

IBM IMS DEDB Fast Recovery for z/OS  
2.2

*User's Guide and Reference*



**Note:**

Before using this information and the product it supports, read the information in [“Notices” on page 159.](#)

**Seventh Edition (February 2022)**

This edition applies to Version 2.2 of IBM IMS DEDB Fast Recovery for z/OS (program number 5655-E32) and to all subsequent releases and modifications until otherwise indicated in new editions.

This edition replaces SC27-0928-05.

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## About this information

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IBM® IMS DEDB Fast Recovery for z/OS® (also referred to as IMS DEDB Fast Recovery) is an IMS tool that enables fast efficient execution of an unscheduled IMS cold start maintaining the integrity of the IMS databases after IMS emergency restart (ERE) fails.

These topics are designed to help IMS technical support personnel who need to know when and how to use the IMS DEDB Fast Recovery utility to perform these tasks:

- Correct online log data sets by invalidating logging for transactions that did not reach the synch point
- Significantly reduce the time that is needed to recover DEDBs after an IMS failure
- Recover DEDBs including VSO and shared VSO that were active when IMS failed
- Generate the JCL of the MSDB Dump Recovery utility to be processed before the IMS cold start for the main storage database (MSDB) recovery
- Update and maintain the IMS Database Recovery Control (DBRC) RECON data sets when it is required

To use these topics, you should have a working knowledge of:

- The z/OS operating system
- ISPF
- SMP/E

To use the utility and the information provided in these topics, you should understand IMS concepts and operations, the IMS environment, and your installation's IMS system.

Always check the IMS Tools Product Documentation page for complete product documentation resources:

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

The IMS Tools Product Documentation page includes:

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



# Chapter 1. IMS DEDB Fast Recovery overview

IBM IMS DEDB Fast Recovery for z/OS (also referred to as IMS DEDB Fast Recovery) is an MVS™ batch program that helps you recover data entry databases (DEDBs) and ensure data integrity under IMS.

The following topics introduce IMS DEDB Fast Recovery and explain how IMS DEDB Fast Recovery helps you in your DEDB recovery operations.

## Topics:

- [“What's new in IMS DEDB Fast Recovery” on page 1](#)
- [“What is IMS DEDB Fast Recovery?” on page 2](#)
- [“IMS DEDB Fast Recovery features and benefits” on page 3](#)
- [“IMS DEDB Fast Recovery scenario” on page 4](#)
- [“Hardware and software prerequisites” on page 4](#)
- [“Processing environment limitations” on page 4](#)
- [“Service updates and support information” on page 5](#)
- [“Product documentation and updates” on page 5](#)
- [“Accessibility features” on page 6](#)

## What's new in IMS DEDB Fast Recovery

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.

### SC27-0928-06 (February 2022)

Description	Related APARs
IMS-managed ACBs support. The following topics are updated: <ul style="list-style-type: none"><li>• <a href="#">“Processing environment limitations” on page 4</a></li><li>• <a href="#">“JCL requirements ” on page 50</a></li><li>• <a href="#">“JCL examples” on page 67</a></li><li>• New and updated messages: DFR3001E, DFR3231I, DFR3232E, DFR3233W, DFR3234I, DFR3235E, DFR3737W</li></ul>	PI91565, PH25590, PH08688
New message DFR3253W	PI83064

## SC27-0928-05 (July 2017)

Description	Related APARs
IMS 15.1 support	PI73400
IMS 14.1 support	PI27426
IMS catalog support	PM83356
IMS 13.1 support	PM75251
Support for OLDS and WADS allocated in EAS of EAV: Support OLDS and WADS that are allocated in the extended addressing space (EAS) of extended address volume (EAV). For more information, see DFSWADSn DD, DFSOLPnn DD, and DFSOLSnn DD in “JCL requirements ” on page 50.	PM41329
Support for DFSMS striped extended-format data sets for log data sets (OLDS and SLDS): For more information, see DFSOLPnn DD, DFSOLSnn DD, IMSLOGR DD, IMSLOGR2 DD, and ssssssss DD in “JCL requirements ” on page 50.	PM28790
IMS 12.1 support	PM22078
Other APAR-related doc changes.	PI52278, PM46954, PM41667, PM40201

## SC27-0928-04 (June 2010)

Description	Related APARs
Extended Address Volumes (EAV) support: Support IMS VSAM data sets to reside in the Extended Addressing Space (EAS) portion of an EAV.	PM05107
IMPORT DEFINITION command support: Support X'2205' log records which are created by the IMPORT DEFINITION command.	PK99430
Fast Path 64-bit buffer function support.	PK96000
IMS 11.1 support.	PK74272
IMS 10.1 DRD support: IMS DEDB Fast Recovery supports Dynamic Resource Definition (DRD), which is supported in IMS 10.1 and later.	PK46847
Other APAR-related doc changes.	PM07289, PK98588, PK66856, PK60974, PK50236, PK41013, PK49072, PK39715

## What is IMS DEDB Fast Recovery?

In the event an emergency restart fails or, in an extended recovery facility (XRF) complex, when both the takeover by the alternate IMS system and the emergency restart fail, IMS DEDB Fast Recovery can be used to recover data entry databases before the IMS cold start.

IMS DEDB Fast Recovery:



- Corrects the online log data set (OLDS) by invalidating the logging for transactions that did not reach the sync point, reconstructing the log records (not yet written to the OLDS) from the write ahead data set (WADS), and correctly closing the OLDS, including appropriate updates in the DBRC RECON data sets.
- Recovers the DEDB areas, except for non-recoverable DEDBs, that were active when IMS failed.
- Provides procedures and reports to assist system administrators in the processes required before and after IMS cold start.
- In the two-phase commit process environment such as DBCTL, if IMS abnormally terminates without determining whether the transactions started by another transaction manager are in commit status or in abort status, IMS DEDB Fast Recovery provides a method for resolving the in-doubt status.

**Note:** In this information, the word *transaction* means unit of recovery (UOR) of IMS.

- To recover block-level data-sharing VSO areas, IMS DEDB Fast Recovery casts out CIs and normally disconnects from Coupling Facility (CF) structures (the Single Area Structures (SAS) or the Multi-Area Structures (MAS)) for the areas that are in use in the failed IMS as well as the typical recovery of CIs.

IMS DEDB Fast Recovery provides an option to perform recovery without using the IMS Database Recovery Control (DBRC) function.

Whenever possible, IMS must be restarted using a normal restart or an emergency restart.

In this information, an IMS cold start with the /ERE COLDSYS command is assumed after the database recovery through IMS DEDB Fast Recovery. But you can perform the IMS emergency restart with the /ERE COLDBASE command instead of the /ERE COLDSYS command. However, IMS emergency restart requires you to do some additional operations.

### **Related concepts**

#### Restarting IMS with IMS emergency restart

After running IMS DEDB Fast Recovery, you can also perform the IMS emergency restart by using the /ERE COLDBASE command instead of the IMS cold start /ERE COLDSYS command.

## **IMS DEDB Fast Recovery features and benefits**

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IMS DEDB Fast Recovery assists in operating and maintaining the data integrity of IMS databases. It also shortens recovery time after an emergency restart failure.

IMS DEDB Fast Recovery is a tool that:

- Assists in operating and maintaining the data integrity of IMS databases.
- Is designed as a fast alternative to emergency restart failure recovery.
- Corrects online log data sets (OLDS) by invalidating logging for transactions that did not reach the sync point.
- Reduces time needed to recover DEDBs after an IMS failure.
- Recovers DEDBs including VSO and shared VSO that were active when IMS failed.
- Generates the JCL of the MSDB Dump Recovery utility to be processed before the IMS cold start for the main storage database (MSDB) recovery.
- Updates and maintains the IMS Database Recovery Control (DBRC) RECON data sets when it is required.
- Provides procedures and reports system administrators need for the processes required before and after IMS cold start.

IMS DEDB Fast Recovery provides an increase in the number of allowable dynamically allocated DEDB area data sets, improving the functionality and usability of the product.

## IMS DEDB Fast Recovery scenario

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This typical scenario demonstrates how IMS DEDB Fast Recovery can help you simplify and shorten your DEDB recovery operations.

Without IMS DEDB Fast Recovery, if an unscheduled IMS cold start becomes necessary, you must run the Database Recovery utility for all DEDB areas that were in use when IMS failed.

For each area to be recovered, the Database Recovery utility requires an image copy and either all of the IMS system OLDS, or the change accumulation data set created after the image copy was taken. Also, in the DEDB data-sharing environment, you must deallocate the system log data sets and DEDB areas from other active IMS subsystems.

With IMS DEDB Fast Recovery, you need only the system logs after the last complete checkpoint. IMS DEDB Fast Recovery can recover all necessary areas without interfering with the execution of the other active IMS subsystems in the same data-sharing environment. Also, IMS DEDB Fast Recovery eliminates the need to run the Log Recovery utility.

By subsequent execution of the Batch Backout utility for the DL/I databases and the MSDB Dump Recovery utility for the main storage databases, IMS DEDB Fast Recovery enables fast and efficient execution of an unscheduled IMS cold start while maintaining the integrity of the IMS databases.

For more information about IMS recovery procedures, see [“IMS recovery procedures” on page 24](#).

## Hardware and software prerequisites

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Before you install IMS DEDB Fast Recovery, make sure that your environment meets the minimum hardware and software requirements.

### Hardware requirements

The machine configuration required for IMS DEDB Fast Recovery is the same as the requirements for the IMS versions and releases that are currently supported by IMS DEDB Fast Recovery.

### Software requirements

The following programs or subsequent releases are required for installing IMS DEDB Fast Recovery:

- IMS environment

One of the following currently supported programs is required:

- IMS 15.1 (5635-A06) and later
- IMS Database Value Unit Edition 15.1 (5655-DS5) and later

- z/OS environment

IMS DEDB Fast Recovery operates in the MVS environment. The MVS programming requirements are the same as the requirements for the version and release of IMS, for which you are using IMS DEDB Fast Recovery.

