile name is more than 30 characters.

**User response:**

Correct the profile name and retry.

---

**BSY010E Invalid profile name specified. It must be in the format "CREATOR.NAME".**

**Explanation:**

The profile name and/or creator name specified is invalid. The profile must be in the format profile creator.profile name.

**User response:**

Correct the profile name.

---

**BSY011E Invalid token token name specified.**

**Explanation:**

One of the options on the backup control cards is invalid. The option is listed in the message.

**User response:**

Correct the invalid option and resubmit.

---

**BSY012E Unmatched quotes found in input.**

**Explanation:**

A control card is missing a quote from a required set of quotes.

**User response:**

Correct the control cards to add a matching quote and resubmit.

---

**BSY013I Backup profile profile creator.profile name was read from the repository.**

**Explanation:**

The backup profile listed in the message was successfully read.

**User response:**

None. This message is informational.

---

**BSY014E Backup profile profile creator.profile name was not found in the repository.**

**Explanation:**

The backup profile listed in the message probably has been renamed or deleted.

**User response:**

Check for the presence of the profile. Rename or recreate the backup profile if necessary.

---

**BSY015E Fatal error fetching backup profile profile creator.profile name from the repository.**

**Explanation:**

An internal error occurred when attempting to retrieve the backup profile from the IMS Recovery Expert repository.

**User response:**

Contact IBM Software Support.

---

**BSY016E**      **Call attach error connecting to IMS SSID ssid. Check installation and authorization.**

**Explanation:**

IMS Recovery Expert cannot connect to the specified subsystem. The call attach facility has failed.

**User response:**

Confirm that the IMS subsystem is active and that authorizations are properly granted.

---

**BSY017E**      **IMS SSID ssid was not found in the Backup/Recovery control file.**

**Explanation:**

The subsystem ID listed in the message was not found in the IMS Recovery Expert control file.

**User response:**

Ensure that the subsystem was defined. On the IMS Recovery Expert main menu panel (BSY\$MAIN), specify 0 (User Settings) and press Enter. On the **Backup Profile Defaults** panel, you can set up the subsystem. On the IMS Recovery Expert main menu panel (BSY\$MAIN), specify 0 (Administration) and press Enter. On the **Administration Menu** panel (BSY\$PNLO), specify 1 (Set System Backup Profile Defaults) and press Enter. On the **System Backup Profile Defaults**, you can set up the subsystem. Refer to the configuration documentation for information about the setup parameters.

---

**BSY018E**      **IMS SSID ssid will not be backed up in this execution.**

**Explanation:**

There was an error with the listed subsystem ID. IMS Recovery Expert cannot backup the subsystem.

**User response:**

Check the SYSPRINT DD for error messages explaining why the SSID could not be backed up.

---

**BSY019E**      **You are not authorized to run backup profile creator.profile name.**

**Explanation:**

The user ID under which the backup job is being built does not have sufficient RACF authority.

**User response:**

Check with your systems administrator to ensure the proper authorizations. Refer to the installation documentation for information about configuring RACF authority for IMS Recovery Expert.

---

**BSY021E**      **The following volumes are being used by Subsystem ssid but are not being backed up:**

**Explanation:**

IMS Recovery Expert validation processing found volumes that are in use by the specified subsystem that were not included in the backup profile. The backup will not be taken.

**User response:**

Update the profile and use the **VOLUME** command to find all volumes associated with the subsystem.

---

**BSY022E**      **Profile profile creator.profile name is currently being used by another user or process.**

**Explanation:**

The profile is being used by someone else. IMS Recovery Expert must have exclusive use of the profile during the backup and restore processes.

**User response:**

Clear the contention on the backup profile and resubmit the job.

---

**BSY023E**      **Subsystem ssid is currently being backed up or recovered by another process.**

**Explanation:**

Another backup of this subsystem is running. Only one IMS Recovery Expert backup can be running at a time.

**User response:**

You can resubmit the job when the other backup has completed.

---

**BSY024E**      **Failed to initialize BSY Command processor.**

**Explanation:**

An internal error occurred when attempting to start the IMS Recovery Expert command processor.

**User response:**

Contact IBM Software Support.

---

**BSY025E**      **The job steplib is not APF authorized.**

**Explanation:**

The IMS Recovery Expert step libraries are not APF authorized. APF authorization for the step libraries is required.

**User response:**

APF authorize the step libraries. Refer to the installation documentation for more information.

---

**BSY026E**      **Error loading module module name.**

**Explanation:**

An internal error occurred when attempting to load the listed module.

**User response:**

Contact IBM Software Support.

---

**BSY029E**      **Last command = command name  
Error = error message.**

**Explanation:**

An error occurred in the IMS Recovery Expert command processor. The errant command and any associated message are listed in the message.

**User response:**

Contact IBM Software Support.

---

**BSY030E**      **Source volser volume serial is not  
a valid online MVS volume.**

**Explanation:**

The source volume listed in the message is now offline. IMS Recovery Expert requires the source volume to be online to perform the backup.

**User response:**

Contact your systems programmer for help bringing the volume online.

---

**BSY031E**      **Source volser volume serial is not  
on an EMC Symmetrix array.**

**Explanation:**

The listed source volume is not on an EMC Symmetrix array. The source volume cannot be backed up or restored.

**User response:**

Move the data on the volume to a EMC Symmetrix array and update the profile.

---

**BSY032E**      **Target unit target unit is not a valid  
MVS UCB unit.**

**Explanation:**

The target unit specified is not valid on this z/OS system.

**User response:**

Contact your systems programmer to determine the resolution.

---

**BSY033E**      **Target unit target unit is not on an  
EMC Symmetrix array.**

**Explanation:**

The listed target unit does not reside on an EMC Symmetrix.

**User response:**

Move the target unit to a Symmetrix or change the profile to specify a target unit located on the Symmetrix.

---

**BSY034E**      **Source volser volume serial is not  
on the same EMC Symmetrix array  
as target unit target unit.**

**Explanation:**

The source volume and its specified target unit are not located on the same Symmetrix array. The source volume and target unit must be on the same array.

**User response:**

Edit the backup profile and select a different target unit that is on the same array.

---

**BSY035E**      **Source volser volume serial is not  
on the same device type as target  
unit target unit.**

**Explanation:**

The listed source volume is not the same device type as its associated target unit. The source volume and target unit must be of the same device type.

**User response:**

Update the profile and specify a target unit of the same device type.

---

**BSY036E**      **Target unit target unit is not an  
EMC BCV device.**

**Explanation:**

The backup profile specified a BCV type backup, but the target unit is not a BCV device.

**User response:**

Edit the backup profile and select a different target unit that is a BCV device.

---

**BSY037E**      **The profile contains blank target  
units.**

**Explanation:**

The backup profile contains source volumes that do not have target volumes mapped to them.

**User response:**

Update the backup profile and specify a target volume for each source volume.

---

**BSY038I**      **Performing profile setup...**

**Explanation:**

This informational message states that profile setup is under way.

**User response:**

None. This message is informational.

---

**BSY039I**      **Volume map validation complete.**

**Explanation:**

This informational message states that the volume validation has completed.

**User response:**

None. This message is informational.

---

**BSY041W**      **BCV Establish Bypassed due to  
previous error.**

**Explanation:**

No more establishes will be performed due to the previous error.

**User response:**

None required.

---

**BSY047W MVS UCB Scan Bypassed due to previous error.**

**Explanation:**

No more UCB scans of source or target units will be performed due to the previous error.

**User response:**

None required.

---

**BSY048E MVS UCB Scan failed for Source volume source volume.**

**Explanation:**

An internal error occurred.

**User response:**

Contact IBM Software Support.

---

**BSY052E MVS UCB Scan failed for BCV Unit unit name.**

**Explanation:**

An internal error occurred.

**User response:**

Contact IBM Software Support.

---

**BSY054E MVS UCB Scan failed for Snap Unit unit name.**

**Explanation:**

An internal error occurred.

**User response:**

Contact IBM Software Support.

---

**BSY057I MVS UCBSCAN will continue because Continue on Errors Flag has been set.**

**Explanation:**

A UCB scan failed for a unit, but IMS Recovery Expert has determined the information through another means.

**User response:**

None. This message is informational.

---

**BSY061E EMC FC01 Call failed on unit device name with return codes.**

**Explanation:**

An internal error occurred.

**User response:**

Contact IBM Software Support.

---

**BSY065W BCV Re-Establish Bypassed due to previous error.**

**Explanation:**

No more BCV re-establishes will be performed due to the previous error.

**User response:**

None required.

---

**BSY072W Target Unit target unit is also being used in backup profile profile creator. profile name.**

**Explanation:**

The listed target unit is also being used as a target unit in the listed profile name. At backup time, if this target unit has been used by the other profile, the backup will fail.

**User response:**

Select a different target unit.

---

**BSY073E Error occurred executing IMS command on subsystem ssid.**

**Explanation:**

An error occurred while running the listed IMS command on the subsystem. The command and the IMS error associated with running it will be displayed.

**User response:**

Check that the user who submitted the job has the proper IMS authority to issue the listed command.

---

**BSY074I Target target unit is still synchronizing to source volume source volume.**

**Explanation:**

The listed target unit has been established to the listed source volume, but the target volume is still in the process of synchronizing. A backup cannot be taken until this process is completed.

**User response:**

None. This message is informational.

---

**BSY075I Performing IMS source volume validation...**

**Explanation:**

IMS Recovery Expert is in the process of ensuring all the volumes in the IMS system are included in the backup profile.

**User response:**

None. This message is informational.

---

**BSY076I IMS source volume validation complete. All IMS volumes are in this profile.**

**Explanation:**

IMS Recovery Expert validated all volumes in the IMS system and all have been included in the backup profile.

**User response:**

None. This message is informational.

---

**BSY078E**      **Profile setup is needed. Place "SETUP" control card after the profile name.**

**Explanation:**

The profile requires profile setup before a backup can be taken.

**User response:**

Add the SETUP card to the job as follows and resubmit the job: //SYSIN DD \* BACKUP profile creator."profile name" SETUP

---

**BSY079I**      **Profile setup is complete. Remove the "SETUP" control card to run the backup.**

**Explanation:**

The profile has been successfully set up.

**User response:**

Remove the SETUP control card and run the backup.

---

**BSY080I**      **Backup with timestamp timestamp, generation generation number was saved in the repository.**

**Explanation:**

The information from the backup listed in the message has been successfully saved in the IMS Recovery Expert repository.

**User response:**

None. This message is informational.

---

**BSY081I**      **Backup with timestamp timestamp, generation generation number was removed from the repository.**

**Explanation:**

The listed backup has been removed from the IMS Recovery Expert repository.

**User response:**

None. This message is informational.

---

**BSY082I**      **Performing BCV splits to create backup...**

**Explanation:**

IMS Recovery Expert is splitting the BCVs required to create the backup.

**User response:**

None. This message is informational.

---

**BSY083I**      **Performing Snap Volumes to create backup...**

**Explanation:**

IMS Recovery Expert is snapping the volumes to create the backup.

**User response:**

None. This message is informational.

---

**BSY084I**      **Backup of profile profile creator.profile name has been created.**

**Explanation:**

The backup based on the information in the listed profile has been successfully created.

**User response:**

None. This message is informational.

---

**BSY085I**      **Performing BCV establish on next generation of BCVs.**

**Explanation:**

The backup has been successfully created.

**User response:**

None. This message is informational.

---

**BSY089E**      **An Error has occurred obtaining ZPARM information from IMS Subsystem ssid.**

**Explanation:**

An error occurred when attempting to obtain the DSNZPARMS load module for the listed SSID.

**User response:**

Check that the SETUP information was entered correctly for the SSID you are attempting to backup.

---

**BSY091E**      **Error splitting BCV BCV device name from Standard unit standard unit.**

**Explanation:**

An error occurred when splitting the BCV device from the standard unit. This message is displayed with BSY0141E, which provides the reason for the failure.

**User response:**

Refer to the *EMC TimeFinder OS/390 and z/OS Product Set Message and Code Guide* to resolve the error.

---

**BSY092E**      **Error calling SymDevice on Standard volser standard unit.**

**Explanation:**

An error occurred when attempting to access the listed Symmetrix device.

**User response:**

Refer to the *EMC TimeFinder OS/390 and z/OS Product Set Message and Code Guide* to resolve the error.

---

**BSY093E**      **Standard Volser volser (Unit unit name) has an active file level snap session.**

**Explanation:**

The SNAP session must complete or be stopped before completing the operation.

**User response:**

Refer to the configuration instructions for information about how to configure IMS Recovery Expert to automatically clean old SNAP sessions.

---

**BSY094I**                    **Volser volser is still online|offline.**

**Explanation:**

This informational message is displayed while IMS Recovery Expert is checking the volume status. The volume listed in the message is either online or offline. IMS Recovery Expert will continue to check the volume status until the required status is set.

**User response:**

None. This message is informational.

---

**BSY095I**                    **Waiting seconds seconds for volumes to go online|offline...**

**Explanation:**

This informational message is displayed while IMS Recovery Expert is checking the volume status. IMS Recovery Expert is waiting the specified amount of time for the volume to go online or offline. The amount of seconds (listed in the message) that IMS Recovery Expert will wait is set in the IMS Recovery Expert PARMLIB.

**User response:**

None. This message is informational.

---

**BSY096E**                    **Volumes are pending online|offline. Make sure they are not in use on any MVS system.**

**Explanation:**

IMS Recovery Expert has been waiting for a volume to go online or offline. The amount of wait time has exceeded the wait time specified in the IMS Recovery Expert PARMLIB.

**User response:**

If IMS Recovery Expert is waiting for the volume to go offline, it may be in use by some other z/OS or VM system; check with your systems programmer. You might need to configure IMS Recovery Expert to route the offline/online commands to all members of the sysplex. This is controlled by the ROUTE\_ALL\_ON\_CONSOLE\_CMDS parameter in the PARMLIB member. Refer to documentation for configuring the PARMLIB member for information about the parameter.

---

**BSY097W**                    **At least one SYM device in this backup does not support "Consistency" commands.**

**Explanation:**

One or more of the devices in the backup is not at the required code level to support Engenuity Consistency Assist (ECA). To use ECA, certain microcode levels are required; refer to software and hardware requirements.

**User response:**

None required; IMS Recovery Expert will manage log suspends without using ECA.

---

**BSY098E**                    **Repository data set data set name cannot reside on source volume volser.**

**Explanation:**

During validation checking, IMS Recovery Expert determined that its repository is located on one of the volumes that is being backed up. This is not allowed. The backup will not be taken.

**User response:**

Move the repository data sets to a volume that is not being backed up, and retry the backup.

---

**BSY099E**                    **Call to fetch active and archive logs has failed. RC=return code.**

**Explanation:**

An error occurred while reading the RECON for the IMS system being backed up.

**User response:**

Ensure that the information entered for the IMS system is correct in the IMS Recovery Expert setup section of the ISPF interface.

---

**BSY100E**                    **BCV Query command failed. R15 = register contents. Return code = return code. Reason Code = reason code.**

**Explanation:**

An internal error occurred.

**User response:**

Contact IMS Recovery Expert.

---

**BSY102W**                    **Source volume volume contains both object|object usercat data and active log|active log usercat data.**

**Explanation:**

IMS Recovery Expert detected log data sets on the same volume as database data sets. The backup will continue but the backup will be marked as "Mixed Data", and any restores done from this backup must include data and logs. The message lists the type of mixed data found on the volume.

**User response:**

None required.

---

**BSY103W**                    **All recoveries of this backup must include log recovery.**

**Explanation:**

IMS Recovery Expert detected log data sets on the same volume as database data sets. The backup will continue but the backup will be marked as "Mixed



Data", and any restores done from this backup must include data and logs.

**User response:**  
None required.

---

**BSY104E**      **Source volser is currently established to BCV unit target unit which is not in this profile.**

**Explanation:**  
This listed source volume is established to the listed target unit. However, the target unit is not included in the backup profile. IMS Recovery Expert cannot establish another BCV to this source unit until the currently established BCV has been split. Since the currently established BCV is not specified in this profile, it cannot be split. The backup will not be taken.

**User response:**  
Use EMC TimeFinder utilities to split this BCV from the source volume if you still want to backup the source volume.

---

**BSY105E**      **Target BCV target unit is not currently paired to Volser source unit.**

**Explanation:**  
The target unit listed in the message is not paired to the source unit that is in the profile. The backup will not be taken.