## Processing environment limitations

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IMS DEDB Fast Recovery has certain limitations for its processing environment.

IMS DEDB Fast Recovery cannot be used in an IMS RSR environment in the following cases:

- A remote site tracker failure
- A remote site takeover failure

To use dynamic allocation parameter lists that are registered by the DFSMDA macro of IMS 5.1 or earlier, you must rebuild the lists by using the DFSMDA macro of the latest IMS version.

To use IMS-managed ACBs, IMS DEDB Fast Recovery requires the name of the IMS bootstrap data set. The name of the IMS bootstrap data set must be made available to IMS DEDB Fast Recovery by one of the following methods:

- Registering the IMS catalog database to the DBRC RECON data sets.
- Supplying the name of the IMS bootstrap data set with the IMSBDS DD statement.

IMS DEDB Fast Recovery does not support the following functions of IMS:

- DEDB alter function
- Dynamic database definition enhancements

## Service updates and support information

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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:

[IBM Support: IMS Data Entry Databases Fast Recovery for z/OS](#)

## Product documentation and updates

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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 page for complete product documentation resources:

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The IMS Tools Product Documentation page includes:

- Links to [IBM Documentation](#) for the user guides ("HTML")
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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/>

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4. Click **Continue** to specify the types of updates that you want to receive.
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To help us respond quickly and accurately, please 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

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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 IMS DEDB Fast Recovery enable users to:

- 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, SC34-4822*
  - *z/OS TSO/E Primer, SA22-7787*
  - *z/OS TSO/E User's Guide, SA22-7794*

These guides describe how to use ISPF, 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.

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## Chapter 2. IMS DEDB Fast Recovery program functions

IMS DEDB Fast Recovery runs a series of internal functions. It generates status lists that provide information about databases and areas, and recovery information that is needed for IMS cold start.

The following topics describe the functions that are run internally by IMS DEDB Fast Recovery.

### Topics:

- [“Program structure and data flow” on page 7](#)
- [“OLDS processing” on page 9](#)
- [“Control block initialization I ” on page 10](#)
- [“Checkpoint determination” on page 10](#)
- [“First log processing” on page 10](#)
- [“Sync point determination for the transaction in process” on page 15](#)
- [“Connection to block-level data-sharing VSO areas” on page 16](#)
- [“Second log processing” on page 16](#)
- [“DEDB recovery and the recovery status list creation” on page 17](#)

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### Program structure and data flow

IMS DEDB Fast Recovery processes eight internal program functions.

#### **OLDS processing**

Depending on the specified runtime options, IMS DEDB Fast Recovery selects the way to determine the last-used and previously used OLDS. It verifies the validity of the available OLDS, checking the time stamps of the log records. It creates the checkpoint ID table and the OLDS entry table.

#### **Control block initialization I**

IMS DEDB Fast Recovery checks the IMS MODSTAT, MODSTAT2, or OLCSTAT data set to determine the identifier (x) of the ACBLIBx data set that was in use at the time of IMS failure.

#### **Checkpoint determination**

IMS DEDB Fast Recovery determines the IMS checkpoint, from which the recovery processing will be started.

#### **First log processing**

IMS DEDB Fast Recovery loads or creates and initializes the IMS basic control blocks DDIR and DMAC after the FP checkpoint. Then IMS DEDB Fast Recovery analyzes log records after the selected checkpoint, reconstructs the database control blocks and DEDB buffers to the state that they were at the time of IMS failure, and determines the data CIs that need recovery.

#### **Sync point determination for the transaction in process**

IMS DEDB Fast Recovery writes a sync point abort log record for the transactions that did not reach a sync point, into the log data set, to abort the transaction. For in-doubt transactions, IMS DEDB Fast Recovery writes a sync point commit or abort log record into the log data set according to the specified control statements to determine whether the transaction is to be committed or aborted. Finally, IMS DEDB Fast Recovery closes the log data set.

#### **Connection to block-level data-sharing VSO areas**

If the IMS was using block-level data-sharing VSO areas when it failed, IMS DEDB Fast Recovery connects to the CF structures related to those areas.

#### **Second log processing**

IMS DEDB Fast Recovery starts the second reading with the log block that has the oldest updated data CI image to be recovered, and reconstructs the updated data CI images in the data space.

## DEDB recovery and the recovery status list creation

IMS DEDB Fast Recovery recovers DEDB by using the data CI update images reconstructed in the data space, and creates the recovery status lists.

The following figure shows the control flow and data flow for these functions.

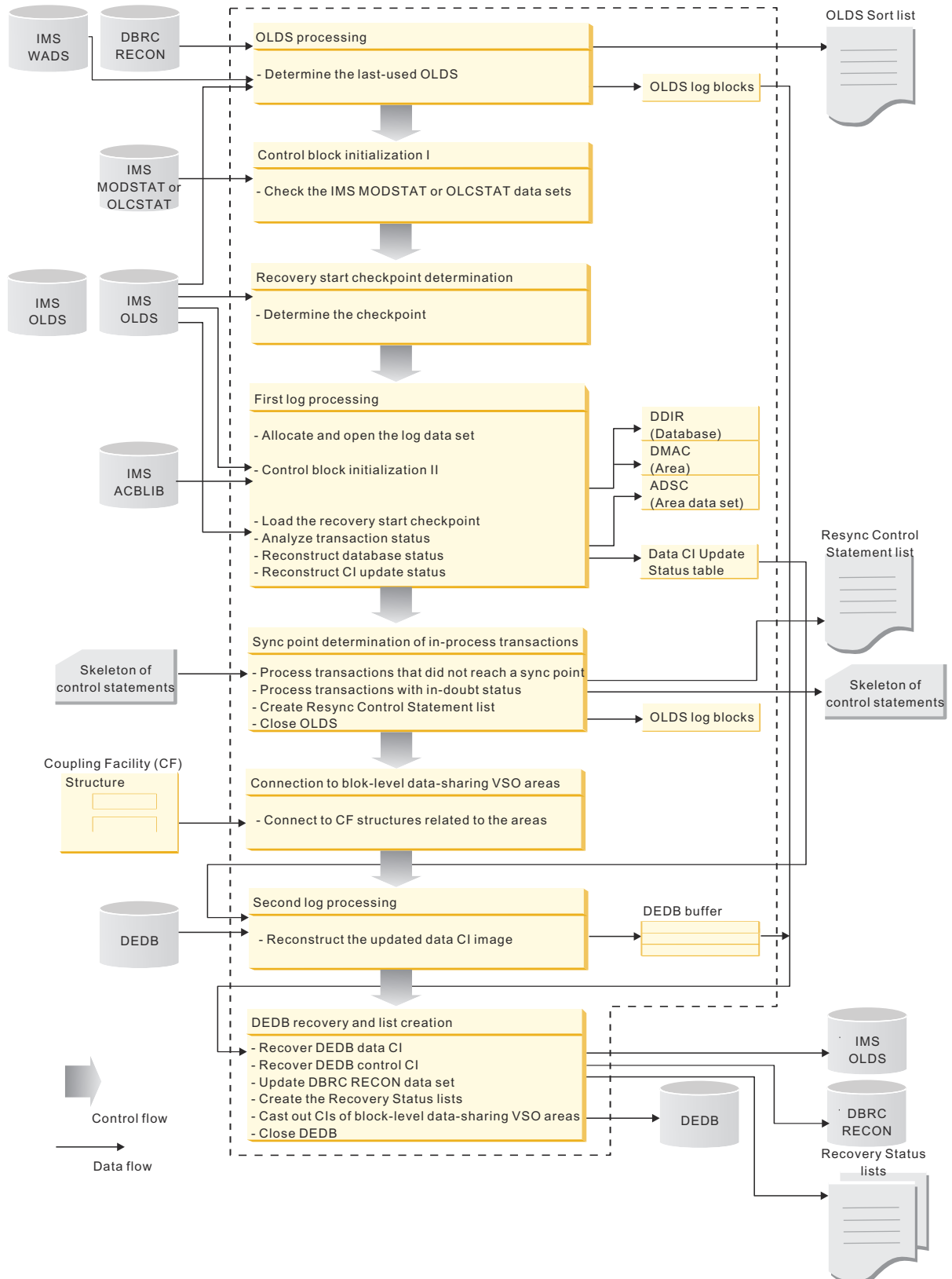


Figure 1. Functional structure, control flow, and data flow

## OLDS processing

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IMS DEDB Fast Recovery determines the last online log data set (OLDS) that was used at the time of IMS failure.

To determine the last OLDS, the DBRC RECON data set is used if DBRC=Y is specified as the EXEC parameter for IMS DEDB Fast Recovery.

If DBRC=N is specified, the determination process varies depending on the AUTO= option. If AUTO=N, the last OLDS is determined by the user response for the message (WTOR) that IMS DEDB Fast Recovery displays. If AUTO=Y, IMS DEDB Fast Recovery reads the first log blocks of all specified OLDSs, sorts the log blocks that were properly read by the order of use, and determines the last and the previous OLDS. This function is called the *automatic determination of the last OLDS*. The OLDSs can be specified by the DD statements or can be allocated dynamically. That is, the request block created by the DFSMDA macro is registered in the IMS program library. The user must specify this IMS program library in the STEPLIB DD statement along with the load module library of IMS DEDB Fast Recovery.

The selected OLDS is read starting with the first log record. If an error (read error, log record sequence error, log block sequence error, log block time stamp error, or log length error) is found, a switch is made to the other OLDS (for dual data sets) and reading continues. For a single OLDS or if errors were found in both dual data sets and reading cannot be continued, IMS DEDB Fast Recovery examines the surrounding blocks and the WADS blocks to see if the log blocks up to the time of IMS failure have been read. Then it reconstructs the log buffer with the log blocks in WADS if they are not yet written to the last-used OLDS.

While reading the OLDS at the time of IMS failure, IMS DEDB Fast Recovery performs the following tasks according to its log records:

1. Time stamp verification

IMS DEDB Fast Recovery compares the time immediately after the start of this utility with the time stamp in the log records. If a newer time stamp is found from a log record, it issues an error message and terminates processing. This verification is to assure that correct log records are used and that the specification of the IMS identifier in the EXEC parameter is correct.

2. Checkpoint ID table creation

IMS DEDB Fast Recovery creates a checkpoint ID table from the X'42' log record (checkpoint ID table log record). This table is used to determine the recovery start checkpoint in the checkpoint determination process.

**Related reading:** For information about checkpoint determination process, see [“Checkpoint determination”](#) on page 10.

3. OLDS entry table creation

If DBRC=N, IMS DEDB Fast Recovery creates an OLDS entry table (DSET) from the X'4301' log record (OLDS entry table log record). The table is used to determine the log data sets necessary for running IMS DEDB Fast Recovery when AUTO=Y.

If DBRC=N, AUTO=Y is specified, IMS DEDB Fast Recovery first sorts OLDSs by the order of use, determines the last and the previous OLDSs, and then creates a DSET from the X'4301' log record to determine all necessary OLDSs. At that time, IMS DEDB Fast Recovery generates an OLDS Sort list.

If the X'42' or X'4301' log record is not found in the last or the previous OLDS, the job terminates with a return code of 16. If this occurs, rerun the job with DBRC=N and AUTO=N.

If DBRC=N, AUTO=N is specified, IMS DEDB Fast Recovery:

- Searches for the X'42' log record until it is found.
- Determines the log data set by the user's reply to the WTOR message that IMS DEDB Fast Recovery issues.

If DBRC=Y is specified, the last-used OLDS (or SLDS) is determined by DBRC; therefore, IMS DEDB Fast Recovery need not use the X'4301' log record. In this case, IMS DEDB Fast Recovery searches the OLDS and SLDS for the X'42' log record to determine the recovery start checkpoint.

## Control block initialization I

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IMS DEDB Fast Recovery checks the IMS MODSTAT, MODSTAT2, or OLCSTAT data sets to determine the identifier (x) of the ACBLIBx data set that was in use at the time of IMS failure.

The MODSTAT and MODSTAT2 data sets contain records that determine the identifier of the ACBLIBx data set that was in use at the time of IMS failure. When the scope of the online change is global, the OLCSTAT data set contains records that determine the identifier of the ACBLIBx data set that was in use at the time of IMS failure.

## Checkpoint determination

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IMS DEDB Fast Recovery determines the recovery start checkpoint from the checkpoint ID table that is created during the OLDS processing.

If no DL/I database is defined for the IMS to be recovered, or if LCHKPT=Y is specified, IMS DEDB Fast Recovery uses the Fast Path checkpoint identifier (BCPFCKID) as the recovery start checkpoint. If DL/I databases are defined for the IMS to be recovered and LCHKPT=N is specified, IMS DEDB Fast Recovery uses the oldest of the following identifiers as the recovery start checkpoint:

- BMP checkpoint identifier (BCPBMPID)
- LCRE checkpoint identifier (BCPLCKID)
- Fast Path checkpoint identifier (BCPFCKID)

If DBRC=Y is specified in the EXEC parameter of IMS DEDB Fast Recovery, IMS DEDB Fast Recovery determines the log data set containing the recovery start checkpoint by using the OLDS/SLDS information in the RECON data set. If DBRC=N,AUTO=Y, the log data set is determined from the OLDS entry table (DSET) if it was created during the OLDS processing. If DBRC=N,AUTO=N, or if a DSET has not been created, or if SLDS contains the checkpoint, a WTOR message (DFR3110A) is issued. The operator must then reply with the DD name of the OLDS or SLDS that contains the checkpoint indicated by the DFR3301I message.

IMS DEDB Fast Recovery opens the selected OLDS or SLDS if the DD statement for the data set is specified in the JCL. If there is no DD statement, the data set is allocated dynamically and opened.

**Note:** For dynamic allocation, the user must register the request block in the IMS program library with the DFSMDA macro. See *IMS System Definition* for details about the DFSMDA macro.

IMS DEDB Fast Recovery then reads the X'4001' log record of the recovery start checkpoint (checkpoint start log record) and checks if the IMS identifier in the log record (or the RSE identifier in the XRF complex) matches the identifier specified by the EXEC parameter.

## First log processing

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IMS DEDB Fast Recovery analyzes log records after the selected checkpoint, reconstructs the database control blocks and DEDB buffers to the state that they were in the time of IMS failure, and determines the data CIs that need recovery.

IMS DEDB Fast Recovery loads or creates and initializes the IMS basic control blocks (DDIR and DMAC) after the FP checkpoint. Then IMS DEDB Fast Recovery analyzes log records after the selected checkpoint and reconstructs the database control blocks and CI update statuses to the state that they were at the time of IMS failure.

Subsections:

- [“Allocating and opening log data sets” on page 11](#)
- [“Control block initialization II” on page 11](#)
- [“Loading the recovery start checkpoint” on page 11](#)
- [“Analyzing the transaction status” on page 12](#)
- [“Reconstructing the database status” on page 13](#)



- [“Reconstructing the data CI update status” on page 13](#)

## Allocating and opening log data sets

IMS DEDB Fast Recovery reads and processes all log records since the recovery start checkpoint in the log data set. That is, it allocates and opens all log data sets, starting from the one that contains the recovery start checkpoint up to the last-used log data set.

## Control block initialization II

IMS DEDB Fast Recovery uses the ACBLIBx data sets (where x=A or B) to construct DMAC basic database control blocks. IMS DEDB Fast Recovery uses the following log records to construct DDIR basic database control blocks.

### **X'4006'**

DDIR checkpoint log record

### **X'22'**

Type -2 command completion log record that is recoverable and reprocessed during restart

The DMAC is loaded from the ACBLIBx data set. The DDIR, which is used for saving the database status, is created from X'4006', or X'22', or both log records.

If DEDB database is defined, IMS DEDB Fast Recovery obtains a 2 GB data space by using the DREF option. The data space is needed to store the internal control block that contains the data CI update status, and to reconstruct the image of the data CIs that must be recovered.

## Loading the recovery start checkpoint

IMS Fast Path restart can be performed from any checkpoint. IMS DEDB Fast Recovery uses the following log records of the determined checkpoint to reconstruct the transaction status, database status, and data CI update status to what they were at the time of checkpoint.

### **X'4001'**

Checkpoint start log record

### **X'4006'**

DDIR checkpoint log record

### **X'4025'**

DL/I database EEQE checkpoint log record and the DEDB EEQE checkpoint log record

### **X'4026'**

DEDB I/O toleration buffer checkpoint log record

### **X'4028'**

EQEL (EEQE Queue Element) checkpoint log record

### **X'4080'**

Fast Path (FP) checkpoint start log record

### **X'4084'**

DEDB DMAC checkpoint log record

### **X'4086'**

DEDB buffer checkpoint log record

### **X'4086'**

DEDB VSO area I/O toleration buffer checkpoint log record

### **X'4087'**

DEDB ADSC checkpoint log record

### **X'4088'**

FP IEEQE (In-doubt Extended Error Queue Element) checkpoint log record

## Analyzing the transaction status

IMS DEDB Fast Recovery checks transactions that were in process at the time of IMS failure and identifies the transactions that did not reach a sync point and the transactions that were in in-doubt status. IMS DEDB Fast Recovery also analyzes transactions to determine whether any of the DL/I databases was updated by the transactions and thus needs to be backed out to the latest sync point using the Batch Backout utility. If the IMS to be recovered has no DL/I database definition, log processing is started from the Fast Path checkpoint, because there is no DL/I database to be backed out. The following log records are used for analyzing the transaction status:

### **X'37'**

Sync point log record

### **X'5937'**

Same as X'37'

### **X'38'**

Sync point failure log record

### **X'5938'**

Same as X'38'

### **X'5600'**

ESAF (External Subsystem Attach Facility) log record

### **X'5607'**

UOR (Unit of Recovery) start log record

### **X'5901'**

Input message log record

### **X'5903'**

Output message log record

### **X'5920'**

MSDB database update log record

### **X'5611'**

Sync point process phase 1 completion log record

### **X'5612'**

Sync point process phase 2 completion log record

### **X'5613'**

RIS (Recoverable In-doubt Structure) creation log record

### **X'47'**

Log record indicating the region that was active at the time of checkpoint

### **X'4028'**

EQEL (EEQE Queue Element) checkpoint log record

### **X'4030'**

RRE (Residual Recovery Element) checkpoint log record

### **X'4088'**

FP IEEQE (In-doubt Extended Error Queue Element) checkpoint log record

### **X'5050'**

DL/I database update log record

### **X'5051'**

Same as X'5050'

### **X'5052'**

Same as X'5050'

### **X'4C01'**

Backout completion log record

### **X'4C82'**

Backout failure log record

**X'07'**

Application program termination log record

**Reconstructing the database status**

IMS DEDB Fast Recovery reconstructs the database status based on the log records after the selected checkpoint. The following log records are used for reconstructing the database status:

**X'25'**

DL/I database EEQE and DEDB EEQE log record

**X'4C40'**

Database start log record

**X'4C80'**

Database stop log record

**X'5957'**

Same as above (updates not related to the transaction)

**X'5921'**

DEDB ADSC open log record

**X'5922'**

DEDB ADSC close log record

**X'5923'**

DEDB ADSC status update log record

**X'5926'**

The log record that contains information of all DEDBs that are removed by OLC.