**User response:**  
Run the setup process on this profile to correct the error.

---

**BSY106E**      **Target BCV target\_unit is currently established to Unit source\_unit which is not in this profile**

**Explanation:**  
The BCV target unit specified is currently established to a source volume that is not included in this profile.

**User response:**  
Use the EMC TimeFinder utilities to split this BCV from its currently established standard unit.

---

**BSY107E**      **Source volser source volume is a BCV.**

**Explanation:**  
The source volume listed in the message is a BCV. For a BCV backup profile, the source volume cannot reside on a BCV volume.

**User response:**  
Either use a SNAP backup profile or copy the data to a non-BCV volume and update the profile.

---

**BSY108E**      **Error saving profile profile creator.profile name.**

**Explanation:**

An internal error occurred when attempting to save the backup profile.

**User response:**  
Contact IMS Recovery Expert.

---

**BSY109E**      **Target BCV target unit is expected to be split from source volume source volume and is not.**

**Explanation:**  
IMS Recovery Expert expected to find a different BCV established to the specified source volume specified. The current generation is out of sync.

**User response:**  
Run profile setup on the profile.

---

**BSY110E**      **Target BCV target unit is expected to be established to source volume source volume and is not.**

**Explanation:**  
IMS Recovery Expert expected the listed target BCV to be established to the source unit.

**User response:**  
Run profile setup on the profile.

---

**BSY111E**      **Target BCV target unit is still synchronizing to source volume source volume. Backup not available.**

**Explanation:**  
The specified BCV generation has not fully synchronized with the listed source volume. The backup will not be taken.

**User response:**  
You might want to configure IMS Recovery Expert to retry the synchronization or to issue a WTOR. This is controlled by the WAIT\_FOR\_VOLUME\_SYNC parameter in the PARMLIB member. Refer to configuration instructions for the PARMLIB member for information about the parameter.

---

**BSY112E**      **SSID ssid was not found on this MVS LPAR.**

**Explanation:**  
The IMS subsystem ID listed in the message is not found.

**User response:**  
Contact IBM Software Support.

---

**BSY113E**      **Unknown error determining datasharing status of SSID ssid.**

**Explanation:**  
An internal error occurred.

**User response:**  
Contact IBM Software Support.

---

**BSY116E**      **Abnormal termination has been detected. Resuming log activity on SSID ssid.**

**Explanation:**

An internal error occurred while the IMS logs were suspended. Logging will be resumed.

**User response:**

Contact IBM Software Support.

---

**BSY117E**      **Error saving backup information in the repository data sets.**

**Explanation:**

An internal error occurred.

**User response:**

Contact IBM Software Support.

---

**BSY118E**      **message text.**

**Explanation:**

This message is used to display various message text associated with errors.

**User response:**

Review the message text and other related messages to determine the problem.

---

**BSY119E**      **BCV hold|release|establish|re-establish failed on unit target unit. Additional information.**

**Explanation:**

The BCV process failed on the listed target unit. Additional information is provided in the message text as to the cause of the error.

**User response:**

Note the error message contents and contact IBM Software Support.

---

**BSY120E**      **Invalid generation specified. It must be numeric between 1 and 99 inclusive.**

**Explanation:**

An invalid generation number was found in the control card for the restore.

**User response:**

Correct the control card and resubmit.

---

**BSY121E**      **Backup profile creator.profile name generation generation was not found in the repository.**

**Explanation:**

The profile and/or its backups were not found in the repository. Either the profile name was typed wrong or the backups have been deleted.

**User response:**

Ensure the profile creator and name are correct. Contact IBM Software Support if necessary.

---

---

**BSY122E**      **Fatal error fetching backup profile creator.profile name generation generation from the repository.**

**Explanation:**

An internal error occurred.

**User response:**

Contact IBM Software Support.

---

**BSY123I**      **Backup profile creator.profile name generation generation was read from the repository.**

**Explanation:**

The backup information for the listed generation was successfully read.

**User response:**

None. This message is informational.

---

**BSY124E**      **R15 = register contents. Return code = return code. Reason = reason code.**

**Explanation:**

This message is used in conjunction with other messages to report return code, reason code, and register contents for debugging purposes.

**User response:**

None required.

---

**BSY125E**      **Source volume source volume contains log data. This profile specifies "Data Only".**

**Explanation:**

IMS Recovery Expert detected that the specified source volume contains log data, but the backup profile specified data only.

**User response:**

Either separate the log and database data or change the profile to a full backup to include all data and log volumes.

---

**BSY126I**      **Waiting seconds seconds for background splits to complete...**

**Explanation:**

The BCV volumes are still in the process of being split. IMS Recovery Expert will wait the number of seconds specified in the PARMLIB for the split to complete.

**User response:**

None. This message is informational.

---

**BSY128I**      **Requesting wait status from operator...**

**Explanation:**

The target BCV is still synchronizing to the source volume. The WAIT\_FOR\_VOLUME\_SYNC parameter in the IMS Recovery Expert PARMLIB is set to prompt

with a WTOR if any BCVs are not fully synchronized to their standard volumes. IMS Recovery Expert is issuing a WTOR to ask if it should continue waiting or quit.

**User response:**

Reply to the WTOR.

---

**BSY129E**                    **Reply was to "NOT WAIT". Backup will terminate.**

**Explanation:**

The target BCV was synchronizing to the source volume. IMS Recovery Expert issued a WTOR to ask if it should continue waiting or quit. The reply was N to not wait. The backup will be terminated.

**User response:**

None required.

---

**BSY130I**                    **Reply was to "WAIT". Waiting 30 seconds for BCVs to synchronize.**

**Explanation:**

The target BCV was synchronizing to the source volume. IMS Recovery Expert issued a WTOR to ask if it should continue waiting or quit. The reply was Y to wait. IMS Recovery Expert will wait 30 seconds and re-issue the WTOR if necessary.

**User response:**

None. This message is informational.

---

**BSY132E**                    **User is not authorized to run a System Level Backup Utility| Restore System Utility for IMS SSID ssid.**

**Explanation:**

The TSO user ID attempting to run an IMS Recovery Expert system backup or system restore does not have sufficient authority to do so.

**User response:**

Refer to the installation instructions for information about how to set up RACF authority for a TSO user ID.

---

**BSY133I**                    **BCV|Snap unit device name is still online.**

**Explanation:**

The listed volume is still online. IMS Recovery Expert will continue attempting to take the volume offline.

**User response:**

None. This message is informational.

---

**BSY134I**                    **Splitting current generation of BCVs.**

**Explanation:**

IMS Recovery Expert is in the process of splitting the current generation of BCVs.

**User response:**

None. This message is informational.

---

**BSY135I**                    **Profile profile creator.profile name has been marked as "Setup Needed".**

**Explanation:**

This message is displayed after a BCV restore is complete. The setup process must be re-run in order to re-establish a generation of BCVs.

**User response:**

Run profile setup on the profile.

---

**BSY136I**                    **Disconnecting user catalogs.**

**Explanation:**

In preparation for a restore, IMS Recovery Expert is disconnecting the user catalogs.

**User response:**

None. This message is informational.

---

**BSY137I**                    **Varying volumes online|offline.**

**Explanation:**

IMS Recovery Expert is in the process of varying volumes online or offline.

**User response:**

None. This message is informational.

---

**BSY138I**                    **Restoring volumes.**

**Explanation:**

IMS Recovery Expert is in the process of varying volumes online or offline.

**User response:**

None. This message is informational.

---

**BSY140E**                    **SYM of volume volume serial is lower than 5x67. It must be at least 5x67.**

**Explanation:**

The device listed in the message is not at the appropriate microcode level. IMS Recovery Expert requires all devices to be at microcode 5x67 or higher. Refer to software and hardware requirements for specifics.

**User response:**

Contact EMC to update your Symmetrix devices to the latest microcode version.

---

**BSY141E**                    **EMC ECA\_Qry|ECA\_SET| BCV\_InSplit failed. Error message text.**

**Explanation:**

An EMC command failed. Additional information is provided in the message text as to the cause of the error.

**User response:**

Note the error message contents and contact IMS Recovery Expert.

---

**BSY142E**      **EMC ECA\_Clr failed on unit volume serial. Error message text.****Explanation:**

An EMC command failed on the listed unit. Additional information is provided in the message text as to the cause of the error.

**User response:**

Note the error message contents and contact IMS Recovery Expert.

---

**BSY143E**      **Open|Closed ECA window already exists on volser volume serial.****Explanation:**

One of the source volumes has an existing hold on the I/O (ECA window).

**User response:**

If the window is closed, you can set CLEAN\_OLD\_CONSIST\_WINDOWS to Y in the IMS Recovery Expert PARMLIB member and resubmit the job.

---

**BSY144E**      **Target Unit target unit is a volume in an existing backup for profile profile creator.profile name.****Explanation:**

The target unit listed in the message is listed in another profile as a backup volume. Therefore, this unit cannot be used as a target unit.

**User response:**

Update the profile and select a different target unit.

---

**BSY145E**      **IMS Subsystem ssid is still online. The Subsystem must be taken offline before running this job.****Explanation:**

IMS Recovery Expert has detected that the IMS subsystem you are attempting to restore is online. The subsystem must be offline before running the restore.

**User response:**

Issue the /CHE command to take the subsystem offline.

---

**BSY146I**      **Removing volser volume serial from this restore. It contains only log data.****Explanation:**

The volume being restored contains only log data, but you specified to restore data only. This volume will not be restored.

**User response:**

None. This message is informational.

---

**BSY148I**      **Sym Device volume serial does not support "Consistency" functionality.****Explanation:**

The device listed in the message is not at the proper microcode level to support ECA. Refer to the software and hardware requirements section for software requirements for ECA support.

**User response:**

None. This message is informational.

---

**BSY149E**      **EMC ECA\_Clr failed on SYM Device volume serial. Error message text.****Explanation:**

An EMC command failed. Additional information is provided in the message text as to the cause of the error.

**User response:**

Note the error message contents and contact IBM Software Support.

---

**BSY151E**      **Snap target target unit is an established BCV.****Explanation:**

The target unit associated with the SNAP source volume is an established BCV.

**User response:**

Choose a different target unit of the same device type.

---

**BSY152I**      **Suspending|Resuming log activity to subsystem ssid.****Explanation:**

IMS Recovery Expert is issuing either the **SET LOG SUSPEND** or **SET LOG RESUME** command to manage log activity.

**User response:**

None. This message is informational.

---

**BSY153I**      **Enque of user cat user catalog failed. Will retry in 2 seconds...****Explanation:**

IMS Recovery Expert requires exclusive use of the listed user catalog while performing the restore. It will wait again and retry in 2 seconds.

**User response:**

None. This message is informational.

---

**BSY154E**      **Enque of user cat user catalog failed.****Explanation:**

IMS Recovery Expert requires exclusive use of the listed user catalog while performing the backup. Another z/OS system might be accessing this catalog.

**User response:**

You might need to set ROUTE\_ALL\_ON\_CONSOLSE\_CMDS to Y in the IMS Recovery Expert PARMLIB member. This setting will

disconnect the catalog from the master catalog on all z/OS systems in the sysplex.

---

**BSY155E**            **BCV target unit is still restoring to standard unit volume serial.**

**Explanation:**

IMS Recovery Expert needs to wait for the restore to complete before continuing with the next process.

**User response:**

None required.

---

**BSY156E**            **Backup contains volumes with both log and object data. You must specify RESTORE-LOGS.**

**Explanation:**

The control card is missing the RESTORE-LOGS keyword.

**User response:**

Add the RESTORE-LOGS keyword to the control cards for this restore.

---

**BSY157I**            **Release of unit device name bypassed. Unit is not held.**

**Explanation:**

Because the unit is not being held, the BCV or standard volume listed in the message does not need to be released.

**User response:**

None. This message is informational.

---

**BSY158I**            **Hold of unit device name bypassed. Unit is already held.**

**Explanation:**

The BCV or standard volume listed in the message is already being held.

**User response:**

None. This message is informational.

---

**BSY159E**            **Target unit device name has an active SNAP session. Wait till complete.**

**Explanation:**

The listed target unit has either a current active SNAP session or too many old completed SNAP sessions to start a new one.

**User response:**

You might need to set CLEAN\_OLD\_SNAP\_SESSIONS to Y in the IMS Recovery Expert PARMLIB member to remove the old SNAP sessions.

---

**BSY160E**            **Source volser volume serial has an active SNAP session. Wait till complete.**

**Explanation:**

The listed source volume has either a current active SNAP session or too many old completed SNAP sessions to start a new one.

**User response:**

You might need to set CLEAN\_OLD\_SNAP\_SESSIONS to Y in the IBM Software Support PARMLIB member to remove the old SNAP sessions.

---

**BSY161E**            **EMC PathGroups call failed for unit device name.**

**Explanation:**

An internal error occurred.

**User response:**

Contact IBM Software Support.

---

**BSY162I**            **Parmlib used for this execution.**

**Explanation:**

This informational message states that the IMS Recovery Expert PARMLIB member will be utilized in setting default values for the job.

**User response:**

None. This message is informational.

---

**BSY163I**            **Closed ECA Window is being cleared from Volser volume serial.**

**Explanation:**

An Engenuity Consistency Assist (ECA) window was found on this volume but was not active (no I/O is being held). The ECA window was cleared.

**User response:**

None. This message is informational.

---

**BSY165E**            **ECA Window has timed out. Backup is not consistent.**

**Explanation:**

The backup operation could not complete in the specified time to hold the I/O on the volumes. The IMS Recovery Expert PARMLIB member setting of CONSIST\_TIME\_OUT\_SECONDS controls how long the I/O can be held before this error occurs.

**User response:**

Try making the value for CONSIST\_TIME\_OUT\_SECONDS higher.

---

**BSY168E**            **Background splits wait limit exceeded.**

**Explanation:**

The number of times IMS Recovery Expert has checked to see if a background split has completed has exceeded the WAIT\_RETRIES wait limit specified in the PARMLIB member.

**User response:**

Increase either the BCV\_WAIT\_SECONDS or WAIT\_RETRIES in the BCV\_SPLIT\_PARAMETERS section of the IMS Recovery Expert PARMLIB member.

---

**BSY169I**            **BCV unit unit name is not ready.  
Waiting 2 seconds to retry BCV  
Establish|Re-establish.**

**Explanation:**

IMS Recovery Expert is attempting to establish or re-establish the unit listed in the message, but the device is not ready. IMS Recovery Expert will retry until the BCV is established or the number of retries exceeds the wait limit.

**User response:**

None. This message is informational.

---

**BSY170I**            **Standard unit volume serial is not  
ready. Waiting 2 seconds to retry  
BCV restore.**

**Explanation:**

IMS Recovery Expert is restoring a BCV, but the standard device is not ready. IMS Recovery Expert will retry until the BCV is established or the number of retries exceeds the wait limit.

**User response:**

None. This message is informational.

---

**BSY171E**            **Restore failed on unit volume  
serial. Error message text.**

**Explanation:**

The restore command failed. Additional information is provided in the message text as to the cause of the error.

**User response:**

Note the error message text and contact IBM Software Support.

---

**BSY172E**            **Error obtaining last checkpoint  
RBA for subsystem ssid.**

**Explanation:**

IMS Recovery Expert could not find the last checkpoint RBA for the listed subsystem.

**User response:**

Contact IBM Software Support.

---

**BSY173E**            **Allocate failed for data set name.**

**Explanation:**

Dynamic allocation of the specified file has failed. IMS Recovery Expert needs to allocate the specified file to complete the operation. This message will be followed by additional messages stating the reason the file could not be allocated.

**User response:**

Use the issued message to determine why the allocate failed and the appropriate remedy.

---

**BSY174E**            **Open failed for DSN data set  
name.**

**Explanation:**

The specified data set could not be opened. A z/OS error message on the open failure will also be issued.

**User response:**

Use the z/OS error message to determine the error and the appropriate Response.

---

**BSY175E**            **Get/Put failed for DSN data set  
name. RC = return code. Reason  
reason code.**

**Explanation:**

An error occurred attempting to read or update the header page of DSNDDB01 database during restore.

**User response:**

Contact IBM Software Support.

---

**BSY176I**            **HPGRBLP has been updated with  
RBA/LRSN rba/lrsn.**

**Explanation:**

This message informs you the RBA that was placed in the HPGRBLP area of database DSNDDB01. This RBA tells the IBM RESTORE SYSTEM utility where to start the log restore process.

**User response:**

None. This message is informational.

---

**BSY177I**            **TimeFinder version 05.05  
or higher is required for  
"Consistency" functions.**

**Explanation:**

The listed version of EMC TimeFinder software is required to hold the I/O on the source volumes during backup. Log suspend will be issued instead.

**User response:**

If you do not want to have IMS logging suspended during a backup, upgrade to the required level of EMC TimeFinder software.

---

**BSY178I**            **TimeFinder snap version 05.03  
or higher is required for  
"Consistency" functions.**

**Explanation:**

The listed version of EMC TimeFinder software is required to hold the I/O on the source volumes during backup. Log suspend will be issued instead.

**User response:**

If you do not want to have IMS logging suspended during a backup, upgrade to the required level of EMC TimeFinder software.

---

**BSY180I**            **Ready of unit volume serial  
bypassed. Unit is currently in a  
ready state.**

**Explanation:**

IMS Recovery Expert was preparing to place the BCV device in a ready state, but has detected that the unit is currently in the ready state.

**User response:**

None. This message is informational.

---

**BSY181I**            **Not Ready of unit volume serial bypassed. Unit is currently in a not ready state.**

**Explanation:**

IMS Recovery Expert was preparing to place the BCV device in a not ready state, but has detected that the unit is currently in the not ready state.

**User response:**

None. This message is informational.

---

**BSY183E**            **Ready/Not Ready failed on unit device name. error message text.**

**Explanation:**

An error occurred during a call to the EMC API.

**User response:**

Contact IBM Software Support.

---

**BSY184I**            **Microcode does not support Protected Restore. Snap restore will be performed.**

**Explanation:**

All EMC Symmetrix arrays involved in the restore must be at microcode level 5x70 or higher to support a protected BCV restore. This type of restore preserves the backup on the BCV. A SNAP restore will be performed instead. IMS Recovery Expert will issue SNAP commands to copy the BCV devices back to their respective source volumes to complete the restore.

**User response:**

None. This message is informational.

---

**BSY185E**            **Bad return code from EMC Snap API. RC = return code**

**Explanation:**

IMS Recovery Expert invoked the EMC SNAP API but the SNAP API issued a return code of 8. There may be several reasons for this return code.

**User response:**

The EMC SNAP messages are written to the BSYNAPO DD. Examine the messages to determine the error. Contact IBM Software Support if necessary.

---

**BSY186W**            **Error saving backup report to repository.**

**Explanation:**

After completing the backup, IMS Recovery Expert attempted to save a backup report to its repository. The backup is still valid.

**User response:**

Examine the z/OS error messages issued to determine the reason the backup report could not be saved.

---

**BSY187W**            **Profile profile creator.profile name has been marked "Setup Needed".**

**Explanation:**

IMS Recovery Expert determined that listed profile is not in the expected state. Possible causes may be that BCVs are not established to the expected standard volumes, or there was an error during a backup and the BCV profile needs to undergo profile setup.

**User response:**

Add the SETUP control card to the backup job and resubmit the job.

---

**BSY188I**            **Parmlib not Specified in JCL, default values will be used.**

**Explanation:**

No PARMLIB library was specified in the PARMLDSN variable of the startup CLIST. IMS Recovery Expert will use the default values for the variables that are listed in the PARMLIB member.

**User response:**

None. This message is informational.

---

**BSY189E**            **Parmlib parsing produced errors. Utility cannot continue with Parmlib Errors.**

**Explanation:**

An error occurred when processing the IMS Recovery Expert PARMLIB member. The backup or restore cannot proceed. A possible reason for this error is an invalid keyword was encountered.

**User response:**

Check the job output for the error encountered.

---

**BSY190W**            **Volume volume serial is not included in this backup. It contains only ARCHIVE log data.**

**Explanation:**

The listed volume contains archive logs for this IMS SSID, but is not included in the backup. This condition is acceptable if you do not want to backup the archive logs of this IMS system.

**User response:**

If you want to backup the archive logs, add the listed volume to the backup profile and resubmit the job.

---

**BSY191E**            **Target unit target unit is on hold. Parmlib option RELEASE\_HELD\_VOLUMES is N.**

**Explanation:**

During volume validation, IMS Recovery Expert determined that the target unit listed in the message is being held. Due to the setting in the PARMLIB member,

the volume will not be released for use and the job has been terminated.

**User response:**

Either release the hold on this volume or change the setting of RELEASE\_HELD\_VOLUMES to Y in the IMS Recovery Expert PARMLIB member and resubmit the job.

---

**BSY192E**      **Target unit target unit is "Not Ready". Parmlib option MAKE\_READY\_NOTREADY\_DEVICE is N.**

**Explanation:**

During volume validation, IMS Recovery Expert determined that the target unit listed in the message is in a not ready state. Due to the setting in the PARMLIB member, the volume will not be made ready for use and the job has been terminated.

**User response:**

Either release the hold on this volume or change the setting of MAKE\_READY\_NOTREADY\_DEVICES to Y in the IMS Recovery Expert PARMLIB member and resubmit the job.

---

**BSY193E**      **Target BCV target unit is still synchronizing to source volume serial. Use "FORCE-SPLIT" option.**

**Explanation:**

The listed unit is still synchronizing from the last submitted restore job.

**User response:**

Either wait for the synchronization to complete, or change the setting of FORCE\_SPLIT to Y in the IMS Recovery Expert PARMLIB member and resubmit the job. This will force the split of the BCV pair established by the previous restore job.

---

**BSY194I**      **Background splits are complete.**

**Explanation:**

This message is displayed when a BCV split has completed.

**User response:**

None. This message is informational.

---

**BSY195I**      **Establishing current generation of BCVs...**

**Explanation:**

This message is displayed at the beginning of the process of establishing a current generation of BCVs.

**User response:**

None. This message is informational.

---

**BSY197W**      **Make sure DSNZPARM DSVCI is "NO" and reorganize the above list of databases**

**Explanation:**

This message is used with BSY0196W to provide further information about the issue.

**User response:**

Refer to the IMS 32KB database requirements for further information.

---

**BSY198I**      **Backup via Snap Volume Std Vol volume serial Dev standard device to Dev SNAP device.**

**Explanation:**

This informational message indicates that the standard device listed has been backed up to the SNAP device.

**User response:**

None. This message is informational.

---

**BSY199I**      **Restore via Snap Volume Dev standard device to Standard Dev standard device Vol volume serial.**

**Explanation:**

This informational message indicates that the SNAP device listed has been restored to the standard device.

**User response:**

None. This message is informational.

---

**BSY200E**      *message text*

**Explanation:**

This message is used to display various message text associated with errors.

**User response:**

Review the message text and other related messages to determine the problem.

---

**BSY201I**      **Parmlib Override on command\_name command - parameter\_name Value: parameter\_value**

**Explanation:**

The designated PARMLIB value was specified in the PARMLIB member and has been used to override the default value when calling EMC Snap.

**User response:**

None. This message is informational.

---

**BSY202I**      **BSDS update process starting**

**Explanation:**

The BSDS for the specifying IMS SSID is being updated with the new Active log data set names that have been renamed.

**User response:**

None. This message is informational.

---

**BSY203I**      **-----SSID ssid - BSDS bsds Opened---**



**Explanation:**

The BSDS named for the SSID specified has been opened for update.

**User response:**

None. This message is informational.

---

**BSY204I**            **-----SSID *ssid* - BSDS *bsds*  
Closed---**

**Explanation:**

The BSDS named for the SSID specified has been closed.

**User response:**

None. This message is informational.

---

**BSY205I**            ***dsn* record updated.**

**Explanation:**

The specified record has been updated

**User response:**

None. This message is informational.

---

**BSY206I**            **Old Name = *old\_name***

**Explanation:**

The specified data set name has been updated

**User response:**

None. This message is informational.

---

**BSY207I**            **New Name = *new\_name***

**Explanation:**

The specified old data set name has been changed to this name

**User response:**

None. This message is informational.

---

**BSY208I**            **BSDS update process ended.  
Return code = *return\_code*.**

**Explanation:**

The BSDS update process is complete with the specified return code.

**User response:**

None. This message is informational.

---

**BSY209E**            **Keyword NEWHIGHLEVEL must  
follow the BSDSNAME and  
ACTIVENAME keywords**

**Explanation:**

The keywords passed to the BSDS update process must be in a specific order. The NEWHIGHLEVEL keyword must not precede a BSDSNAME or ACTIVENAME keyword.

**User response:**

Change the order of the keywords and rerun the job.

---

**BSY210I**            **BSDS *change\_type old\_name* not  
updated**

**Explanation:**

The specified BSDS data set name was not changed.

**User response:**

None. This message is informational.

---

**BSY211I**            **IMS Volume validation will not be  
bypassed because setup has never  
been run**

**Explanation:**

IMS Volume validation must be run at least one time for each backup profile.

**User response:**

None. This message is informational.

---

**BSY212I**            **IMS Volume validation is being by  
passed.**

**Explanation:**

As requested. The process to validate that all IMS volumes are included in the backup will be bypassed.

**User response:**

None. This message is informational.

---

**BSY213I**            **-----SSID *ssid* - IMS Recovery  
Expert Control File Opened-----**

**Explanation:**

The specified control file has been opened for update

**User response:**

None. This message is informational.

---

**BSY214I**            **-----SSID *ssid* -IMS Recovery  
Expert Control File Closed-----**

**Explanation:**

The specified control file has been closed.

**User response:**

None. This message is informational.

---

**BSY215I**            **SSID *ssid* is not data sharing.  
No group BSDS records will be  
updated**

**Explanation:**

The SSID specified is not a member of a data sharing group. No updates are needed to rename the BSDS names for other members.

**User response:**

None. This message is informational.

---

**BSY216I**            **Offloaded Backup with timestamp  
*timestamp* was removed from the  
repository**

**Explanation:**

The specified offloaded backup has been removed from the repository. This is a normal process when a new offload is taken. Only a user specified number of offloaded backups is maintained in the repository.

**User response:**  
None. This message is informational.

---

**BSY217I**            **User catalog *user\_catalog*  
disconnected**

**Explanation:**  
The specified user catalog has been disconnected. This is a required process during a system restore. The ICF catalog data sets will be automatically reconnected after the system restore is complete.

**User response:**  
None. This message is informational.

---

**BSY218E**            **Source Unit *unit\_name* is a volume  
in an existing backup for profile  
*profile\_creator.profile.name***

**Explanation:**  
The specified source unit is being used as a backup unit in a System Level Backup.

**User response:**  
If the unit is now being used as a source unit, you must delete the backup specified on the system restore screen before proceeding.

---

**BSY219E**            **Bad date specified. Date must be  
in format MM/DD/YYYY**

**Explanation:**  
An invalid date has been specified.

**User response:**  
Change the control cards to specify the date in the format MM/DD/YYYY.

---

**BSY220E**            **Bad time specified. Time must be  
in format HH:MM:SS**

**Explanation:**  
An invalid time has been specified.

**User response:**  
Change the control cards to specify the time in the format HH:MM:SS.

---

**BSY221I**            **IMS Alias Rename Process  
starting...**

**Explanation:**  
The process to rename the IMS alias has started.

**User response:**  
None. This message is informational.

---

**BSY222E**            **IMS Alias Rename Process  
complete. RC = *return\_code***

**Explanation:**  
The process to rename the IMS alias has completed with the specified return code.

**User response:**  
None required.

---

**BSY223I**            **Rename of data set  
*data\_set\_name* complete.**

**Explanation:**  
The specified data set has been successfully renamed.

**User response:**  
None. This message is informational.

---

**BSY224I**            **Rename of data set  
*data\_set\_name* failed. Messages  
follow:**

**Explanation:**  
The process to rename the specified data set has failed. This message will be followed by addition diagnostic information indicating why the data set rename has failed.

**User response:**  
The additional information specified should identify why the process has failed. The user ID used to submit the job might not have the MVS authorities needed to perform the rename.

---

**BSY225I**            **Database *database.database*  
partition *partition* has been  
*stopped/started***

**Explanation:**  
The specified database has been either stopped or started. The database needs to be stopped before it can be restored. It will be started automatically after a successful restore process.

**User response:**  
None. This message is informational.

---

**BSY226I**            **Indexspace  
*index\_creator.index\_name*  
partition *partition* has been  
*stopped/started***

**Explanation:**  
The specified index space has been either stopped or started. The index space needs to be stopped before it can be restored. It will be started automatically after a successful restore process.

**User response:**  
None. This message is informational.

---

**BSY227I**            **New data set name is  
*data\_set\_name***

**Explanation:**  
The new name of the renamed IMS data set name is specified in this message.

**User response:**  
None. This message is informational.

---

**BSY228I**            **Processing *database/index*  
*database\_name.database\_name***

*/index\_creator.indexspace\_name  
partition number partition...*

**Explanation:**

The process to restore the specified IMS object is starting.

**User response:**

None. This message is informational.

---

**BSY229I**      *database/index  
database\_name.database\_name  
/index\_creator.indexspace\_name  
partition partition has been  
successfully renamed.*

**Explanation:**

The specified IMS object has been successfully renamed.

**User response:**

None. This message is informational.

---

**BSY230E**      *Rename of database/index  
database\_name.database\_name  
/index\_creator.indexspace\_name  
partition partition has failed*

**Explanation:**

The rename process of the specified IMS object has failed. Messages indicating the reason for the failure will precede this message.

**User response:**

None required.

---

**BSY231I**      *Stogroup stogroup\_name has been  
updated to new vcat vcat\_name*

**Explanation:**

The specified storage group has been updated with the VCAT specified.

**User response:**

None. This message is informational.

---

**BSY232W**      *Data set data\_set\_name could  
not be located. Rename will be  
bypassed*

**Explanation:**

The data set specified could not be located to be renamed. This could be normal if the IMS object was created with the DEFER option.

**User response:**

None required.

---

**BSY233W**      *Data set data\_set\_name is  
migrated and will be bypassed*

**Explanation:**

The specified data set was migrated and will not be renamed.

**User response:**

Recall the data set and rerun the process.

---

**BSY234I**      *Volser volume\_serial was removed  
from Stogroup stogroup\_name*

**Explanation:**

The specified volume serial was removed from the storage group.

**User response:**

None. This message is informational.

---

**BSY235I**      *Volser volume\_serial was added to  
Stogroup stogroup\_name*

**Explanation:**

The specified volume serial was added to the storage group.

**User response:**

None. This message is informational.

---

**BSY236W**      *Data set data\_set\_name was not  
found*

**Explanation:**

The specified data set was not found in the MVS catalog. It will not be processed.

**User response:**

This could be normal if the object was created with the DEFER option.

---

**BSY237E**      *Volser volume\_serial contains IMS  
data but was not found or is not  
online*

**Explanation:**

The specified VOLSER contains a data set for the analyzed IMS but is not online to the MVS system.

**User response:**

Have a systems operator vary the specified VOLSER online.

---

**BSY238E**      *Source volser volume\_serial is not  
FlashCopy capable*

**Explanation:**

The specified volser is not capable of FlashCopy operations.

**User response:**

Make sure the specified volser is a unit that resides in an array that is capable of running FlashCopy commands.

---

**BSY239E**      *Target unit target\_unit is not  
FlashCopy capable*

**Explanation:**

The specified target unit is not capable of FlashCopy operations.

**User response:**

Make sure the specified target unit resides in an array that is capable of running FlashCopy commands.

---

**BSY240I Performing FlashCopy to create backup...**

---

**Explanation:**

The FlashCopy process to create a System Level Backup is commencing.

**User response:**

None. This message is informational.

---

**BSY241I Backup via flash volume from source volser *volume\_serial* to unit *target\_unit* has completed**

---

**Explanation:**

The specified source volser is being flashed (copied) to the specified target unit.

**User response:**

None. This message is informational.

---

**BSY242I Restore via flash volume from backup unit *target\_unit* to volser *volume\_serial* has completed**

---

**Explanation:**

The specified volser is being restored from a FlashCopy backup.

**User response:**

None. This message is informational.

---

**BSY243E FlashCopy of source volser *volume\_serial* to target unit *target\_unit* failed. RC = *return\_code* RS = *reason\_code***

---

**Explanation:**

The specified FlashCopy operation failed. This message will be followed by additional diagnostic information.

**User response:**

The source and target volumes of a FlashCopy operation must be equal in size.