**X'5927'**

The log record of a DEDB area that is deleted by OLC.

IMS DEDB Fast Recovery reserves the storage area for ADSC and creates ADSC when it reads the X'5921' log record. It releases ADSC when it reads the X'5922' log record. If the X'5922' record it reads is in the last ADSC of the area, IMS DEDB Fast Recovery assumes that the DEDB buffer for that area needs no recovery, since the record indicates the area is closed.

Log records other than X'5921' or X'5922' are used to update the database control block.

**Reconstructing the data CI update status**

IMS DEDB Fast Recovery reconstructs the data CI update status by using the log records after the selected checkpoint.

The following log records contain the update image for the data CIs:

**X'4026'**

DEDB I/O toleration buffer checkpoint log record

**X'4086'**

DEDB buffer checkpoint log record

**X'4086'**

Non-block-level data-sharing VSO area I/O toleration buffer checkpoint log record

**X'5950'**

DEDB update log record

**X'5951'**

Nonrecoverable DEDB update log record

**X'5954'**

First SDEP buffer open log record

**X'5955'**

Next SDEP buffer open log record

**X'26'**

DEDB I/O toleration buffer log record

For these log records, except X'5950', X'5951', X'5954', X'5955', and X'4086' (DEDB buffer checkpoint), the update images of the data CIs on them are determined to be written into DEDB areas if no related I/O completion log records exist, because they have the update images for the committed transaction. For X'5950' and X'4086' log records, the update images on them are not determined to be written until the related sync point log records are read, because the transaction cannot be determined whether it is committed or aborted until those log records are written. The X'5951' log record means that some CI updates exist for a nonrecoverable DEDB area. The X'5954', X'5955', and X'4086' log records mean that some sequential dependent segments are in a buffer. IMS DEDB Fast Recovery uses the X'5954', X'5955', and X'4086' log records for a nonrecoverable DEDB area in order to obtain the update information. IMS DEDB Fast Recovery uses the log record with the succeeding X'5958' and X'5612' log record to determine whether any CI updates for the nonrecoverable DEDB area are compromised. These log records contain the CI update sequence number (CUSN), and IMS DEDB Fast Recovery saves and updates the CUSN for each CI. Therefore, IMS DEDB Fast Recovery can get the CUSN of the last update image for each CI at the end of the first log processing. The CUSN is in a CI and incremented by one with every CI update.

The following log records show the sync point completion or failure:

**X'5937'**

Sync point completion log record

**X'5938'**

Sync point failure log record

**X'37'**

Sync point completion log record

**X'38'**

Sync point failure log record

**X'5637'**

Sync point completion log record

**X'5638'**

Sync point failure log record

For X'5950' and X'4086' log records that contain the recovery tokens for the completed sync point, the update images of the data CIs in the log records are written if no related I/O completion log records exist. For X'5950' and X'4086' log records that contain the recovery tokens for the failed sync point, the update image in the log records is not necessary.

The following log records show the data CIs have been already written into a DASD or CF structure:

**X'5953'**

DEDB SDEP CI allocation log record

**X'5958'**

DEDB SDEP CI DASD I/O completion log record

**X'5912'**

DASD I/O completion log record for non-block-level data-sharing VSO areas

**X'5612'**

Sync point process phase 2 completion log record

**X'2500'**

DEDB I/O toleration EEQE deletion log record

Using these log records, IMS DEDB Fast Recovery knows which data CI has already been written. Therefore, IMS DEDB Fast Recovery can recover the data CIs that have no related I/O completion log record at the end of the first log processing.

## Sync point determination for the transaction in process

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IMS DEDB Fast Recovery invalidates transactions that did not reach a sync point, determines the actions for in-doubt transactions, and closes the log data sets.

Subsections:

- [“Transactions not reaching a sync point” on page 15](#)
- [“In-doubt transactions” on page 15](#)
- [“Creating the Resync Control Statement list” on page 15](#)
- [“Closing the OLDS” on page 16](#)

### Transactions not reaching a sync point

IMS DEDB Fast Recovery performs a sync point failure processing for the transactions that did not reach their sync point. If such a transaction has updated the DL/I database, an X'38' log record is added to the last-used OLDS. Any DB update done by this transaction needs to be backed out. If an FP log record has been created by this transaction, an X'5938' log record is added to the last-used OLDS. IMS DEDB Fast Recovery assumes that the DEDB area updated by this transaction needs no recovery.

### In-doubt transactions

In a two-phase commit process environment such as DBCTL, if there is a transaction with in-doubt status, IMS DEDB Fast Recovery reads the Resync control statements and determines whether the transaction is committed or aborted.

#### Resync commit process

IMS DEDB Fast Recovery writes an X'5637' log record into the last OLDS. The recovery for the transaction is necessary, and IMS DEDB Fast Recovery will do it in the second log processing. If the transaction updated a DL/I database, it does not have to be backed out. When IMS DEDB Fast Recovery updates the DBRC RECON data sets in the DEDB recovery and the recovery status list creation step, IMS DEDB Fast Recovery deletes the in-doubt EEQE from the DBRC RECON data set if the in-doubt EEQE for the updated DL/I database is registered in the DBRC RECON data set and all in-doubt transactions that update the DL/I database are committed.

#### Resync abort process

IMS DEDB Fast Recovery writes an X'5638' log record into the last OLDS. The recovery for the transaction is unnecessary, and IMS DEDB Fast Recovery will not do it in the second log processing. If the transaction updated a DL/I database, the DL/I database needs to be backed out. When IMS DEDB Fast Recovery updates the DBRC RECON data sets in the DEDB recovery and the recovery status list creation step, IMS DEDB Fast Recovery does not delete the in-doubt EEQE from the DBRC RECON data set even if the in-doubt EEQE for the updated DL/I database is registered in the DBRC RECON data set.

**Related reading:** For information about the DBRC RECON data set update processing, see [“Updating the DBRC RECON data set” on page 18](#).

### Creating the Resync Control Statement list

If there is no transaction with in-doubt status, IMS DEDB Fast Recovery writes the status in the Resync Control Statement list.

If there is a transaction with in-doubt status, IMS DEDB Fast Recovery lists all the specified Resync control statements in the Resync Control Statement list. If the control statement has an error, or if the necessary control statement is not specified, IMS DEDB Fast Recovery writes an error message as well in the list. And IMS DEDB Fast Recovery lists the recovery tokens of all in-doubt transactions. It generates the skeleton of the Resync control statements that are necessary for the next IMS DEDB Fast Recovery execution if the output data set is specified in RSYLIST DD statement. IMS DEDB Fast Recovery terminates with return code 16 without recovering the DEDB.

## Closing the OLDS

The log blocks that were left in the WADS are written into the buffers during the OLDS closing processing. If a DFSWADS $n$  DD statement is specified in the JCL, IMS DEDB Fast Recovery opens the data set. If there is no DFSWADS $n$  DD statement, the data set is allocated dynamically by the request block that is registered in the IMS program library using the DFSMDA macro. Sync point log records that are created during the sync point determination process for the in-process transactions are written into a new log block buffer. IMS DEDB Fast Recovery adds these log blocks to the OLDS and then closes the OLDS. If DBRC=Y, it also updates the OLDS information in the RECON data set.

## Connection to block-level data-sharing VSO areas

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If the IMS to be recovered uses block-level data-sharing VSO areas, IMS DEDB Fast Recovery opens area data sets and checks the control CIs.

If CF structures related to the block-level data-sharing VSO areas exist in a CF, IMS DEDB Fast Recovery connects to the CF structures by the connection name that is used by the IMS.

## Second log processing

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IMS DEDB Fast Recovery performs the second log processing to reconstruct the latest image of the data CI that needs recovery.

In the second log processing, to minimize log reading, IMS DEDB Fast Recovery starts reading with the log block that has the oldest log record that contains the data CI update image to be recovered.

Subsections:

- [“Reading the log record with the update image of a data CI” on page 16](#)
- [“Opening the related areas” on page 16](#)
- [“Reading the data CI from DEDB” on page 16](#)
- [“Checking the read CI” on page 17](#)
- [“Checking the CUSN” on page 17](#)
- [“Reconstructing the latest image of the data CI” on page 17](#)

### Reading the log record with the update image of a data CI

IMS DEDB Fast Recovery again reads the log record that contains the update image of a data CI, which is read while reconstructing the data CI update status in the first log processing step.

**Related reading:** For information about the data CI update status reconstruction, see [“Reconstructing the data CI update status” on page 13](#).

### Opening the related areas

IMS DEDB Fast Recovery dynamically allocates and opens the areas related to the log records that contain the update image of the data CI. The block-level data-sharing VSO areas are already opened while connecting to the block-level data-sharing VSO areas in the previous step.

**Related reading:** For information about making connection to the block-level data-sharing VSO areas, see [“Connection to block-level data-sharing VSO areas” on page 16](#).

### Reading the data CI from DEDB

If the CI that might be recovered is for a block-level data-sharing area, or if the log records do not have an entire image of the data CI, IMS DEDB Fast Recovery reads the CI from the related area into the I/O buffer.

## Checking the read CI

IMS DEDB Fast Recovery checks if the CI read has been damaged by write-padding caused by a write error when IMS failed because of a hardware (channel) problem. For multiple area data sets, the buffer can be reconstructed from the normal CI in another area data set even if the CI has been damaged. If the damaged portion can be repaired by the update log records, the buffer can be reconstructed even if the DEDB does not constitute multiple area data sets. In other cases, IMS DEDB Fast Recovery marks the area as *recovery needed*. IMS DEDB Fast Recovery does not check the pointers in the segment prefix and segment data.

## Checking the CUSN

For the block-level data-sharing areas, IMS DEDB Fast Recovery compares the CUSN of the read CI and the latest CUSN in the related log record for the CI that was saved and updated while reconstructing the data CI update status in the first log processing step. IMS DEDB Fast Recovery checks if the CI has been already updated up to the latest image as follows:

- If (the latest CUSN in log record) = (CUSN in the area CI) + 1, the area CI needs recovery.
- If (the latest CUSN in log record) = (CUSN in the area CI), the area CI does not need recovery.
- If (the latest CUSN in log record) < (CUSN in the area CI), the area CI is assumed to be updated by another IMS subsystem in the data sharing environment. Therefore, the area CI does not need recovery.

**Related reading:** For information about the data CI update status reconstruction, see [“Reconstructing the data CI update status”](#) on page 13.

## Reconstructing the latest image of the data CI

IMS DEDB Fast Recovery moves the read data CI from I/O buffer to the buffer in data space, and then overlaps the update image of the log records to reconstruct the latest image.

## DEDB recovery and the recovery status list creation

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IMS DEDB Fast Recovery recovers DEDB by using the data CI update images that are reconstructed in the data space, and creates the recovery status lists.

Subsections:

- [“Recovering the DEDB data CI”](#) on page 17
- [“Recovering the DEDB control CI”](#) on page 18
- [“Updating the DBRC RECON data set”](#) on page 18
- [“Creating the recovery status lists”](#) on page 19

## Recovering the DEDB data CI

The DEDB data CI (VSAM CI containing the data) is recovered by using the image of the data CI reconstructed in the data space.

If the CI to be recovered is in the data sharing area, the CI can be updated directly because it is protected from other IMS subsystems by the IRLM (IMS Resource Lock Manager) locking or the I/O toleration EEQE.

IMS DEDB Fast Recovery recovers the block-level data-sharing VSO areas as follows:

1. Obtaining the cast-out lock of the CI to be recovered.

This prevents the image of the current CI from being updated by another IMS subsystem after the recovery by IMS DEDB Fast Recovery. If the image of the data CIs in DASD is the same as one in CF structure, it is not necessary to obtain the cast-out lock.

2. Recovering CIs.

IMS DEDB Fast Recovery recovers CIs in area data sets.

### 3. Deleting CI entries.

IMS DEDB Fast Recovery deletes the related CI entries in CF structures for the recovered CIs. When the CI is accessed the next time, the CIs recovered by IMS DEDB Fast Recovery are read from area data sets. It is not necessary to release the cast-out lock because IMS DEDB Fast Recovery deletes the CI entries.

For the block-level data-sharing VSO areas, IMS DEDB Fast Recovery casts out the CIs that were written into CF structures but have not been written yet into DASD as follows:

#### 1. Reading the directory entries of CF structure.

IMS DEDB Fast Recovery reads the directory entries of CF structure to determine the CIs to be cast out.

#### 2. Reading the CIs to be cast out.

IMS DEDB Fast Recovery obtains cast-out locks and reads CIs to be cast out.

#### 3. Writing CIs into DASD.

IMS DEDB Fast Recovery writes CIs into area data sets.

#### 4. Releasing the cast-out locks.

IMS DEDB Fast Recovery releases the cast-out locks.

IMS DEDB Fast Recovery disconnects normally the connection to the CF structure related to the recovered areas. Therefore, the failed-persistent connection because of the IMS failure is reset. If IMS DEDB Fast Recovery runs with CFRET=Y and the recovery failed because of the connectivity error, the failed-persistent connection remains.

If an output error occurs in area data sets when IMS DEDB Fast Recovery recovers DEDB data CIs, IMS DEDB Fast Recovery marks the area data set as unavailable. If all multiple area data sets are unavailable, IMS DEDB Fast Recovery marks the area as recovery needed. If an access error occurs in CF, IMS DEDB Fast Recovery also marks the area as recovery needed.

## Recovering the DEDB control CI

The control CI (the second VSAM CI) of each area data set must be updated with the contents of the reconstructed DMAC and ADSC.

- The control CI is updated unconditionally for the non-block-level data-sharing area.
- The control CI is updated according to the CUSN in the same manner as data CI for the block-level data-sharing area.

If an open error or I/O error occurred in the area data set during the control CI recovery, the data set becomes unavailable. If none of the multiple area data sets becomes available, the areas become recovery needed.

If the I/O toleration EEQE exists for the control CI, the area becomes recovery needed if it is defined as the block-level data-sharing area.

**Related reading:** For the check using CUSN, see [“Checking the CUSN” on page 17](#).

## Updating the DBRC RECON data set

If DBRC=Y is specified, IMS DEDB Fast Recovery updates the DBRC RECON data set according to the conditions of the reconstructed DMAC and ADSC. Nothing is done for the DBRC unregistered areas. The data set is updated as follows:

- If there was an open error or I/O error for the area data set, the area data set is registered as unavailable.
- If there were open errors or I/O errors for all area data sets, all area data sets are registered as unavailable. The area is marked as recovery needed. If the area is defined as the block-level data-sharing area, it is registered as a global stop area.



- If there was an access error for a CF structure, all area data sets are registered as unavailable. The area is marked as recovery needed. Because the area is the block-level data-sharing area, it is registered as a global stop area.
- If the DEDB Area Data Set Create utility was in process, the new area data set information is initialized.
- If the area was being stopped as an internal process and the area is defined as the block-level data-sharing area, it is registered as a global stop area.
- If the area data set was being stopped as an internal process, the area data set is registered as unavailable.
- If the ADSC information was being exchanged with another IMS subsystem, the ADSC global information is registered.
- If the I/O toleration EEQE exists for the area, the I/O toleration EEQE is unregistered.

IMS DEDB Fast Recovery deletes the in-doubt EEQE for the DL/I database only when all in-doubt transactions that update the DL/I database are committed by IMS DEDB Fast Recovery.

### **Creating the recovery status lists**

IMS DEDB Fast Recovery creates the following nine lists:

- Backout Required PSB list
- Database Status list
- OLDS/SLDS list
- DEDB Area Status list
- DEDB Snap Dump list
- Recovered CI Summary list
- Recovered Data CI Bitmap
- External Subsystem UOR Status list
- MSDB Checkpoint Data Set list

**Related reading:** For details about the recovery status lists and examples, see [Chapter 5, “Database and area recovery status lists,”](#) on page 71.



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## Chapter 3. Recovering your IMS subsystem

To ensure that you can recover DEDBs successfully by using IMS DEDB Fast Recovery, you must plan your recovery procedures for IMS.

To facilitate your use of IMS DEDB Fast Recovery, make the following changes to your regular procedures:

- Take at least one complete checkpoint for each log data set. This reduces the time for IMS DEDB Fast Recovery to process log data sets.
- Use the DBRC LIST.RECON command daily to generate lists for the DBRC RECON data set. The lists can be used to recover DBRC RECON after the IMS DEDB Fast Recovery run.
- Make sure that your procedure for emergency restart includes a retry step. Update the procedure to direct the use of IMS DEDB Fast Recovery only when an IMS cold start is the only solution.

In the IMS XRF complex, you should use IMS DEDB Fast Recovery when the takeover by an alternate IMS subsystem failed and the subsequent IMS emergency restart also failed. Before running IMS DEDB Fast Recovery for an IMS XRF complex, you must assure the I/O prevention for both the active and the alternate IMS completes. If I/O prevention could not be completed because of an MVS failure, you must reset the Central Electronic Complex (CEC) before running IMS DEDB Fast Recovery.

- Update your procedure for an IMS cold start to include the option of having run IMS DEDB Fast Recovery.

The following topics provide information about what you need to do to recover IMS, including detailed flowcharts that you can refer to when you create your recovery procedures.

### Topics:

- [“Considerations for your recovery procedures” on page 21](#)
- [“IMS recovery procedures” on page 24](#)
- [“Preparing and using Resync control statements” on page 45](#)
- [“Preparing and using Area Recovery Retry control statements” on page 46](#)
- [“Restarting IMS with IMS emergency restart” on page 47](#)

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## Considerations for your recovery procedures

Careful implementation of your recovery procedures is essential to successfully recovering your DEDBs and completing the IMS cold start process, which maintains database integrity.

### Common considerations

When you prepare your recovery procedure, be aware of the following common considerations:

- IMS DEDB Fast Recovery recovers only DEDBs. You must recover the DL/I databases and MSDBs by using IMS provided utilities; see the Recovery Status lists produced by IMS DEDB Fast Recovery.
- IMS DEDB Fast Recovery cannot recover damaged DEDBs. After running IMS DEDB Fast Recovery, you run the Database Recovery utility for the areas that could not be recovered with IMS DEDB Fast Recovery because of, for example, an I/O error. For DEDB multiple area data sets, the DEDB Area Data Set Create utility can be used if the area contains a data set that could be recovered.
- If cold start is required for multiple IMS subsystems in the IMS DEDB data sharing environment, run IMS DEDB Fast Recovery for each IMS subsystem. You can run the jobs concurrently under separate MVS environments or under a single MVS environment.
- You do not need to run the Log Recovery utility after running IMS DEDB Fast Recovery.
- IMS DEDB Fast Recovery does not recover input or output messages to or from the IMS user and master terminals.

## Considerations for recovering IMS that uses block-level data-sharing VSO areas

When you run IMS DEDB Fast Recovery for a block-level data-sharing VSO area, a CF connectivity error might occur. You can use the CFRET option to specify a response to such error.

IMS DEDB Fast Recovery does the following processes to recover the areas:

1. IMS DEDB Fast Recovery connects all CF structures using the same connection name that the failed IMS used.
2. If IMS DEDB Fast Recovery finds the CIs to be recovered, recovers them in the area data sets, and deletes the CIs from the CF structures. Therefore, when the CIs are accessed the next time, IMS DEDB Fast Recovery reads the CIs from the area data sets.
3. If IMS DEDB Fast Recovery finds the CIs to be cast out, IMS DEDB Fast Recovery writes them into the area data set.
4. Because IMS terminated abnormally, the connections to the CF structures are in a failed-persistent state. IMS DEDB Fast Recovery normally disconnects the connections established at Step [“1” on page 22](#) to delete the failed-persistent connections.