---

**BSY244E Checksum for unit *target\_unit* restored to volser *volume\_serial* failed. Volume has changed since backup**

---

**Explanation:**

The checksum operation for the specified backup unit has failed. This indicates the backup unit has been possibly changed outside of the product.

**User response:**

If you still want to perform the system restore, change the PERFORM\_CHECKSUM PARMLIB value to N.

---

**BSY245E FCQUERY call failed for unit *target\_unit* RC = *return\_code* RS = *reason\_code***

---

**Explanation:**

The command to query the FlashCopy relationships for the specified unit has failed.

**User response:**

Make sure the TSO ID used to submit the job has the appropriate MVS authorities to perform the query command.

---

**BSY248E Task *task\_name* - Error invoking *program*. Please check file *DD\_name* for problem determination**

---

**Explanation:**

An error has occurred invoking either DFSMSdss or FDR to perform a volume backup or a data set restore.

**User response:**

Check the indicated DD (file) for more information on the failure.

---

**BSY249I Task *task\_name* - Offload process starting for unit *target\_unit* (Source volser *volume\_serial*)**

---

**Explanation:**

The process to offload the specified unit has started.

**User response:**

None. This message is informational.

---

**BSY250E Online|Offline request failed for unit *target\_unit*. RC = *return\_code* RS = *reason\_code*.**

---

**Explanation:**

Offline or Online request failed for the specified unit.

**User response:**

Make sure the specified unit is not in use by any other MVS process.

---

**BSY251E Online|Offline request failed for unit *target\_unit*. RC = *return\_code* RS = *reason\_code***

---

**Explanation:**

Offline or Online request failed for the specified unit.

**User response:**

Make sure the specified unit is not in use by any other MVS process.

---

**BSY254I Task *task* - Offload process for unit *target\_unit* (Source volser *volume\_serial*) is complete**

---

**Explanation:**

The volume offload process for the specified volume is complete.

**User response:**

None. This message is informational.

---

**BSY255E Check sum type: *type* - Old = *old\_value* - New = *new\_value***

---

**Explanation:**

This message is produced if a check sum fails at system restore time. This means that the backup disk has changed since the backup was performed.

**User response:**

Determine if the change made to the backup disk is acceptable. If the backup is valid, the check sum function can be turned off using the PARMLIB entry PERFORM\_CHECKSUM.

---

**BSY256E**      **Task task - message data\_set\_name hex\_value**

**Explanation:**

Dynamic allocation has failed for the specified data set.

**User response:**

Make sure the unit specified for DASD\_ALLOCATION\_UNIT in the PARMLIB is valid for your site.

---

**BSY257E**      **Task task - Process abended. PSW =program\_status\_word - Return Code = return\_code - Reason Code = reason\_code**

**Explanation:**

The process has ended abnormally.

**User response:**

Contact IBM Software Support.

---

**BSY258I**      **SSID ssid checkpointed at RBA/LRSN rba/lrsn**

**Explanation:**

an IMS checkpoint process has completed for the specified IMS subsystem.

**User response:**

None. This message is informational.

---

**BSY259I**      **Waiting for checkpoint to complete on SSID ssid**

**Explanation:**

The product is waiting for an IMS system checkpoint process to complete.

**User response:**

None. This message is informational.

---

**BSY260E**      **Task task - Invalid DSN generated for backup\_type DSN = data\_set\_name - Check DSN Mask**

**Explanation:**

The data set mask to offload a volume is invalid.

**User response:**

The data set mask in the offload options should generate a unique name for each volume serial. It should have the &VOLSER variable in it and some other

time or date variable to make it unique for each offload process.

---

**BSY262E**      **Task task - message\_text**

**Explanation:**

This message is used to display various message text associated with errors.

**User response:**

Review the message text and other related messages to determine the problem.

---

**BSY263I**      **Task task - Unit unit\_name offloaded to device data set data\_set\_name**

**Explanation:**

The specified unit was offloaded to the specified data set name.

**User response:**

None. This message is informational.

---

**BSY264I**      **Unit unit\_name was offloaded by a previous offload job. Use RE-OFFLOAD card to offload again**

**Explanation:**

The specified backup unit was already offloaded by a previous offload job.

**User response:**

If you want to replace that previous offload with a new offload backup, rerun the job with the RE-OFFLOAD keyword.

---

**BSY265E**      **Generation generation has not been offloaded. Offload it or run with the BYPASS-OFFLOAD keyword**

**Explanation:**

This backup process will replace a System Level Backup on disk that has not been offloaded to tape yet.

**User response:**

Since you have specified offload options in the System Level Backup profile, it is assumed each System Level Backup should be offloaded to tape before it is replaced. You can offload the backup by going to the system restore screen and selecting to offload it from there, or you can specify the BYPASS-OFFLOAD keyword if you do not want to offload the backup.

---

**BSY266E**      **No Databases found for this Pattern. Type TS/IX Database database\_name, Database table\_space\_name Creator creator\_name**

**Explanation:**

The wildcard mask specified in an application profile did not result in any matches during the JCL build process.

**User response:**  
None required.

---

**BSY267E**      **Database excluded because it is a TEMP or WORK database. Type TS/IX Database *database\_name*, Spacename Partition *partition***

**Explanation:**  
The specified database has been excluded from the application restore JCL because it is a temporary work space.

**User response:**  
None required.

---

**BSY272E**      **Space no longer exists. Type TS/IX Database *database\_name*, Spacename**

**Explanation:**  
The specified object no longer exists. It will not be processed.

**User response:**  
The object might have existed when the application profile was created. Remove it from the profile.

---

**BSY275I**      **message\_text**

**Explanation:**  
This message is used to display informational text generated during processing.

**User response:**  
None. This message is informational.

---

**BSY277I**      **Task *task* - Volser *volume\_serial* was restored from *file\_name* file seq nbr *file\_sequence\_number***

**Explanation:**  
The specified volume serial was restored from an offloaded backup.

**User response:**  
None. This message is informational.

---

**BSY278I**      **Task *task* - Unit *unit\_name* was initialized with volser *volume\_serial***

**Explanation:**  
The specified unit was initialized with the specified volume serial.

**User response:**  
None. This message is informational.

---

**BSY279I**      **Task *task* - Unit *unit\_name* with old volser *volume\_serial* was clipped to volser *volume\_serial***

**Explanation:**  
The specified unit was clipped to a new volume serial name.

**User response:**  
None. This message is informational.

---

**BSY280E**      **An error has occurred obtaining SMS information for *copy\_pool/storage\_group copy\_pool\_name/storage\_group\_name*%Z.**

**Explanation:**  
An error has occurred trying to obtain SMS information for the specified object.

**User response:**  
Either the object no longer exists or its SMS definition is invalid. Check with your systems programmer.

---

**BSY281E**      **Requested storage needed for SMS call is not available**

**Explanation:**  
The MVS storage requested was not available.

**User response:**  
Increase the region size on the job and rerun.

---

**BSY282E**      **Storage used for SMS call could not be released**

**Explanation:**  
The MVS storage used for SMS calls could not be released.

**User response:**  
Contact IBM Software Support.

---

**BSY283I**      **HSM backup with token *token\_name* message**

**Explanation:**  
The message indicates a HSM backup (by its token) and states if it is on DASD or tape.

**User response:**  
None. This message is informational.

---

**BSY284I**      **Performing HSM DUMP of copypool *copy\_pool***

**Explanation:**  
The specified SMS copy pool is being offloaded (dumped) to tape.

**User response:**  
None. This message is informational.

---

**BSY285E**      **HSM Command failed. RC = *return\_code* RC = *return\_code***

**Explanation:**  
The specified HSM command has failed.

**User response:**

Check the system or DFSMSHSM job log for more information.

---

**BSY286E**            **Source volser *volume\_serial* is in an active FlashCopy relationship**

**Explanation:**

The specified source volume serial is in a current FlashCopy relationship. This message is issued on a restore when a backup of the source unit has not completed.

**User response:**

Re-submit the job when the FlashCopy session is complete.

---

**BSY287E**            **Target unit *target\_name* is in an active FlashCopy relationship**

**Explanation:**

The specified target unit is in a current FlashCopy relationship. This message is issued when the previous backup to this unit has not completed.

**User response:**

Resubmit the job when the FlashCopy session is complete.

---

**BSY288E**            **Data set for *object* did not exist at the time of System Level Backup**

**Explanation:**

The data set for the specified object did not exist at the time of the System Level Backup. The object could be defined DEFER YES.

**User response:**

None required.

---

**BSY291I**            ***object* was successfully restored.**

**Explanation:**

The specified object was successfully restored from the System Level Backup.

**User response:**

None. This message is informational.

---

**BSY292E**            **No backups for profile *profile\_creator.profile\_name* were found in repository**

**Explanation:**

No System Level Backups for the specified profile were found.

**User response:**

It is possible they were deleted or replaced by a more recent backup since the JCL was generated. Generate the application recovery JCL again.

---

**BSY293E**            ***object* no longer exists or was dropped and re-created since the backup**

**Explanation:**

The specified object no longer exists in this IMS subsystem or it was dropped and re-created since the backup.

**User response:**

A dropped object (or a re-created object) cannot be restored.

---

**BSY294E**            **Module *module\_name* returning with RC= *return\_code***

**Explanation:**

The specified module has completed with the specified return code.

**User response:**

A previous error message gives more detail on the specific error that occurred.

---

**BSY296E**            **No suitable target could be found for source volser: *source\_volser*.**

**Explanation:**

A target cannot be found for the listed source volume.

**User response:**

Update the backup profile and ensure the source volume is mapped to a valid target volume.

---

**BSY298E**            **No objects were found in Profile *profile\_creator.profile\_name* IMS subsystem *ssid***

**Explanation:**

The object profile was empty or resulted in no objects being resolved from the wildcard characters.

**User response:**

Add objects to the application profile.

---

**BSY299E**            **There are no Objects to process due to prior errors, the Build Process was terminated**

**Explanation:**

The JCL build process has been terminated because no objects can be successfully restored.

**User response:**

None required.

---

**BSY303E**            **File tailoring *open/close/include* error, RC=*return\_code***

**Explanation:**

A file tailoring error has occurred.

**User response:**

Make sure there is enough space on the target data set to hold the JCL being generated.

---

**BSY304I**            **Build JCL will be written to *data\_set\_name***

**Explanation:**

Object recovery JCL will be written to the specified data set.

**User response:**

None. This message is informational.

---

**BSY305I**            **Build JCL member *member\_name* successfully written**

**Explanation:**

The application recovery JCL was successfully written to the specified member.

**User response:**

None. This message is informational.

---

**BSY306E**            **No recovery information was found in SYSCOPY for object:**

**Explanation:**

No recovery information was found in SYSCOPY for the specified object and no System Level Backup was found that is capable of restoring the object.

**User response:**

No recovery resources exist for the object. It is recommended you backup the system on which this object resides, or take an image copy of this object.

---

**BSY307E**            **Required full image copy *IC\_data\_set* could not be found for object:**

**Explanation:**

The specified image copy was not found in the MVS catalog for the specified object. The object will not be recoverable using this image copy.

**User response:**

Recovery to the specified point may not be possible. Either choose a different recovery point or catalog the missing image copy.

---

**BSY308E**            **A valid starting point could not be found for the RECOVER utility for object:**

**Explanation:**

Recovery of IMS objects requires finding an appropriate copy or appropriate log records to recover the object. A starting point might be a System Level Backup, and image copy, or log records used to recreate the object. If a "non-logged" event is found at a certain point in time before a starting point is found, the object cannot be restored to the point in time requested.

**User response:**

Either backup the object or choose a different restore point.

---

**BSY309E**            **Recovery point could not be found for object:**

**Explanation:**

The recovery point is the stopping point of a recovery. If you chose to restore the object to the latest image copy, and none was found, this error could occur.

**User response:**

Chose a different recovery point.

---

**BSY311E**            **An Alter has been done on the object:**

**Explanation:**

A DDL ALTER has been performed against the specified object. It cannot be restored.

**User response:**

It is recommended that you take another System Level Backup or an image copy of this object.

---

**BSY312W**            **This index has been rebuilt which prohibits recovery. Index will be rebuilt for object:**

**Explanation:**

The specified index has been rebuilt since its last copy. It will be rebuilt again since it cannot be restored from the previous System Level Backup or image copy.

**User response:**

None required.

---

**BSY313E**            **Space is not recoverable to desired point. A CHECK DATA with LOG NO prohibits recovery for object:**

**Explanation:**

The specified object cannot be recovered because a LOG NO utility has been run since the last System Level Backup or image copy.

**User response:**

It is recommended that you take another System Level Backup or an image copy of this object.

---

**BSY315E**            **Space is not recoverable to desired point. A LOAD REPLACE with LOG NO prohibits recovery for object:**

**Explanation:**

The specified object cannot be recovered because a LOAD REPLACE utility with LOG NO has been run since the last system backup or image copy.

**User response:**

It is recommended that you take another System Level Backup or an image copy of this object.

---

**BSY316E**            **Space is not recoverable to desired point. A REORG with LOG NO prohibits recovery for object:**

**Explanation:**

The specified object cannot be recovered because a REORG utility with LOG NO has been run since the last System Level Backup or image copy.

**User response:**



It is recommended that you take another System Level Backup or an image copy of this object.

---

**BSY317E**      **Space is not recoverable to desired point. A LOAD RESUME with LOG NO prohibits recovery for object:**

**Explanation:**

The specified object cannot be recovered because a LOAD RESUME utility with LOG NO has been run since the last system backup or image copy.

**User response:**

It is recommended that you take another System Level Backup or an image copy of this object

---

**BSY319W**      **The following Index has been excluded due to the exclusion of the associated database:**

**Explanation:**

The specified index will not be recovered in the JCL stream because its associated database could not be recovered.

**User response:**

None required.

---

**BSY320I**      **Database/Indexspace has been stopped/started**

**Explanation:**

The specified IMS object has been either stopped or started.

**User response:**

None. This message is informational.

---

**BSY321E**      **Database/Indexspace was not restored**

**Explanation:**

The specified IMS object was not restored. A previous error will detail why this object could not be restored.

**User response:**

None required.

---

**BSY322I**      **Data set *data\_set\_name* was restored via *method***

**Explanation:**

The specified data set was restored via DFDSS, FDR, or SNAP data set.

**User response:**

None. This message is informational.

---

**BSY323E**      **Data set *data\_set\_name* failed *restore\_type* restore**

**Explanation:**

The specified data set failed restore using the specified method.

**User response:**

A previous error message will indicate the reason for the failure.

---

**BSY326E**      **Error cataloging data set *data\_set\_name***

**Explanation:**

The specified data set has been restored to the specified volumes, but the MVS catalog operation has failed.

**User response:**

Review the IDCAMS catalog output shown to determine the cause of the error.

---

**BSY327E**      **Task *task* - Generated DSN *data\_set\_name* already exists**

**Explanation:**

The data set mask specified in the offload options has been resolved to a data set name that already exists.

**User response:**

Change the data set mask in the offload options so each generated data set name will be unique. A suggestion is to add the timestamp variable.

---

**BSY329E**      **Task *task* - No space for data set *data\_set\_name* Needs *number\_of\_tracks* tracks**

**Explanation:**

No space could be found on a source volume to restore the specified data set. The amount of space needed is shown.

**User response:**

Either add volumes to the target storage group, compress the volumes to free up space, or delete some unneeded data sets from the volume.

---

**BSY330I**      **Volume: *volume* Tracks: *number\_of\_tracks***

**Explanation:**

The specified data set has been restored to this volume. The amount of space the data set is on this volume is also displayed.

**User response:**

None. This message is informational.

---

**BSY331I**      **Copy Pending status has been reset for the selected object types**

**Explanation:**

COPY PENDING status has been reset for the listed objects.

**User response:**

None. This message is informational.

---

**BSY332I**      **Resetting copy pending status for *TABLESPACE|INDEXSPACE|INDEX object\_name***

**Explanation:**

COPY PENDING will be reset for the listed object.

**User response:**

None. This message is informational.

**BSY333E**            *function failed for member  
member\_name RC = return\_code*

**Explanation:**

VDEFINE or VDELETE has failed for the ISPF member listed in the message.

**User response:**

The necessary ISPF libraries are missing from the agent JCL.

**BSY335I**            *Data set data\_set\_name has been  
renamed to data\_set\_name*

**Explanation:**

The specified data set has been renamed.