If the error occurs when IMS DEDB Fast Recovery connects to CF structures in the recovery process, and if you want to prevent from making the areas related to the structures unavailable, run IMS DEDB Fast Recovery with CFRET=Y (default) specified on the execution parameter. The CFRET=Y execution is useful for the following cases:

- If IMS DEDB Fast Recovery cannot connect to the CF structure, because you are running an incorrect system and the structure name is not defined in the system.
- If IMS DEDB Fast Recovery cannot connect to the CF structure, because it runs in a system that has no path to the CF.
- If the connection is lost unexpectedly.
- If you run IMS DEDB Fast Recovery again after it terminates abnormally. Or if you run IMS DEDB Fast Recovery by mistake after it ends normally. In the end of recovery process, IMS DEDB Fast Recovery normally disconnects the connection to the CF structures related to the areas that have been recovered. The structures are deleted automatically if no other IMS connects to them. If IMS DEDB Fast Recovery terminates abnormally after it has recovered any areas, or if it runs again after it ended normally, the next CFRET=N execution makes the areas unavailable, because IMS DEDB Fast Recovery recognizes that the structures that should exist do not actually exist.

If you specify CFRET=Y, IMS DEDB Fast Recovery does not make the areas unavailable even if IMS DEDB Fast Recovery fails because of a CF connectivity error. Run IMS DEDB Fast Recovery again for the areas selectively. However, in the fourth case in the preceding list, you do not have to run IMS DEDB Fast Recovery again, because the areas have already been recovered.

IMS DEDB Fast Recovery tries to connect to all CF structures related to all block-level data-sharing VSO areas used by the failed IMS after closing OLDS. If you want to stop running IMS DEDB Fast Recovery immediately when the connectivity error is detected, specify CFCONF=Y on an execution parameter. For details on the CFCONF parameter, see [“JCL requirements ” on page 50](#).

### Notes:

1. When a block-level data-sharing VSO area has two CF structures and a connection is lost after the connections to both structures are established, the connection loss is notified to other IMS systems that share the areas. The IMS systems or IMS DEDB Fast Recovery deletes the structure when disconnecting the connection. If the last connection is lost, you can run IMS DEDB Fast Recovery again with CFRET=Y specified, because no IMS can delete it.
2. The CFRET=Y execution means that IMS DEDB Fast Recovery does not change the status of the area on DBRC for the area that could not be recovered. It does not reset the unavailable status of the area that the CFRET=N execution once made on DBRC.

## Considerations for recovering IMS without using RECON data sets

It is possible that the DBRC RECON data sets required by IMS DEDB Fast Recovery will be unusable, or that DBRC abends because of a DBRC function failure. In that event, you can run IMS DEDB Fast Recovery with DBRC=N and AUTO=Y.

When DBRC=N, AUTO=Y is specified, IMS DEDB Fast Recovery sorts the OLDSs to determine the last- and previously-used OLDSs. IMS DEDB Fast Recovery creates an OLDS entry table (DSET) to determine the log data sets needed to complete recovery.

If neither of the selected OLDSs contain the X'42' or X'4301' log record, IMS DEDB Fast Recovery terminates with a return code of 16. If this happens, rerun IMS DEDB Fast Recovery with AUTO=N.

OLDSs that were in use by the IMS to be recovered are treated as follows:

- OLDSs to which log records have already been written must be within the sorting group. That is, even the OLDS that cannot be the last OLDS must also be specified on a DD statement or allocated dynamically.
- OLDSs that were started when IMS failed must contain IMS log records, at least in the first block. OLDS to which no log records have been written are used as follows:
  - If the first block can be read, it is used. (This data set cannot be the last OLDS since an old record is read.)
  - If an end-of-file is recognized, or if DUMMY DD has been specified, the job continues.

OLDSs that were not in use by the IMS to be recovered might be contained in the sorting group, but they will not be misused in the subsequent process.

After running IMS DEDB Fast Recovery and before the IMS cold start, you need to recover the DBRC RECON data sets, even if they are unusable.

### Related concepts

[Scenario 3: Recovering DEDBs without using RECON data sets](#)

The following topics explain the procedures to recover DEDBs when DBRC is unavailable.

## Considerations for IMS cold start

After completion of IMS DEDB Fast Recovery, restart IMS by using the /ERE COLDSYS command to release the retained IRLM (IMS Resource Lock Manager) and DBRC locks.

**Note:** To restart IMS, you can use the IMS emergency restart with the /ERE COLDBASE command instead of the /ERE COLDSYS command. In this case, some additional operations are required to reset the *recovery-needed* status for a DEDB area and make the other DEDB area data sets available in the multiple area data sets (MADS) environment.

After the IMS cold start and before starting application programs, use the /STOP command to stop the databases and DEDB areas that were inactive when IMS failed. See the recovery status lists generated by IMS DEDB Fast Recovery.

IMS DEDB Fast Recovery has no interface with IRLM. In other words, under the block-level data-sharing environment, there is no way to notify other active IMS subsystems of the area conditions detected by IMS DEDB Fast Recovery. When the IRLM lock is released by the IMS cold start, a data integrity problem is caused because other active IMS subsystems might use the old, thus incorrect, data CI or area information retained by IRLM.

To avoid this problem, perform the following operations after running IMS DEDB Fast Recovery under other active IMS subsystems:

- Use the /DBR command before the IMS cold start to deallocate the areas that could not be recovered by IMS DEDB Fast Recovery.
- Use the /STOP command before the IMS cold start to deallocate the areas whose conditions have been changed. Use the /START command after the IMS cold start to activate the areas.

- If IMS failed while exchanging data related to data sharing, use the /STOP command before the IMS cold start to deallocate the areas and use the /START command after the IMS cold start to activate them again.
- Use the /STOP command before the IMS cold start to deallocate the databases or areas that have been protected by the I/O toleration EEQE. They can be activated by the /START command after the IMS cold start.

These operations are included and described in detail in the recovery scenarios.

### Related concepts

[Restarting IMS with IMS emergency restart](#)

After running IMS DEDB Fast Recovery, you can also perform the IMS emergency restart by using the /ERE COLDBASE command instead of the IMS cold start /ERE COLDSYS command.

### Related tasks

[Restarting the IMS subsystem while other IMS subsystems are active](#)

When the IMS DEDB Fast Recovery job completes, you must restart the IMS subsystem.

## Considerations for IMS DEDB Fast Recovery abends

You must prepare for IMS DEDB Fast Recovery abends that might occur due to an operator error, a shortage of main storage, or an unexpected hardware failure, such as a channel or controller error.

If such error occurs, plan to retry the job. If IMS system uses a block-level data-sharing VSO area when IMS failed, see [“Considerations for recovering IMS that uses block-level data-sharing VSO areas”](#) on page 22.

If IMS DEDB Fast Recovery abends while processing the IMS system logs, the I/O process for the DEDB is not performed; therefore, no special operation is required for the area data sets to execute the utility again. DEDB recovery (that is, VSAM open and I/O) is performed after system log processing has completed and DEDB buffers have been reconstructed.

In the DEDB data sharing environment, if IMS DEDB Fast Recovery terminates abnormally after VSAM I/O has started, and is executed again, the update process for CIs, for which I/O has completed and have been recovered before the abend, is not performed. A CI image for the CIs is generated in the RCIDUMP DD data set. Keep the CI Image at the time of abend with the one for normal termination.

If IMS DEDB Fast Recovery abends while producing the Area Status list, DEDB recovery and the DBRC RECON data set update process is already completed. In this case, the area condition is described in the dump list at the time of abend.

## IMS recovery procedures

The DEDB recovery procedure that uses IMS DEDB Fast Recovery include three tasks. Running IMS DEDB Fast Recovery, restarting the IMS subsystem, and confirming the statuses of databases and areas.

You use essentially the same procedures in an XRF complex. The only difference is that to confirm the completion of the I/O prevention process, IMS DEDB Fast Recovery displays a WTOR message to which you reply YES.

You can also use the same procedures in a two-phase commit process environment such as DBCTL. However, if there is an indoubt transaction at IMS failure, you must prepare a Resync control statement.

The following topics provide typical instructions for recovering DEDBs by using IMS DEDB Fast Recovery.

- See [“Scenario 1: Recovering DEDBs while other IMS subsystems are active”](#) on page 25 when other IMS subsystems are active in the DEDB block-level data-sharing environment.
- See [“Scenario 2: Recovering DEDBs while other IMS subsystems are inactive”](#) on page 33 when no other IMS subsystems are active in the DEDB block-level data-sharing environment, or when data sharing is not used.
- See [“Scenario 3: Recovering DEDBs without using RECON data sets”](#) on page 39 when DBRC is unusable.

## Scenario 1: Recovering DEDBs while other IMS subsystems are active

The following topics explain the procedures to recover DEDBs when other active IMS subsystems exist in the DEDB block-level data-sharing environment.

The entire recovery operation is explained in the following three topics:

- [“Recovering DEDBs while other IMS subsystems are active” on page 25](#)
- [“Restarting the IMS subsystem while other IMS subsystems are active” on page 27](#)
- [“Completing the recovery procedure while other IMS subsystems are active” on page 30](#)

### Recovering DEDBs while other IMS subsystems are active

To recover DEDBs, you must identify the state of the system and determine the options for running an IMS DEDB Fast Recovery job.

#### Before you begin

Before you start your recovery procedure, see [“Considerations for recovering IMS that uses block-level data-sharing VSO areas” on page 22](#).