**User response:**

None. This message is informational.

**BSY336E**            *Backup backup\_name timestamp  
timestamp has not been offloaded*

**Explanation:**

The specified backup has not yet been offloaded.

**User response:**

The target units of this backup cannot be reused until it has been offloaded.

**BSY337E**            *Offload it or run with the BYPASS-  
OFFLOAD keyword*

**Explanation:**

This is a continuation of message BSY336E.

**User response:**

You can also choose to specify the BYPASS-OFFLOAD keyword and rerun the job.

**BSY338W**            *Backup backup timestamp  
timestamp will be replaced by this  
backup*

**Explanation:**

The target units for the specified backup will be replaced by this backup. The specified backup will be removed from the repository.

**User response:**

None required.

**BSY339I**            *Backup backup timestamp  
timestamp was marked as no  
longer on disk*

**Explanation:**

The specified backup has been offloaded to disk and will be replaced by this backup. It will be marked as no longer on disk in the repository.

**User response:**

None. This message is informational.

**BSY340E**            *message\_text*

**Explanation:**

This message is used to display various message text associated with errors.

**User response:**

Review the message text and other related messages to determine the problem.

**BSY341E**            *Error fetching System Level  
Backup information. Check the  
agent JCL*

**Explanation:**

The System Level Backup could not be fetched from the repository.

**User response**

Check the agent JCL to make sure all the required data sets have been specified. These libraries are:

```
//BSYBPROF DD DISP=SHR,DSN=datalevel.PROFILES
//BSYBACK DD DISP=SHR,DSN=datalevel.SYSBACK
//BSYBOBJ DD DISP=SHR,DSN=datalevel.SYSBACK.0BJS
//BSYBVOL DD DISP=SHR,DSN=datalevel.SYSBACK.VOLS
//BSYBSSD DD DISP=SHR,DSN=datalevel.SYSBACK.SSIDS
```

Where *datalevel* is the high level used to create these data sets during install.

**BSY342E**            *BSY System Backup and Restore  
control record not found*

**Explanation:**

The control record for the IMS Recovery Expert system backup and restore utility was not found.

**User response:**

Refer to the installation section on how to create this record.

**BSY343E**            *FCWithdraw failed on target unit  
unit\_name RC = return\_code RS =  
reason\_code*

**Explanation:**

The FCWithdraw operation failed on the specified target unit.

**User response:**

Make sure the TSO ID that submitted the job has the authority necessary to run the FCWithdraw command.

**BSY344W**            *Data set collection has ended with  
warning conditions:*

**Explanation:**

The process to collect information about where data sets resided at the time of the System Level Backup has completed with warning conditions. These will be listed after this message.

**User response:**

None required.

---

**BSY345W**      **Error creating catalog entry for *data\_set\_name*. FDRInstant will not be used**

**Explanation:**

An error has occurred creating a data set required by FDRInstant. FDRInstant will not be used. FDR will be used to perform the volume offload.

**User response:**

Make sure the appropriate steps have been taken at your shop to create data sets that start with FDR.USE.\*

---

**BSY346I**      **Source Volser: *volume\_serial*  
Target Unit: *target\_unit* Remaining  
Tracks: *number\_of\_tracks***

**Explanation:**

This is an informational message showing the total number of tracks that need to be copied inside the array from source to target volumes.

**User response:**

None. This message is informational.

---

**BSY348I**      **These IMS data sets reside on this volume:**

**Explanation:**

The specified IMS data sets reside on a volume that has not been included in the System Level Backup.

**User response:**

You must include the specified volume in the system backup profile.

---

**BSY349I**      **Data set: *data\_set\_name***

**Explanation:**

This is a continuation of BSY348I and will list a data set.

**User response:**

None. This message is informational.

---

**BSY350I**      **Remaining tracks to be copied:  
*number\_of\_tracks***

**Explanation:**

This is an informational message showing the total number of tracks that need to be copied inside the array from source to target volumes

**User response:**

None. This message is informational.

---

**BSY351E**      **An error has occurred obtaining IMS location for subsystem *ssid*. Make sure the correct BSDS files are specified**

**Explanation:**

The IMS location is needed to construct the HSM copy pool names for the IMS subsystem.

**User response:**

The BSDS names for the IMS SSID are most likely incorrect. Enter the Setup section of the product and check the BSDS names there.

---

**BSY352E**      **The following object objectname was selected but no longer exists.**

**Explanation:**

The object no longer exists. It will not be processed.

**User response:**

The object might have existed when the object profile was created but it now no longer exists. The object should be removed from the profile.

---

**BSY353E**      **Unable to stop *table\_space/*  
*index\_space***

**Explanation:**

The product was unable to stop the specified IMS object.

**User response:**

Make sure the IMS object is not being used by any IMS process.

---

**BSY354I**      **Waiting for *table\_space/*  
*index\_space* to stop...**

**Explanation:**

The product is waiting for the specified object to enter the STOPPED state.

**User response:**

None. This message is informational.

---

**BSY355W**      **Build of object profile has resulted in no selected objects.**

**Explanation:**

The build of the object profile produced no selected objects.

**User response:**

Check the profile to make sure an object is selected or the object mask(s) specified are correct.

---

**BSY356I**      **The following object objectname was selected but no longer exists.**

**Explanation:**

The DFSMSdss copy from the source volume to the target volume is being performed by the specified subtask.

**User response:**

None. This message is informational.

---

**BSY358E**      **Source volume volser contains user catalog data. This volume cannot be excluded.**

**Explanation:**

The source volume that you selected for exclusion contains user catalog data that needs to be included in the backup. The volume must be included in the backup.

**User response:**

Edit the backup profile and ensure the volume is not excluded.

---

**BSY359E**            **SNAP group operation failed.**

**Explanation:**

The listed SNAP operation failed. The error messages from the SNAP operation will follow this message.

**User response:**

Examine the error messages from the SNAP. Make sure that the user who submitted the job has the proper authority to issue the SNAP command.

---

**BSY360W**            **The following migrated data sets were found, backup will continue.**

**Explanation:**

This message is used with message [“BSY361I”](#) on [page 418](#) and describes HSM migrated data sets that were encountered during the backup.

**User response:**

None required; depending on the settings in the PARMLIB member, IMS Recovery Expert might either recall the data sets or not recall the data sets and mark the backup as partial.

---

**BSY361I**            **message\_text.**

**Explanation:**

This message is used with message [“BSY360W”](#) on [page 418](#) and lists HSM migrated data sets that were encountered during the backup.

**User response:**

None. This message is informational.

---

**BSY362W**            **Backup marked as partial, and can only be used for object restore.**

**Explanation:**

The settings in the PARMLIB member dictate that migrated data sets will not be recalled. However, object restore was enabled; therefore the backup will be saved and marked as partial.

**User response:**

None required.

---

**BSY363W**            **Backup cannot be used for system restore. Deleting backup.**

**Explanation:**

The settings in the PARMLIB member dictate that migrated data sets will not be recalled. In addition, object restore was not enabled for this profile. Since the backup cannot be used for system restore or object restore, the backup is stopped and deleted.

**User response:**

None required.

---

**BSY364I**            **Recalling migrated data sets.**

**Explanation:**

IMS data sets that have been migrated by DFSMSHsm are being recalled.

**User response:**

None. This message is informational.

---

**BSY365I**            **Waiting for recalled data sets.**

**Explanation:**

The backup is waiting for data sets to be recalled.

**User response:**

None. This message is informational.

---

**BSY366I**            **Waiting number of minutes for recalled data sets.**

**Explanation:**

The backup is waiting the specified number of minutes for data sets to be recalled.

**User response:**

None. This message is informational.

---

**BSY367W**            **Invalid SMS return code for volume volser, rc=return\_code.**

**Explanation:**

An error occurred when attempting to determine the SMS storage group for a volume.

**User response:**

Make sure the volume serial is online, is included in an SMS storage group, and is properly configured in SMS.

---

**BSY368I**            **Volser volume\_serial was restored in a previous restore job. It will be bypassed.**

**Explanation:**

This message may be displayed when a restore job is re-run using the RESTART parameter. The volume listed in the message was successfully restored during the previous run and will not be restored again.

**User response:**

None. This message is informational.

---

**BSY369E**            **Volser volume\_serial was restored in a previous restore job. It will be bypassed.**

**Explanation:**

This message may be displayed when a restore job is re-run using the RESTART parameter. The volume listed in the message was successfully restored during the previous run and will not be restored again.

**User response:**

None required.

---

**BSY370I**      **Performing target volume validation...**

**Explanation:**

This informational message indicates that target volume validation is in progress.

**User response:**

None. This message is informational.

---

**BSY371I**      **Target volume validation complete.**

**Explanation:**

This informational message indicates that target volume validation is complete.

**User response:**

None. This message is informational.

---

**BSY372E**      **All source volumes could not be matched to an appropriate target volume.**

**Explanation:**

One or more of the source volumes could not be matched to a target volume. The backup is stopped.

**User response:**

Ensure that there are enough targets specified for the desired number of backup generations. The target units/volumes must match the size of the source volumes. Also, make sure the specified target units are not in use for a System Level Backup of another subsystem. This will make them ineligible for pairing with volumes in this profile.

---

**BSY373E**      **No target volumes were found, check the target pool volumes entered for this profile.**

**Explanation:**

The target volumes were not specified in the profile, or the storage groups specified did not contain any valid volumes.

**User response:**

Ensure that valid ranges of target units or storage groups are specified in the backup profile.

---

**BSY374I**      **Task task\_name - Restoring source volser source\_volser from backup volser backup\_volser.**

**Explanation:**

This informational message lists the source volume being restored and the backup volume being used to restore it.

**User response:**

None. This message is informational.

---

**BSY375E**      **ShadowImage action mode of source volser source\_volser to target unit target\_unit failed.**

**Explanation:**

The specified Shadow Image operation has failed.

**User response:**

Ensure the user ID has the proper authorization to run the command. Also, make sure the specified volumes reside on a storage array that is capable of running ShadowImage commands and is properly licensed.

---

**BSY376E**      **Return Code = return\_code - Reason Code = reason\_code**

**Explanation:**

This message displays the return and reason codes affiliated with a prior message.

**User response:**

Examine the return and reason codes. Determine and correct the source of the problem.

---

**BSY377E**      **ShadowImage delete of pair source volser and target volser failed. RC = return\_code. RS = reason\_code.**

**Explanation:**

The specified ShadowImage operation has failed.

**User response:**

Ensure the user ID has the proper authorization to run the command. Also, make sure the specified volumes reside on a storage array that is capable of running ShadowImage commands and is properly licensed.

---

**BSY378E**      **Invalid Subsystem ID subsystem\_ID entered. The SSID must be defined in the Setup section of the product.**

**Explanation:**

The subsystem listed in the message has not been configured using the product setup panel.

**User response:**

On the IMS Recovery Expert main menu panel (BSY\$MAIN), specify 0 (User Settings) and press Enter. On the **Backup Profile Defaults** panel, you can set up the subsystem. On the IMS Recovery Expert main menu panel (BSY\$MAIN), specify 0 (Administration) and press Enter. On the **Administration Menu** panel (BSY\$PNL0), specify 1 (Set System Backup Profile Defaults) and press Enter. On the **System Backup Profile Defaults**, you can set up the subsystem. Refer to the configuration documentation for information about the setup parameters.

---

**BSY383E**      **An invalid SSID was specified, it must be between 1 and 4 characters in length.**

**Explanation:**

An invalid IMS subsystem ID was specified.

**User response:**

Verify that the subsystem ID selected is a valid SSID and is online.

---

**BSY384E**      **An invalid RBA/LRSN was specified, it must be 12 characters in length and contain valid hexadecimal characters.**

**Explanation:**

An invalid RBA or LRSN was specified.

**User response:**

Correct the starting or ending RBA or LRSN.

---

**BSY386E**      **An invalid Image Copy Check option was specified, the valid options are "Y" or "N"**

**Explanation:**

The image copy check option is invalid.

**User response:**

Enter Y or N for the IC-CHECK parameter in the control cards.

---

**BSY399E**      **This profile is in incremental status already.**

**Explanation:**

The backup profile contains the START-INCREMENTAL keyword, but the backup profile has previously been submitted and an incremental relationship established.

**User response:**

Remove the START-INCREMENTAL keyword from the backup profile.

---

**BSY400E**      **This profile not in incremental status.**

**Explanation:**

The backup profile contains the END-INCREMENTAL keyword, but the backup profile has not previously been submitted with a START-INCREMENTAL keyword. No incremental relationship has been established.

**User response:**

Remove the END-INCREMENTAL keyword from the backup profile.

---

**BSY401E**      **The current backup generation is not in incremental status.**

**Explanation:**

For a System Level Backup that has enough target volumes for multiple generations, only one generation can be in incremental status. This message is produced when END-INCREMENTAL was specified when the next backup generation is not for a generation that is in incremental status.

**User response:**

You can only enter the END-INCREMENTAL card when the backup generation you are about to replace is in incremental status.

---

**BSY402E**      **There are not enough target volumes specified based on the number of source volumes and generations.**

**Explanation:**

There are not enough target volumes specified in the profile to backup all source volumes for the specified number of generations.

**User response:**

Edit the backup profile and either add more target volumes or specify less backup generations.

---

**BSY403E**      **An input card cannot extend beyond two input cards.**

**Explanation:**

An input control card contains a continuation character on the second line of the card. This is not allowed. Only 2 lines are allowed for a control card.

**User response:**

Ensure the control card does not extend past two lines. Remove the continuation character from the second line.

---

**BSY404I**      **message\_text.**

**Explanation:**

This informational message indicates that a process is starting or completing.

**User response:**

None. This message is informational.

---

**BSY406E**      **The work volume work\_volser cannot be the same volume that the object resides on.**

**Explanation:**

The object being copied is located on the volume that is also specified as a work volume. This is not allowed.

**User response:**

Edit the object profile and change the work volume(s) to different work volume(s).

---

**BSY407E**      **A work volume must be specified with an input card.**

**Explanation:**

No work volume was found in the control cards.

**User response:**

Add a work volume(s) by updating the Edit Image Copy Options from the **Build Image Copy Job** panel.

---

**BSY408E**      **Task subtask\_name - Image copy of object object\_name has failed**

**Explanation:**

The subtask named in the message failed. The image copy for the specified object was not created. There will be one or more additional messages that provide more detail about the error.

**User response:**

Review additional error messages to determine course of action.

---

**BSY409I**      **Task task\_name - Image copy created for object\_name.**

**Explanation:**

This informational message states that the image copy for the listed object has been successfully created.

**User response:**

None. This message is informational.

---

**BSY410I**      **Task subtask\_name- Type: image\_copy\_type DSN: data\_set\_name.**

**Explanation:**

This informational message indicates that the image copy was successfully created. It lists the image copy type as local primary (LP), local backup (LB), remote primary (RP), or remote backup (RB), and displays the associated data set name.

**User response:**

None. This message is informational.

---

**BSY411I**      **Task task\_name- Unit: unit Fileseq: file\_sequence\_num Cataloged: Yes|No.**

**Explanation:**

This informational message indicates that the image copy was successfully created. It lists the type of device the image copy was written to; if the image copy was written to tape, the file sequence number of the image copy on the tape volser; and indicates whether the image copy data set was cataloged.

**User response:**

None. This message is informational.

---

**BSY412I**      **Task subtask\_name- Volser(s): vols\_sers.**

**Explanation:**

This informational message indicates that the image copy was successfully created. If the image copy was not cataloged, this message displays the volume serial name(s) where the image copy resides.

**User response:**

None. This message is informational.

---

**BSY413I**      **Task subtask\_name- Start\_RBA: starting\_rba Pit\_RBA: ending\_rba.**

**Explanation:**

This informational message indicates that the image copy was successfully created. It lists the starting RBA and the ending RBA of the image copy.

**User response:**

None. This message is informational.

---

**BSY415E**      **Image copies cannot be created from an offloaded backup created using FDR.**

**Explanation:**

The offloaded backup from which the image copies were to be made was created using FDR. Image copies cannot be created from FDR offloaded backups.

**User response:**

If you want to create image copies from a system backup on tape, you must use DFSMSdss to create the tape copy of the System Level Backup. You can also try selecting an another offloaded backup that was not created using FDR, or use a backup that is still on disk.

---

**BSY423E**      **The following object was selected but does not exist in the Backup:**

**Explanation:**

The specified object was in the object profile, but the selected System Level Backup did not contain information for it. An image copy will not be created for this object.