#### About this task

The steps in this topic guide you through the process of recovering DEDBs when other active IMS subsystems exist in the DEDB block-level data-sharing environment.

The entire recovery procedure is explained in three separate topics. The steps in this topic describe the first task, from the start of the recovery procedure to the successful completion of an IMS DEDB Fast Recovery job.

The following diagram depicts the flow of the recovery procedure from the start of the recovery until the successful completion of an IMS DEDB Fast Recovery job.

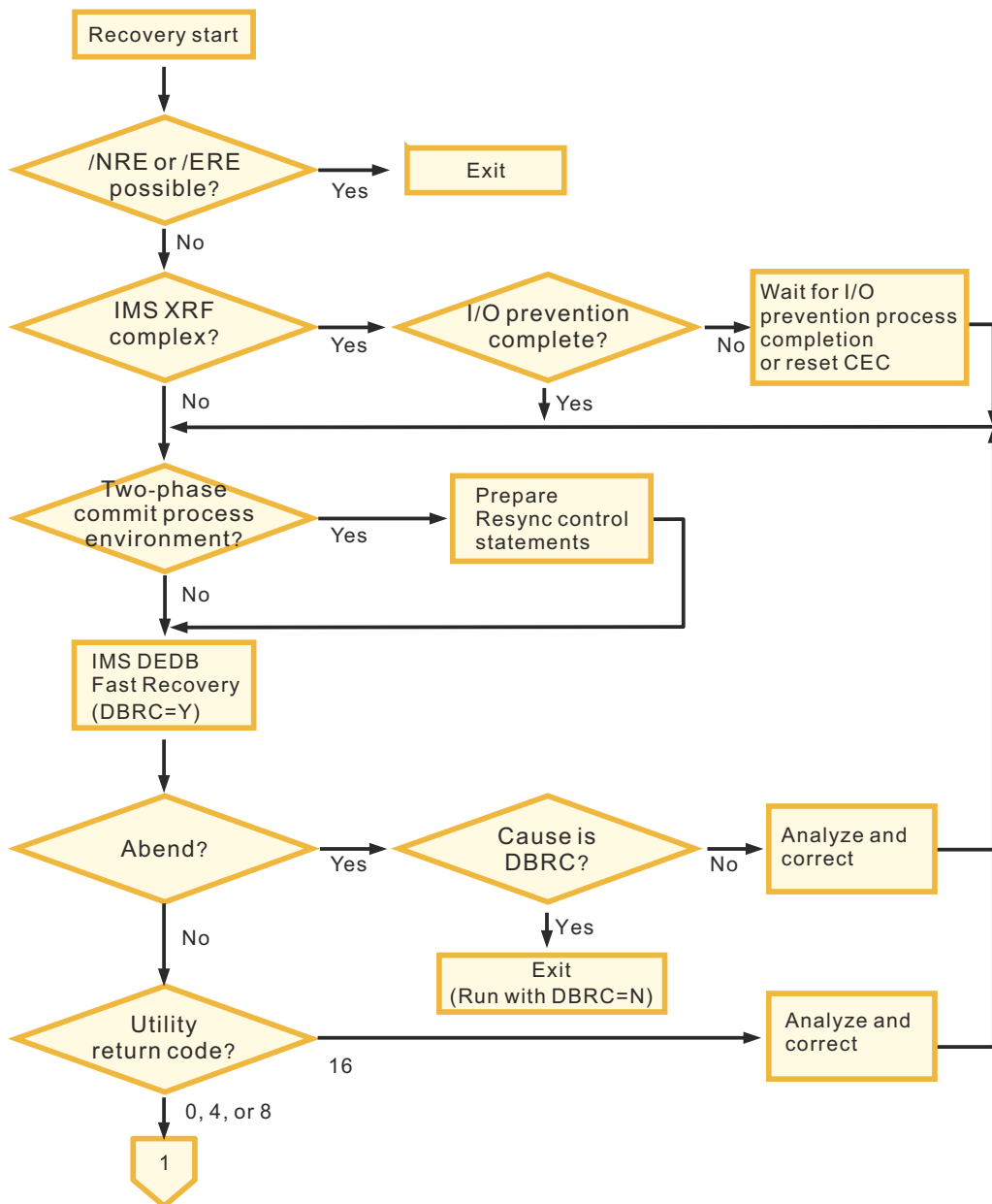


Figure 2. Operation procedure with other active IMS subsystems (Task 1 of 3)

## Procedure

1. Determine whether the IMS subsystem can be started with the /NRE or the /ERE command.

- If the /NRE or the /ERE command can be used to start the system, use either of the commands to restart the IMS subsystem. In this case, the IMS subsystem does not need further recovery operations and you can exit your recovery procedure.
- If these commands are not available, continue with Step “2” on page 26.

2. If you are using an XRF complex, ensure that I/O prevention is complete.

If I/O prevention is not complete, either wait for the I/O prevention process to end or reset Central Electronic Complex (CEC).

3. If you are using a two-phase commit process environment, prepare Resync control statements.

For information about preparing Resync control statements, see “[Preparing and using Resync control statements](#)” on page 45.



4. Run IMS DEDB Fast Recovery with the DBRC=Y option.

See [Chapter 4, “JCL and control statements,” on page 49](#) for JCL requirements for IMS DEDB Fast Recovery.

5. Check the result of the job.

If the job ends abnormally, determine if the cause is due to DBRC.

- If the cause is due to DBRC, you need to run IMS DEDB Fast Recovery with the DBRC=N option. Exit this scenario and follow the instructions in [“Scenario 3: Recovering DEDBs without using RECON data sets” on page 39](#).
- If the cause is not due to DBRC, analyze and correct the errors, and repeat from Step [“3” on page 26](#).

Check the utility return code. If the return code is 16, analyze and correct the errors, and repeat from Step [“3” on page 26](#).

## What to do next

The next recovery task is restarting the IMS subsystem. See [“Restarting the IMS subsystem while other IMS subsystems are active” on page 27](#) for instructions.

### Related reference

#### Troubleshooting

The topics in this section provide you with technical references to help you troubleshoot and diagnose IMS DEDB Fast Recovery problems.

## Restarting the IMS subsystem while other IMS subsystems are active

When the IMS DEDB Fast Recovery job completes, you must restart the IMS subsystem.

### Before you begin

Before starting the steps in this topic, you must run IMS DEDB Fast Recovery to recover databases or areas. Make sure that you have completed the steps in [“Recovering DEDBs while other IMS subsystems are active” on page 25](#).

### About this task

The steps in this topic guide you through the process of recovering DEDBs when other active IMS subsystems exist in the DEDB block-level data-sharing environment.

The entire recovery procedure is explained in three separate topics. The steps in this topic describe the second task, from the completion of an IMS DEDB Fast Recovery job to the next IMS cold start.

The following diagram depicts the flow of the recovery procedure from the completion of an IMS DEDB Fast Recovery job to the next IMS cold start.

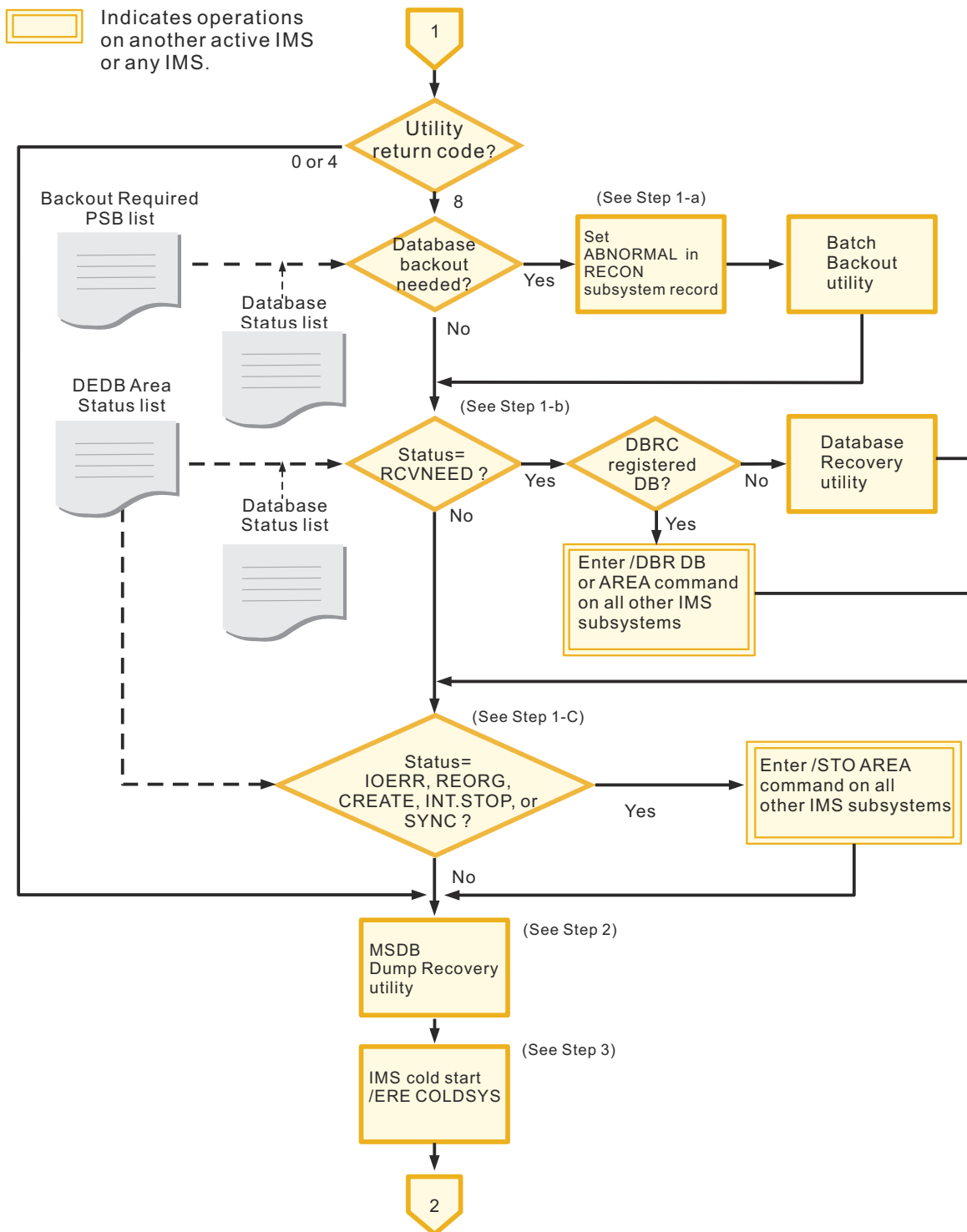


Figure 3. Operation procedure with other active IMS subsystems (Task 2 of 3)

## Procedure

1. If the IMS DEDB Fast Recovery return code is 8, complete the following substeps:

- a) Determine whether the database backout is needed by referring to the Backout Required PSB list and the Database Status list.