**User response:**

Take a new System Level Backup that includes the object, then select the new System Level Backup for image copy processing.

---

**BSY424E**      **The following object was dropped and recreated after the Backup:**

**Explanation:**

The object was dropped after the System Level Backup was taken and then recreated; therefore, the object cannot be recovered using the SLB selected.

**User response:**

None required.

---

**BSY426E**      **message text RC=return code, RS=reason code.**

**Explanation:**

This message is used to provide additional error message explanation. It contains the message text, return code and reason code.

**User response:**

None required.

---

**BSY427E**      **An error occurred obtaining SMS Copypool information.**

**Explanation:**

When configuring a IMS subsystem to work with the BACKUP SYSTEM utility, an error occurred attempting to obtain information about the SMS copy pools.

**User response:**

Contact IBM Software Support.

---

**BSY429E Backup unit nnnn is no longer valid. reasoncode**

**Explanation:**

The specified space efficient backup volume is no longer valid. The reason is stated in the message.

**User response:**

One of the several instances caused this message to be issued. 1. The space efficient pool filled up. 2. After a system backup is taken on a SE volume, when IMS updates a track, the original version of that track is written to the pool of disk space that is associated with the SE volumes. If this pool of disk space becomes filled, the System Level Backup on the space efficient volumes will become invalidated. To free up space in the pool, users can either delete the System Level Backup or take another backup using the same set of space efficient volumes. Each time the volumes are used, the space used to hold the original version of changed tracks from the previous backup will be freed. 3. Some other process cleared the relationship between this volume and the source volume. The SE volumes may need to be re-initialized before being reused by System Level Backup and Restore Services.

---

**BSY432E inputcardvariable is invalid in combination with LAST-BACKUP card.**

**Explanation:**

You cannot specify TIME, DATE, or GENERATION if LAST-BACKUP follows the IMAGE-COPY card. You also cannot specify TIME or DATE if LAST-BACKUP follows the GENERATION card.

**User response:**

Remove the invalid TIME, DATE, or GENERATION parameters from the control cards.

---

**BSY433E The LAST-BACKUP card must follow IMAGE-COPY or GENERATION card.**

**Explanation:**

The LAST-BACKUP card must follow either the IMAGE-COPY card or the GENERATION card.

**User response:**

Correct the order of the control cards.

---

**BSY434I Temporary data set datasetname has been deleted.**

**Explanation:**

The listed VSAM data set is no longer needed and has been deleted. Since the user chose not to register VSAM copy, it is no longer needed and was deleted.

**User response:**

None. This message is informational.

---

**BSY435I Task taskname - Registered in datasetname Total Tracks: numberoftracks**

**Explanation:**

This message provides information about the image copy data set that is produced.

**User response:**

None. This message is informational.

---

**BSY436I Task taskname - DSN: datasetname to DSN: datasetname**

**Explanation:**

This message will provide information about the image copy data set produced.

**User response:**

None. This message is informational.

---

**BSY441W Image copy datasetname not found. Searching for prior recovery asset for object: objectname.**

**Explanation:**

While generating recovery JCL for the specified object, the specified image copy data set was not found in the ICF catalog. A recovery for the specified object might still be possible using a prior recovery asset.

**User response:**

Check to see if the image copy data set was specified correctly and saved in the ICF catalog.

---

**BSY443E Fast replication failed for data set datasetname.**

**Explanation:**

Fast replication (either SNAP or Flash) has failed for the specified data set.

**User response:**

Check the output for other specific message that indicate the reason for the failure.

---

**BSY444E No image copy options have been set for this object profile.**

**Explanation:**

The object profile did not contain any valid options to produce image copies.

**User response:**

Update the object profile and specify the image copy options that you want to be used.



---

**BSY446I**      **The objectname was image copied from this System Level Backup on a previous job.**

**Explanation:**

This message indicates that restart processing is occurring and the specified object name already has an image copy created for it. As a result the object will be bypassed and not copied in the current job.

**User response:**

None. This message is informational.

---

**BSY448E**      **Object was in a restricted state at the time of the system backup. It will not be included recovery.**

**Explanation:**

The object was in a restricted state at the time of the System Level Backup. It will not be included in the recovery and it will be listed in the Restricted Objects Report. An object is considered in a restricted state if its status is CHKP, GRECP, LPL, RBDP, RECP, UTUT, or WEPR.

**User response:**

Change the status of the object to a non-restricted state.

---

**BSY451I**      **Volume volname was found in storage group but has been excluded in the profile.**

**Explanation:**

The specified volume was found in a source storage group but it will not be copied because it has been specifically entered as a volume to be excluded from the System Level Backup.

**User response:**

If you do not want this volume excluded, update the backup profile and remove the volume from the list of excluded volumes.

---

**BSY452I**      **IMS volume validation is turned off. Volumes discovered on the last SETUP run will be backed up.**

**Explanation:**

This System Level Backup profile has Validate IMS Volumes set to N. This means that IMS volumes discovered when the profile was first setup will be backed up.

**User response:**

You can either add the SETUP control card or update the profile and change Validate IMS Volumes to Y if you want System Level Backup and Restore Services to discover the IMS volumes.

---

**BSY455E**      **JCL generation failed.**

**Explanation:**

Object restore job generation failed.

**User response:**

Possible reasons and responses are: 1. No objects found in object profile: Verify that the job profile contains objects. 2. The object profile not found in repository. Verify that the object profile is listed on the Object Profile Display. If it is listed, contact IBM Software Support. 3. User is not authorized to use the object profile. Ensure that the share option for the object profile allows access. 4. An error occurred connecting to IMS. Ensure that the IMS subsystem is up, the plan is bound, and that you have authority to issue the plan.

---

**BSY9902E**      **BSY@ZTGT Processing Ended - RC=n.**

**Explanation:**

An internal error occurred. Processing ended with the listed return code.

**User response:**

Contact IBM Software Support.

---

**BSY9918E**      **At least one USERCAT statement is REQUIRED.**

**Explanation:**

An internal error occurred. At least one USERCAT statement is required.

**User response:**

Contact IBM Software Support.

---

**BSY9920E**      **Device nnnn (volser) is inaccessible.**

**Explanation:**

An internal error occurred. The device listed in the message is not accessible.

**User response:**

Contact IBM Software Support.

---

**BSY9926E**      **USERCAT BCS Component contains Structural Errors.**

**Explanation:**

An internal error occurred. The user catalog BCS component contains structural errors.

**User response:**

Contact IBM Software Support.

---

**BSY9934E**      **Volume Metadata Errors on VOL(volser) UNIT(ucb).**

**Explanation:**

An internal error occurred. The volume and unit listed in the message encountered errors.

**User response:**

Contact IBM Software Support.



---

## Chapter 16. How to look up message explanations

You can use several methods to search for messages and codes.

### Searching an information center

In the search box that is located in the top left toolbar of any Eclipse help system, such as the IBM Information Management Software for z/OS Solutions Information Center, enter the number of the message that you want to locate. For example, you can enter DFS1065A in the search field.

Use the following tips to improve your message searches:

- You can search for information on codes by entering the code; for example, enter -327.
- Enter the complete or partial message number. You can use the asterisk wildcard character (\*) to represent multiple characters, and you can use the question mark wildcard character (?) to represent a single character.

The information center contains the latest message information for all of the Information Management products that are included in the information center.

### Searching for messages on the web

You can use any of the popular search engines that are available on the web to search for message explanations. When you type the specific message number or code into the search engine, you are presented with links to the message information in IBM information centers.



---

## Chapter 17. Gathering diagnostic information

Before you report a problem with IMS Recovery Expert to IBM Software Support, you need to gather the appropriate diagnostic information.

Provide the following information for all IMS Recovery Expert problems:

- A clear description of the problem and the steps that are required to re-create the problem
- All messages that were issued as a result of the problem
- Product release number and the number of the last program temporary fix (PTF) that was installed
- The version of Db2/IMS that you are using and the type and version of the operating system that you are using



---

## Chapter 18. References

The following reference topics provide technical reference information for using IMS Recovery Expert.

### Topics:

- [“Recovery job statistics report” on page 429](#)
- [“The ACB repository” on page 431](#)
- [“User Image Copy” on page 435](#)

---

### Recovery job statistics report

The recovery job statistics report is a stand-alone batch job that can process system management facility (SMF) records and produce a report showing the elapsed time, CPU time, and I/O counts for an IMS Database Recovery Facility (DRF) recovery.

This report includes not only the DRF master job but also all associated address spaces that are spawned by DRF or any of the auxiliary utilities driven by DRF. This report lists each individual address space (jobs and started tasks) that is involved in the recovery, and also provides: 1) overall totals, and 2) totals by address space type.

#### Setting up and running the report job

The JCL to produce this report can be found in SBSYSAMP(BSY#RSRP). The job includes comments on how to provide the input and other job customization. After a successful DRF recovery has been completed, you can run this job to produce the report.

The first time this report is run, you must specify a valid SMF data set for the //SMFIN DD statement that contains the SMF records encompassing the DRF recovery job and associated tasks.

You must also specify input parameter EXTRACT-SMF Y to tell the utility to read the records from the //SMFIN DD.

If you code the //SMFDATA DD on this run and specify a permanent data set to be created (for example, DISP=(NEW,CATLG)), then the SMF records that are needed are written to the SMFDATA data set and saved for subsequent runs. This action allows you to:

- Comment out the //SMFIN DD,
- Code the //SMFDATA DD to the data set created in the prior run (for example, DISP=SHR), and
- Set EXTRACT-SMF N on subsequent runs.

This adjustment saves time because the job now reads only those records needed from the SMFDATA data set, and avoids the re-reading of all records in the SMFIN data set.

#### Parameter reference for job statistics report

The following parameters are used by the report.

##### EXTRACT-SMF

This parameter indicates whether you want the job to extract the SMF records from either a live SMF data set or an offloaded data set, and then place the needed records in the data sets specified by the SMFDATA DD.

If EXTRACT-SMF=Y, then SMFDATA can specify either a temporary or permanent data set.

If SMFDATA specifies a temporary data set, any re-run of this job must specify EXTRACT-SMF=Y and must specify the SMFIN DD.

If you specify EXTRACT-SMF=Y and specify a new, permanent data set for SMFDATA, the records needed by this job are saved in the SMFDATA data set. Subsequent job runs can specify EXTRACT-SMF=N and the permanent data set for SMFDATA, and avoid re-reading the original SMF data.

#### **START-TIMESTAMP**

This parameter specifies the starting range that the utility uses to locate the start of the DRF master recovery job, and must be specified.

This parameter limits the records used in the report and can prevent accumulating incorrect jobs when the same DRF job name is used by multiple runs.

Set this parameter to a date/time that is just prior to the DRF master job start time.

Timestamp format:

```
YYYY-MM-DD-HH.MM.SS.HHHHHH
```

#### **END-TIMESTAMP**

This parameter specifies the ending range that the utility uses to locate the end of the DRF master recovery job, and must be specified.

This parameter limits the records used in the report and can prevent accumulating incorrect jobs when the same DRF job name is used by multiple runs.

Set this parameter to a date/time that is just after the DRF master job end time.

Timestamp format:

```
YYYY-MM-DD-HH.MM.SS.HHHHHH
```

#### **DRF-JOBNAME**

This parameter specifies the fully qualified job name of the DRF master job, and is required.

The following parameters are optional but should have the same value specified by the DRF Master job. Otherwise all associated recovery jobs will not be reported and accumulated.

#### **ASPREF**

This parameter specifies the ASPREF() value, which is used as the prefix for the Recovery Sort Subordinate (RSS) address spaces.

#### **FSPREF**

This parameter specifies the FSPREF() value, which is used as the prefix for the Fast Path Secondary Index address spaces.

#### **PRPREF**

This parameter specifies the PRPREF() value, which is used as the prefix for the IMS DFSPRECO utility HALDB index rebuild address spaces.

#### **IBPREF**

This parameter specifies the IBPREF() value, which is used as the prefix for the IMS Index Builder index rebuild address spaces.

#### **PCPREF**

This parameter specifies the PCPREF() value, which is used as the prefix for the IMS High Performance Pointer Checker (full function) address spaces.

#### **IBSORT**

This parameter specifies the name of the sort started task used by the IMS Index Builder when rebuilding indexes.

This value is specified either in the IMS Index Builder IIURPRMS module, or if not specified, IIUSORTS is used by IMS Index builder.

#### **IBAPI**

This parameter specifies the name of the API started task used by the IMS Index Builder when rebuilding indexes.



This value is specified either in the IMS Index Builder IIURPRMS module, or if not specified, IIUAPIFC is used by IMS Index builder.

## Sample report output

### Control Cards:

```
DRF-JOBNAME TSMXDMXD
ASPREF RMXD
FSPREF FMXD
PRPREF XMXD
IBPREF BMXD
PCPREF PMXD
IBSORT IIUSORTS
FPSORT IIUAPIFC
EXTRACT-SMF N
START-TIMESTAMP 2021-07-10-16.48.00.000000
END-TIMESTAMP 2021-07-10-17.00.00.000000
DEBUG
```

```
Earliest SMF job found Day: 2021.191 Time: 16:42:14
Latest SMF job found Day: 2021.191 Time: 16:53:58
```

| JOB NAME | JES ID   | START DATE | START TIME | END DATE | END TIME | ELAPSED TIME | CPU TIME (SECS) | TOTAL EXCP | JOB TYPE |
|----------|----------|------------|------------|----------|----------|--------------|-----------------|------------|----------|
| TSMXDMXD | J0718228 | 2021.191   | 16:48:17   | 2021.191 | 16:50:39 | 00:02:21.32  | 1.89            | 20908      | DRFMAS   |
| RMXD0001 | S0718230 | 2021.191   | 16:48:30   | 2021.191 | 16:48:33 | 00:00:03.34  | 0.69            | 4205       | ASPREF   |
| RMXD0002 | S0718231 | 2021.191   | 16:48:30   | 2021.191 | 16:48:33 | 00:00:02.53  | 0.59            | 3568       | ASPREF   |
| RMXD0003 | S0718232 | 2021.191   | 16:48:30   | 2021.191 | 16:48:32 | 00:00:02.42  | 0.57            | 3930       | ASPREF   |
| RMXD0004 | S0718233 | 2021.191   | 16:48:30   | 2021.191 | 16:48:33 | 00:00:02.54  | 0.58            | 4077       | ASPREF   |
| IIUAPIFC | S0718240 | 2021.191   | 16:48:45   | 2021.191 | 16:48:59 | 00:00:14.45  | 0.07            | 370        | FPSORT   |
| IIUAPIFC | S0718241 | 2021.191   | 16:48:45   | 2021.191 | 16:49:00 | 00:00:15.37  | 0.07            | 370        | FPSORT   |
| IIUAPIFC | S0718242 | 2021.191   | 16:48:45   | 2021.191 | 16:49:03 | 00:00:17.08  | 0.07            | 370        | FPSORT   |
| IIUAPIFC | S0718246 | 2021.191   | 16:48:46   | 2021.191 | 16:49:04 | 00:00:16.50  | 0.07            | 370        | FPSORT   |
| IIUAPIFC | S0718244 | 2021.191   | 16:48:45   | 2021.191 | 16:49:08 | 00:00:22.57  | 0.07            | 371        | FPSORT   |
| IIUAPIFC | S0718248 | 2021.191   | 16:48:46   | 2021.191 | 16:49:08 | 00:00:20.42  | 0.06            | 371        | FPSORT   |
| IIUAPIFC | S0718243 | 2021.191   | 16:48:45   | 2021.191 | 16:49:10 | 00:00:24.45  | 0.06            | 371        | FPSORT   |
| IIUAPIFC | S0718247 | 2021.191   | 16:48:46   | 2021.191 | 16:49:10 | 00:00:22.12  | 0.07            | 372        | FPSORT   |
| IIUAPIFC | S0718255 | 2021.191   | 16:49:20   | 2021.191 | 16:50:04 | 00:00:43.09  | 0.04            | 182        | FPSORT   |
| IIUAPIFC | S0718256 | 2021.191   | 16:49:20   | 2021.191 | 16:50:04 | 00:00:43.10  | 0.05            | 185        | FPSORT   |
| IIUAPIFC | S0718260 | 2021.191   | 16:49:27   | 2021.191 | 16:50:04 | 00:00:37.40  | 0.04            | 182        | FPSORT   |
| IIUAPIFC | S0718259 | 2021.191   | 16:49:27   | 2021.191 | 16:50:04 | 00:00:37.43  | 0.05            | 185        | FPSORT   |
| IIUAPIFC | S0718262 | 2021.191   | 16:49:36   | 2021.191 | 16:50:05 | 00:00:29.25  | 0.04            | 183        | FPSORT   |
| IIUAPIFC | S0718263 | 2021.191   | 16:49:36   | 2021.191 | 16:50:05 | 00:00:29.24  | 0.03            | 182        | FPSORT   |
| IIUAPIFC | S0718269 | 2021.191   | 16:50:15   | 2021.191 | 16:50:29 | 00:00:12.34  | 0.04            | 182        | FPSORT   |
| IIUAPIFC | S0718270 | 2021.191   | 16:50:15   | 2021.191 | 16:50:29 | 00:00:12.35  | 0.04            | 182        | FPSORT   |
| FMXD0001 | S0718234 | 2021.191   | 16:48:34   | 2021.191 | 16:49:14 | 00:00:38.35  | 0.48            | 9037       | FSPREF   |
| FMXD0002 | S0718235 | 2021.191   | 16:48:34   | 2021.191 | 16:49:14 | 00:00:38.32  | 0.41            | 8746       | FSPREF   |
| BMXD0001 | S0718236 | 2021.191   | 16:48:34   | 2021.191 | 16:49:13 | 00:00:37.36  | 0.38            | 5043       | IBPREF   |
| BMXD0001 | S0718251 | 2021.191   | 16:49:13   | 2021.191 | 16:50:09 | 00:00:55.57  | 0.61            | 7576       | IBPREF   |
| BMXD0001 | S0718266 | 2021.191   | 16:50:09   | 2021.191 | 16:50:32 | 00:00:23.45  | 0.66            | 7601       | IBPREF   |
| BMXD0002 | S0718237 | 2021.191   | 16:48:34   | 2021.191 | 16:49:19 | 00:00:43.03  | 0.44            | 6544       | IBPREF   |
| BMXD0002 | S0718253 | 2021.191   | 16:49:19   | 2021.191 | 16:50:11 | 00:00:52.11  | 0.62            | 7564       | IBPREF   |
| BMXD0002 | S0718267 | 2021.191   | 16:50:12   | 2021.191 | 16:50:22 | 00:00:09.24  | 0.28            | 5047       | IBPREF   |
| BMXD0003 | S0718238 | 2021.191   | 16:48:34   | 2021.191 | 16:49:13 | 00:00:37.44  | 0.37            | 5154       | IBPREF   |
| BMXD0003 | S0718252 | 2021.191   | 16:49:13   | 2021.191 | 16:49:25 | 00:00:11.53  | 0.27            | 4512       | IBPREF   |
| BMXD0003 | S0718258 | 2021.191   | 16:49:25   | 2021.191 | 16:50:12 | 00:00:47.20  | 0.68            | 7620       | IBPREF   |
| BMXD0003 | S0718268 | 2021.191   | 16:50:12   | 2021.191 | 16:50:12 | 00:00:00.02  | 0.02            | 65         | IBPREF   |
| BMXD0004 | S0718239 | 2021.191   | 16:48:34   | 2021.191 | 16:49:19 | 00:00:43.42  | 0.46            | 6787       | IBPREF   |
| BMXD0004 | S0718254 | 2021.191   | 16:49:19   | 2021.191 | 16:49:59 | 00:00:39.02  | 0.36            | 5269       | IBPREF   |
| BMXD0004 | S0718265 | 2021.191   | 16:49:59   | 2021.191 | 16:50:19 | 00:00:19.39  | 0.48            | 6489       | IBPREF   |
| IIUSORTS | S0718245 | 2021.191   | 16:48:45   | 2021.191 | 16:49:13 | 00:00:27.23  | 0.16            | 645        | IBSORT   |
| IIUSORTS | S0718249 | 2021.191   | 16:48:46   | 2021.191 | 16:49:13 | 00:00:25.03  | 0.16            | 645        | IBSORT   |
| IIUSORTS | S0718257 | 2021.191   | 16:49:20   | 2021.191 | 16:50:04 | 00:00:44.23  | 0.17            | 645        | IBSORT   |
| IIUSORTS | S0718261 | 2021.191   | 16:49:27   | 2021.191 | 16:50:05 | 00:00:37.08  | 0.16            | 646        | IBSORT   |
| IIUSORTS | S0718264 | 2021.191   | 16:49:36   | 2021.191 | 16:50:05 | 00:00:29.37  | 0.16            | 645        | IBSORT   |
| IIUSORTS | S0718271 | 2021.191   | 16:50:15   | 2021.191 | 16:50:29 | 00:00:13.50  | 0.17            | 645        | IBSORT   |
| PMXD0228 | S0718229 | 2021.191   | 16:48:26   | 2021.191 | 16:48:29 | 00:00:02.52  | 0.15            | 2225       | PCPREF   |
| TOTAL--> |          |            |            |          |          |              | 12.84           | 140266     | <--TOTAL |

| JOB TYPE | CPU TIME (SECS) | TOTAL EXCP |
|----------|-----------------|------------|
| ASPREF   | 2.43            | 15780      |
| FSPREF   | 0.89            | 17783      |
| PRPREF   | 0.00            | 0          |
| IBPREF   | 5.63            | 75271      |
| PCPREF   | 0.15            | 2225       |
| IBSORT   | 0.98            | 3871       |
| FPSORT   | 0.87            | 4428       |

## The ACB repository

The ACB repository is a VSAM KSDS that contains ACBs as loaded and/or updated from the active ACB library (ACBLIB).

Implementation of the ACB repository improves the performance of IMS Recovery Expert functions that access the ACB libraries of large systems. For example, the creation of application profiles might require the reading of a significant portion of the active ACB library. Use of the ACB repository will substantially reduce response times.

The ACB repository is utilized by running the BSYACBRU utility for a given SSID, which compares the ACB repository to the active ACBLIB. When an ACB member in the repository has a different *date+time* value from that of its ACBLIB counterpart, the utility will replace the repository member with the ACBLIB member. If a member exists in the ACBLIB but not in the ACB repository, the utility will add it to the ACB repository.

**Note:** If the supplied SSID is a single-system IMS ID that is part of an IMS Recovery Expert Control File's IMS Group Name, then the IMS Group Name is used.

Each unique KSDS key contains the ACB name, type (DBD or PSB), SSID or Group IMS ID, and sequence number of each ACB's records. An ACB's record contains a *date+time* value representing when the ACB was last changed in the ACBLIB. This information is used by BSYACBRU for comparison to the ACB repository.

**Notes:**

- At this time IMS Recovery Expert does not require PSBs for functions related to the ACB repository. As such, the ACB repository will only contain DBDs.
- If the IMS system is in the IMS-managed ACBs environment, the ACB repository function is disabled even if the ACB repository is configured.

## Using the ACB repository

You can refer to the sample library (SAMPLIB) members BSY#ACBI and BSY#ACBU for more information on the utilities discussed in this topic.

### Procedure

1. Using the BSYACBRI utility, define the repository with IDCAMS.

The SHAREOPTIONS (3 3), RECORDSIZE (4096 4096), and KEYS (26 0) settings in DEFINE CLUSTER control statement may not be changed.

2. Using the BSYACBRU utility, load the ACB repository from the active ACBLIB.

The active ACBLIB is specified by the SSID parameter in the JCL. This causes the active ACBLIB to be dynamically discovered. In order to load the repository from a specific ACBLIB, dynamic discovery may be overridden using the ACBLIB parameter and ACBLIB DD statement.

3. In the BSYV220 CLIST, define the variable RBRACBRE to point to the ACB repository loaded by the BSYACBRU utility.

To stop using the ACB repository, define the variable as BSYACBRE().

4. Run an IMS Recovery Expert function.

### Results

The TSO User ID or batch JOB log will report the following message if the ACB repository is successfully used for the IMS Recovery Expert function:

```
BSYI999I ACB Repository is being used for IMSID P5AI BSY#RACB
```

If the performance of the IMS Recovery Expert function is not improved as it should be, it may be the case that the function has continued without the use of the ACB repository. This may occur due to a failed ENQ (see [the following topic](#)). Check the JOB log for an indication of whether this has occurred, as seen in the following messages:

```
BSYI999I ACB Repository shared ENQ failed for IMSID IDA2 BSY#AREP
BSYI999I ACB Repository is not being used for function BSY#RACB
```

If it is found that an ACB member from ACBLIB is missing from the ACB repository, the following messages are issued in the JOB log the first time the missing member is encountered. The IMS Recovery

Expert function will read relevant members from the ACBLIB instead of the ACB repository, however for performance improvement it is recommended that the BSYACBRU utility be run to add the member to the ACB repository.

```
BSYI999I ACB Repository is being used for IMSID P5AI BSY#RACB
BSYI999I IMS ACB Repository member DBDAEG1 missing BSY#RACB
BSYI999I ACB Repository Utility would need to be run BSY#RACB
```

If it is found that an ACB member in the ACB repository has a different *date+time* value from its ACBLIB counterpart, the following messages are issued in the JOB log the first time the discrepancy is encountered. The IMS Recovery Expert function will read relevant members from the ACBLIB instead of the ACB repository, however for performance improvement it is recommended that the BSYACBRU utility be run to update the member in the ACB repository.

```
BSYI999I ACB Repository is being used for IMSID IEA BSY#RACB
BSYI999I ACB Repository does not match ACBLIB Directory BSY#RACB
BSYI999I ACB Repository Utility would need to be run BSY#RACB
```

## The BSYACBRU utility

The ACB repository is utilized by running the BSYACBRU utility for a given SSID, which compares the ACB repository to the active ACBLIB.

When an ACB member in the repository has a different *date+time* value from that of its ACBLIB counterpart, the utility will replace the repository member with the ACBLIB member. If a member exists in the ACBLIB but not in the ACB repository, the utility will add it to the ACB repository.

### The BSYACBRU utility report

The BSYACBRU utility requires exclusive access to the repository resource, which is administered by a z/OS ENQ command. The resource is qualified by SSID or IMS Group ID, but not by DSN. This means that two different utility jobs can share use of the repository if they are running for different SSIDs. Conversely, two different utility jobs running for different ACB repositories but for the same SSID or IMS Group ID will result in failure of the second utility job.

The BSYACBRU Utility Report can be found in BSYACBRP. Messages may also be found on the JOB log.

The following messages indicate that none of the members in the active ACBLIB existed in the ACB repository. All ACBs were added to the repository. In this case, the messages also reports that the utility has determined SSID IDA2 to be part of IMS GROUP IDA, and has changed to reflect such:

```
IMS RE ACB Repository Update Utility Running for SSID = IDA2

IMS RE ACB Repository Update Utility Using IMS Group = IDA

IMS ACBLIB ACB Members Checked = 00000000
IMS RE ACB Repository ACBs Updated = 00000000
IMS RE ACB Repository ACBs Added = 00000252
IMS RE ACB Repository Utility RC = 00000000
```

The following messages indicate that all ACBs in the ACB repository matched those in the ACBLIB:

```
IMS RE ACB Repository Update Utility Running for SSID = IDA2

IMS ACBLIB ACBs Checked = 00000252
IMS RE ACB Repository ACBs Updated = 00000000
IMS RE ACB Repository ACBs Added = 00000000
IMS RE ACB Repository Utility RC = 00000000
```

The following messages indicate that some of the ACBs in the ACB repository did not match those in the ACBLIB and were therefore updated:

```

IMS RE ACB Repository Update Utility Running For IMSID/SSID = IDA2

IMS ACBLIB ACB Members Checked = 00000250
IMS RE ACB Repository ACBs Updated = 00000005
IMS RE ACB Repository ACBs Added = 00000000
IMS RE ACB Repository Utility RC = 00000000

```

The following messages indicate that the active ACBLIB has concatenated data sets. All ACBLIBs are listed in order of concatenation:

```

IMS RE ACB Repository Update Utility Running for SSID = IER

IMS ACBLIB Dynamically Discovered = IMSTL.MODEL.ACBLIBA
IMS ACBLIB Concatenated = IMS.IER8.ACBLIBA
IMS ACBLIB ACB Members Checked = 00000000
IMS RE ACB Repository ACBs Updated = 00000000
IMS RE ACB Repository ACBs Added = 00043763
IMS RE ACB Repository Utility RC = 00000000

```

## Utility report error messages

The BSYACBRU Utility Report will also report errors that might occur when running the utility.

The following messages indicate an error in the API for the BSYACBIF Fast Cache Facility:

```

IMS RE ACB Repository Update Utility Running For SSID = IDA2

BSYACBIF FUNC=INIT ERROR RC=0000000C
IMS ACBLIB ACB Members Checked = 00000000
IMS RE ACB Repository ACBs Updated = 00000000
IMS RE ACB Repository ACBs Added = 00000000
IMS RE ACB Repository Utility RC = 00000012

```

The following messages indicate that the ACB repository was in use by another process:

```

IMS RE ACB Repository Update Utility Running For IMSID/SSID = IDA2

IMS RE ACB Repository exclusive ENQ error RC=00000004
IMS RE ACB Repository exclusive ENQ error RC=4 or RC=14 means Repository in use.
IMS ACBLIB ACB Members Checked = 00000000
IMS RE ACB Repository ACBs Updated = 00000000
IMS RE ACB Repository ACBs Added = 00000000
IMS RE ACB Repository Utility RC = 00000012

```

The following message indicates that the specified SSID was not found in the IMS Recovery Expert Control File:

```

IMS RE ACB Repository Update Utility Running for SSID = IEAX

IMS ACBLIB Discovery failed RC = 00000008
IMS ACBLIB ACB Members Checked = 00000000
IMS RE ACB Repository ACBs Updated = 00000000
IMS RE ACB Repository ACBs Added = 00000000
IMS RE ACB Repository Utility RC = 00000012

```

### Note:

If the SSID is not found, the BSYPRINT SYSOUT data set will report the following error messages to further indicate this problem:

```

BSYI409E - Requested SSID/GROUP (IEAX) not registered in the BSYREPOS repository
BSYI919I - PROGRAM BSYACBRA completed with a Return Code of 8

```

## User Image Copy

You can create User Image Copy (UIC) for DBDS without the standard IMS utilities (DFSUDMPO, DFSUDMT0, and DFSUICP0) or IMS High Performance Image Copy.

For example, you can back up (replicate) DBDS using storage-based fast-replication facilities such as IBM FlashCopy. IMS Database Recovery Facility (DRF) supports User Image Copy with the recovery options: USEDBDS, USEAREA, and USEUICTIME. With DRF, you can recover DBDS using User Image Copy. However, database recovery process can be complicated and error prone because it requires the **DBRC NOTIFY.UIC/NOTIFY.RECOV** commands prior to running the DRF recovery job.

Storage-based fast-replication facility can create User Image Copy without affecting IMS online subsystem.

If you recover DBDSs to the Recovery Timestamp **02:30:15** UIC 2 can be used as recovery resource

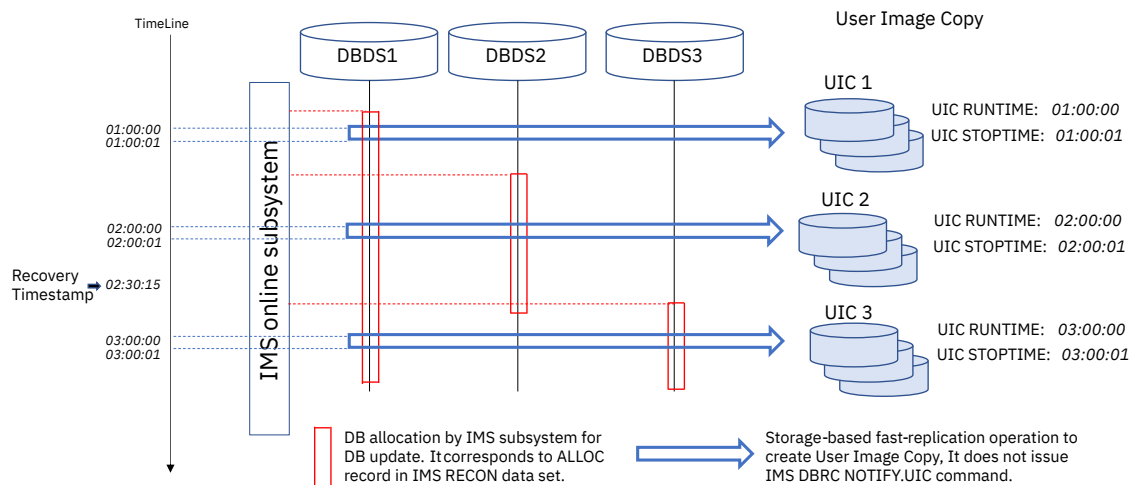


Figure 206. Creating User Image Copy using storage-based fast-replication facilities

## Recovery using User Image Copy

IMS Recovery Expert has a function to simplify the database recovery process using User Image Copy.

This function is enabled by setting **Recovery Resources** to U (UIC) on the Recovery Options panel. If this option is enabled, IMS Recovery Expert displays the UIC Timestamp panel for UIC runtime/stoptime input when building a recovery job JCL. The recovery job issues the **DBRC NOTIFY.UIC/NOTIFY.RECOV** commands, and then runs the DRF job. The **DBRC NOTIFY** commands and DRF recovery options are automatically generated according to the ALLOC records in RECON data set. There are two types of User Image Copies.

### Fuzzy User Image Copy (CIC)

User Image Copy is created while database update is in progress (the time range between UIC runtime and stoptime hits a time range of RECON ALLOC record).

```
DBRC command
NOTIFY.UIC CIC DBD(dbd) DDN(ddn) USID(used) RUNTIME(runtime) STOPTIME(stoptime)

DRF control statement
ADD DBDS(dbd,ddn) USEUICTIME(runtime)
```

### Non-fuzzy User Image Copy (BATCH)

User Image Copy is created while database update is not in progress (the time range between UIC runtime and stoptime does not hit any time range of RECON ALLOC records).

```

DBRC command
NOTIFY.UIC BATCH DBD(dbd) DDN(ddn) RUNTIME(runtime)
NOTIFY.RECOV DBD(dbd) DDN(ddn) RCVTIME(runtime)

DRF control statement
ADD DBDS(dbd,ddn) USEUDBDS/USEAREA

```

The types of User Image Copies shown in [Figure 206 on page 435](#) are as follows:

| User Image Copy | DBDS 1 | DBDS 2 | DBDS 3 |
|-----------------|--------|--------|--------|
| UIC 1           | CIC    | BATCH  | BATCH  |
| UIC 2           | CIC    | CIC    | BATCH  |
| UIC 3           | CIC    | BATCH  | CIC    |

## Eligible User Image Copy

Although you can create User Image Copy at any time, not all User Image Copies are eligible for database recovery.

With the **Build Recovery JCL Only** option, you can check whether the User Image Copy is eligible without updating existing DBDS. IMS Recovery Expert checks ALLOC, REORG, and other records in the RECON data set and determines whether the User Image Copy is eligible for database recovery. The cases where the User Image Copy is not eligible are listed below.

### REORG after User Image Copy

If the REORG record exists between **UIC RUN timestamp** and **Recovery Timestamp**, it is impossible to recover the DBDS from the User Image Copy. If this condition is detected, the following message is displayed, and the recovery job terminates with an error.

```

BSY0004I - (BSYI540E)- REORG after UIC found, UIC cannot be used for recovery: DB=dbdname
DDN=ddname

```

### Index DBDS in HALDB

Due to the **DBRC NOTIFY.UIC** command restriction, ILDS and index DBDS in HALDB cannot be used as User Image Copy. IMS Recovery Expert schedules index rebuilding instead of recovery.

### HALDB Online Reorganization

Due to the **DBRC NOTIFY.UIC** command restriction, User Image Copy is not allowed while Online Reorganization is in progress. If this condition is detected, the following message is displayed, and the recovery job terminates with an error.

```

BSY0004I - (BSYI538E)- UIC was taken while OLR was in progress: DB=dbdname DDN=ddname

```

### CIC User Image Copy for KSDS DBDS

Due to the **DBRC NOTIFY.UIC** command restriction, CIC User Image Copy is not allowed for KSDS. If this condition is detected, the following message is displayed, and the recovery job terminates with an error.

```

BSY0004I - (BSYI539E)- UIC was created in ALLOC time range, CIC is not allowed for KSDS :
DB=dbdname DDN=ddname

```

For index DBDS, you can avoid this error by rebuilding an index DBDS instead of recovery. This is done by setting the **Rebuild even if recoverable** option to Y on the [Index Rebuild Utility Options](#) panel.

## Recovery procedure

The recommended recovery procedure using User Image copy is as follows:

### Procedure

1. Check User Image Copy

Build and run a recovery job with the **Build Recovery JCL Only** option to check that the User Image Copy is eligible for recovery.

2. Restore DBDS

If no errors are detected in the previous step, restore DBDS from User Image Copy according to your backup method.

3. Run database recovery job

Run the recovery job without the **Build Recovery JCL Only** option. You can turn off the **Build Recovery JCL Only** option by removing the JCL DD statements for JCLONLY and BSYJCLO.

**Caution:** You must use User Image Copy that is consistent with the UIC RUN and UIC STOP timestamps. If any inconsistency exists, DBDS will be in an unpredictable state.





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# Index

## A

- accessibility
  - overview [16](#)
- adding alphanumeric or symbol [257](#)
- aliases
  - data sets [110](#)
  - MVS user catalogs [110](#)
- APF authorization requirements [14](#)
- application profiles
  - selecting or creating [251](#)
- application recovery
  - IMS and Db2 coordinated [205](#)
- architecture [11](#)
- Archive Log options
  - updating [277](#)
- Archive OLDS at DR site options
  - updating [286](#)
- authorization requirements
  - APF [14](#)

## B

- backup
  - comprehensive solutions [13](#)
  - recovery
    - comprehensive solutions [13](#)
- backup and recovery methodology [8](#)
- backup profiles
  - accessing [114](#)
  - BCV [122](#)
  - DFSMSdss [127](#)
  - FlashCopy [116](#)
  - setting default values [35](#)
  - SNAP [116](#)
- backups
  - building [149](#)
  - configuring [23](#)
  - creating [23](#)
  - creating system level [149](#)
  - deleting [241](#)
  - offloading [239](#)
  - submitting [149](#)
  - viewing list [237](#)
  - viewing summary report [239](#)
- backups, frequency [19](#)
- batch environment [57](#)
- BCV
  - backup output [157](#)
  - backup requirements [29](#)
  - creating backup profiles [122](#)
- BSY#REPT DD [248](#)
- BSYOUT DD [248](#)
- BSYNAPO [248](#)

## C

- Change Accumulation options
  - updating [280](#)
- CLISTs
  - Db2 Recovery Expert [41](#)
- columns
  - display [88](#)
  - expanding [98](#)
  - fixing [89](#)
  - numbering [97](#)
  - repositioning [91](#)
  - resizing [92](#)
  - ruler display [97](#)
  - scrolling [97](#)
  - sorting [94](#)
- combined SLB
  - configuring [224](#)
  - creating disaster recovery profiles [234](#)
  - creating groups [226](#)
  - creating shared repositories [225](#)
  - creating system level backup profiles [229](#)
  - performing IMS system analysis and configuration [235](#)
  - prerequisites [223](#)
  - using application profiles [233](#)
  - using coordinated application profiles [235](#)
  - using system restore and offload [232](#)
- Command Limiting table
  - adding TSO commands [34](#)
- commands
  - DISPLAY MEPL [98](#)
  - Fast path SORT [95](#)
- commands, TSO [34](#)
- cookie policy [439](#)
- coordinated application recovery [205](#)
- coordinated disaster recovery
  - preparing for at local site [293](#)
- copy blades
  - considerations [146](#)
  - DFSMSdss [32](#)
  - features [27](#)
  - HDS ShadowImage [31](#)
  - IBM FlashCopy [29](#)
  - interfaces [27](#)
- CSET
  - removing [96](#)
  - resetting [96](#)
  - restrictions [98](#)
- CSETUP [88](#)

## D

- data
  - backup and recovery solutions [13](#)
- data set isolation [20](#)
- data set options
  - setting [135](#)

- data set options (*continued*)
  - specifying naming conventions [136](#)
  - using substring function [138](#)
  - using symbolic string [139](#)
  - viewing sample string [139](#)
- data set placement
  - analyzing for system level backup [83](#)
- data sets
  - displaying [107](#)
  - specifying naming conventions [254](#)
  - viewing allocated [108](#)
- data sharing environments
  - defining groups [35](#)
- Data sharing environments
  - defining groups [39](#)
- Db2 and IMS
  - coordinated DR [292](#)
- Db2 and IMS applications
  - combined system level backup [223](#), [224](#)
  - recovering [205](#)
- Db2 and IMS disaster recovery profiles [293](#)
- Db2 Recovery Expert
  - CLISTs [41](#)
- default parameters
  - setting [35](#)
- default settings
  - backup profiles [35](#)
- deleting a backup [241](#)
- DFSMSdss
  - backup output [162](#)
  - copy blades [32](#)
  - creating backup profiles [127](#)
- diagnostic information
  - gathering [427](#)
- disaster recovery
  - building jobs remote site [286](#)
  - customizing RECON data set names [283](#)
  - local site [259](#)
  - remote site
    - creating profiles [273](#)
    - preparation JCL [290](#)
    - recovery PDS [287](#)
    - recovery steps [291](#)
  - setting options
    - post recovery image copy [271](#)
  - updating Archive Log options [277](#)
  - updating Archive OLDS at DR site options [286](#)
  - updating Change Accumulation options [280](#)
  - updating DR Recovery options [283](#)
  - updating Image Copy options [282](#)
- disaster recovery profiles
  - IMS and Db2 [293](#)
- disaster restart, tape-based [26](#)
- DISPLAY MEPL command [98](#)
- documentation
  - accessing [15](#)
  - sending feedback [15](#)
- documentation changes [1](#)
- DR Recovery options
  - updating [283](#)
- DSN name
  - validating [257](#)

## E

- EMC
  - backup requirements [29](#)
- environments
  - batch [57](#)
  - online [57](#)
- errors, reporting software [98](#)

## F

- failed restore job, restarting [248](#)
- Fast path SORT [95](#)
- FlashCopy
  - backup output [155](#)
  - backup requirements [29](#)
  - creating backup profiles [116](#)
- functions
  - substring [256](#)

## G

- groups
  - defining [39](#)

## H

- hardware requirements [14](#)
- HDS ShadowImage
  - copy blades [31](#)
- header fields [87](#)
- health check, performing SLB [240](#)
- health check, running [295](#)
- help [88](#)
- Hitachi storage systems [131](#)

## I

- IBM FlashCopy
  - copy blades [29](#)
- image copies
  - creating from system level backups [251](#)
- image copy options
  - setting [253](#)
- Image Copy options
  - updating [282](#)
- IMS and Db2
  - coordinated DR [292](#)
- IMS and Db2 applications
  - combined system level backup [223](#), [224](#)
  - recovering [205](#)
- IMS and Db2 disaster recovery profiles [293](#)
- IMS recovery utilities [11](#)
- isolation, data set [20](#)
- ISPF interface
  - header fields [87](#)

## J

- JCL
  - backup [151](#)
  - disaster recovery preparation [290](#)
  - perform offload [154](#)

JCL (*continued*)  
profile setup [150](#)

## K

keywords, adding to system level backup job [153](#)

## L

legal notices  
cookie policy [439](#)  
notices [439](#)  
programming interface information [439](#)  
trademarks [439](#)  
local site disaster recovery [259](#)  
local site, IMS and Db2 disaster recovery  
timestamp determination, simulate [293](#)

## M

Message Area messages [142](#)  
messages  
methods for accessing [425](#)  
overview [299](#)  
MVS user catalogs  
aliases [110](#)  
displaying data sets [107](#)  
existing [106](#)  
separating [106](#)  
viewing user catalog aliases [106](#)

## N

naming conventions  
data set [254](#)  
naming conventions, data set [136](#)  
notices [439](#)

## O

offload  
backup output [164](#)  
backups [239](#)  
JCL [154](#)  
offload options  
setting [132](#)  
online environment [57](#)  
options  
CSET restrictions [98](#)  
output  
BCV backup [157](#)  
DFSMSSdss backup [162](#)  
FlashCopy backup [155](#)  
offloading a backup [164](#)  
SNAP backup [158](#)  
overview [1](#)

## P

parameters  
RESTART [248](#)  
setting default [35](#)

PARMLIB member  
configuring [42](#)  
post recovery image copy options [271](#)  
problems  
diagnostic information about [427](#)  
profiles  
deleting [145](#)  
managing [144](#)  
profile setup JCL [150](#)  
renaming [144](#)  
setup [113](#)  
updating [144](#)  
viewing [144](#)  
programming interface information [439](#)

## R

reader comment form [15](#)  
RECON data set names  
customizing [283](#)  
recovery  
application [24](#)  
selecting timestamp [246](#)  
setting defaults [59](#)  
setup [58](#)  
system [24](#)  
recovery profiles, system [261](#), [263](#)  
recovery steps  
remote site, coordinated disaster recovery [294](#)  
remote site  
building disaster recovery jobs [286](#)  
remote site disaster recovery  
creating profiles [273](#)  
preparation JCL [290](#)  
recovery PDS [287](#)  
recovery steps [291](#)  
report, recovery job statistics [429](#)  
requirements  
BCV backups [29](#)  
copy blades  
EMC [29](#)  
DFSMSSdss [32](#)  
EMC  
copy blades [29](#)  
FlashCopy backups [29](#)  
hardware [14](#)  
HDS ShadowImage [31](#)  
SNAP backups [29](#)  
software [14](#)  
restart failed restore job [248](#)  
RESTART parameter [248](#)  
restore reports  
sample jobs [248](#)  
restoring subsystems  
data and logs [244](#)  
restoring systems  
data and logs [244](#)  
data only [241](#)

## S

sample string [139](#)  
sample strings

- sample strings (*continued*)
  - viewing [257](#)
- screen readers and magnifiers [16](#)
- service information [14](#)
- settings
  - PARMLIB [42](#)
- simulate mode
  - timestamp determination process [293](#)
- SNAP
  - backup output [158](#)
  - backup requirements [29](#)
  - creating backup profiles [116](#)
- software requirements [14](#)
- SORT [95](#)
- sorting [94](#)
- space utilization [19](#)
- statistics report, recovery job [429](#)
- strings, sample
  - viewing [257](#)
- substring function [138](#), [256](#)
- substrings [257](#)
- subsystems
  - aliases in MVS user catalogs [110](#)
  - backup summary report [239](#)
  - deleting backups [241](#)
  - offloading a backup [239](#)
  - restoring
    - data and logs [244](#)
    - selecting a recovery timestamp [246](#)
    - viewing backup list [237](#)
  - separating MVS user catalogs
    - viewing user catalog aliases [106](#)
- summary of changes [1](#)
- summary reports [239](#)
- support
  - required information [427](#)
- support information [14](#)
- symbolic string [139](#)
- SYSPRINT DD [248](#)
- system level backup
  - IMS and Db2 [223](#), [224](#)
- system level backups
  - configuring [23](#)
  - creating [23](#), [149](#)
  - creating image copies from [251](#)
  - data set placement [83](#)
  - Hitachi storage systems [131](#)
  - profiles [113](#)
- system recovery [24](#)
- system recovery profiles
  - creating [263](#)
  - defining [261](#)
- systems
  - alias data sets [110](#)
  - analyzing [102](#)
  - configuring for system level backup and restore [101](#)
  - data sets allocated on volume [108](#)
  - defining [35](#)
  - optimizing volumes [111](#)
  - restoring
    - data and logs [244](#)
    - data only [241](#)
    - preparing to restore [237](#)
    - restarting failed restore job [248](#)

- systems (*continued*)
  - restoring (*continued*)
    - restore reports [248](#)
    - sample job reports [248](#)
  - reviewing setup information [104](#)
  - separating MVS user catalogs
    - displaying data sets [107](#)
    - existing [106](#)
  - setup facility
    - configuration summary [101](#)
  - specifying configuration information [36](#)

## T

- tape-based disaster restart [26](#)
- target pool [141](#)
- technotes [15](#)
- timestamp determination process
  - simulate mode [293](#)
- trademarks [439](#)
- TSO commands [34](#)

## U

- User Image Copy [435](#)

## V

- volumes, optimizing [111](#)

## W

- what's new [1](#)







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