If database backout is needed, set ABNORMAL in the RECON subsystem record and run the Batch Backout utility.

**Note:** To run the Batch Backout utility before the IMS cold start, ABNORMAL must be set in the subsystem record in the DBRC RECON data set of the corresponding IMS. If ABNORMAL is not set, use the DBRC CHANGE.SUBSYS command to set the status to ABNORMAL.

- b) Determine whether any databases or areas need to be recovered.

Whether a database or an area needs to be recovered is indicated by the status codes in the Database Status list and in the DEDB Area Status list. If the status code shows RCVNEED for a resource, the resource requires recovery.

When one or more resources have the RCVNEED status code, take either of the following actions:

- If the database is registered to DBRC, enter the /DBR DB or the /DBR AREA command on all other IMS subsystems.

**Important:** Before you continue with the next step, make sure that the /DBR DB or the /DBR AREA command has ended on all other active IMS subsystems. Otherwise, IMS DEDB Fast Recovery cannot maintain data integrity in the data-sharing environment.

- If the database is not registered to DBRC, run the Database Recovery utility.

- c) Determine whether any areas are in a state other than RCVNEED by referring to the DEDB Area Status list.

For the explanation of the status codes, see [“DEDB Area Status list” on page 77](#).

If any areas have a state that requires deallocation from another IMS, enter the /STO AREA command on all other IMS subsystems.

**Note:** You do not need to enter the /STO AREA command if the corresponding area is closed by other active IMS subsystems.

**Important:** Before you continue with the next step, make sure that the /STO AREA command has ended on all other active IMS subsystems. Otherwise, IMS DEDB Fast Recovery cannot maintain data integrity in the data-sharing environment.

2. Run the MSDB Dump Recovery utility.

**Note:** If the last-used OLDS has been already closed by the Log Recovery utility before the IMS DEDB Fast Recovery execution, the MSDB Dump Recovery utility and IMS DEDB Fast Recovery can be executed concurrently.

3. Perform a cold start on the IMS subsystem by entering the /ERE COLDSYS command.

**Note:** Instead of the IMS cold start command (/ERE COLDSYS), you can use the IMS emergency restart command (/ERE COLDBASE). However, an IMS emergency restart requires some additional operations to reset the recovery-needed status for DEDB areas and make the other DEDB area data sets available in the multiple area data set (MADS) environment. For more information about IMS emergency restart, see [“Restarting IMS with IMS emergency restart” on page 47](#).

## What to do next

You must complete the recovery procedure by following the instructions in [“Completing the recovery procedure while other IMS subsystems are active” on page 30](#).

### Related reference

[Database and area recovery status lists](#)

IMS DEDB Fast Recovery generates status lists for databases and areas. These lists are called the *recovery status lists* and contain the information you need to complete the IMS cold start process.

## **Completing the recovery procedure while other IMS subsystems are active**

When the IMS subsystem is restarted, you must check the status of each database and area, and take necessary actions to complete the recovery procedure.

### **Before you begin**

Before starting the steps in this topic, you must restart the IMS subsystem by following the steps in [“Restarting the IMS subsystem while other IMS subsystems are active” on page 27.](#)

### **About this task**

The steps in this topic guide you through the process of recovering DEDBs when other active IMS subsystems exist in the DEDB block-level data-sharing environment.

The entire recovery procedure is explained in three separate topics. The steps in this topic describe the third task, from the completion of IMS cold start to the end of the recovery procedure.

The following diagram depicts the flow of the recovery procedure from the completion of the IMS cold start to the end of the recovery procedure.

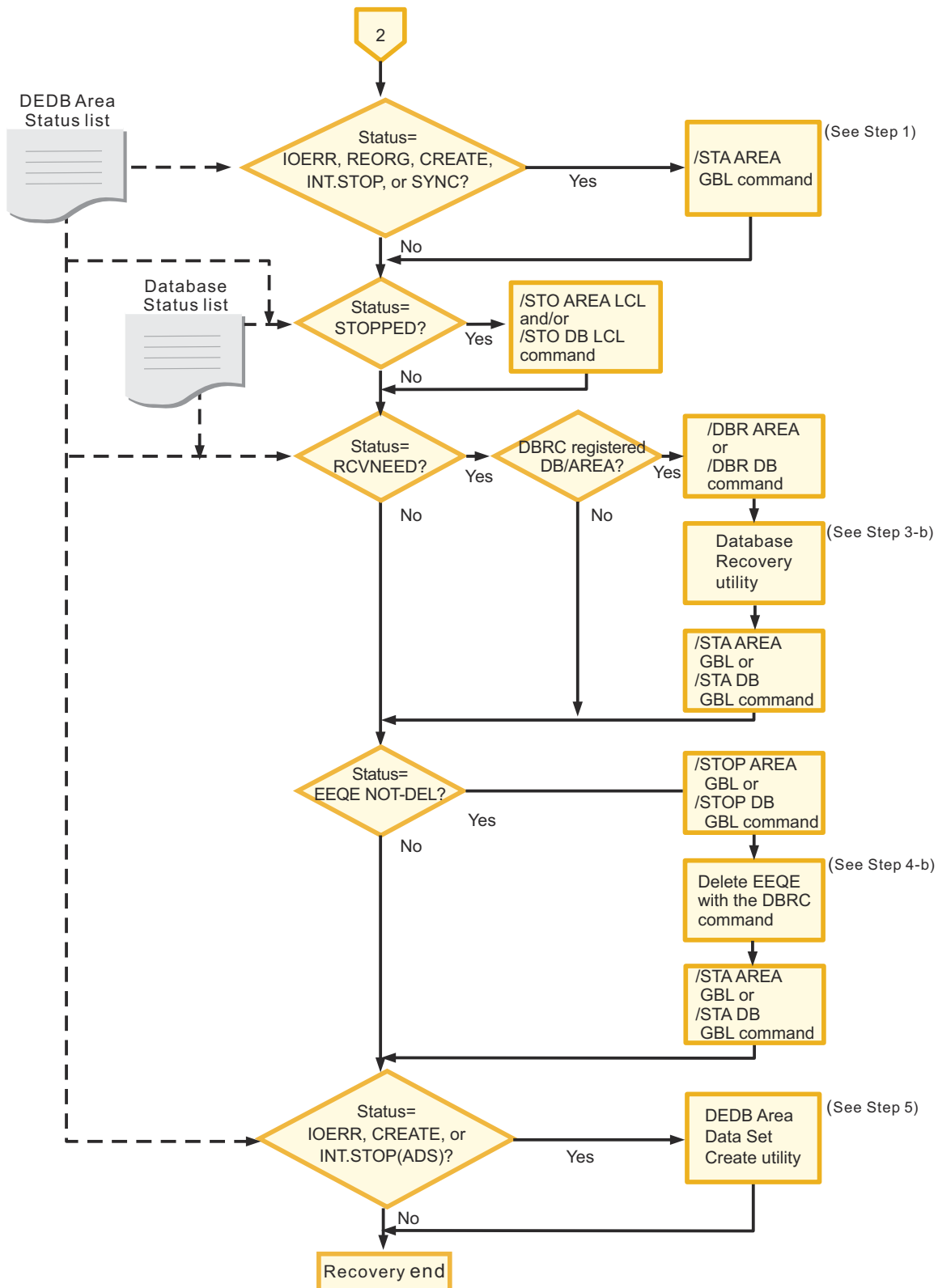


Figure 4. Operation procedure with other active IMS subsystems (Task 3 of 3)

## Procedure

1. See the DEDB Area Status list to check the state of areas.

For the explanation of the status codes, see “[DEDB Area Status list](#)” on page 77.

If any areas have a state that requires restart, enter the /STA AREA GLOBAL command.

**Important:** Before you continue with the next step, make sure that the /STA AREA GLOBAL command has ended on all other active IMS subsystems. Otherwise, IMS DEDB Fast Recovery cannot maintain data integrity in the data-sharing environment.

2. Determine if any databases or areas have the status code of STOPPED.

See the status codes in the Database Status list and in the DEDB Area Status list. If a database or an area has this status code, issue the /STO DB LOCAL command, the /STO AREA LOCAL command, or both.

3. Determine whether any databases or areas need to be recovered.

Whether a database or an area needs to be recovered is indicated by the status codes in the Database Status list and in the DEDB Area Status list. If the status code shows RCVNEED for a resource, the resource must be recovered.

When one or more resources have the RCVNEED status code, and if the resource is registered to DBRC, complete the following substeps:

- a) Issue the /DBR DB command or the /DBR AREA command.
- b) Run the Database Recovery utility.

**Note:** The corresponding database or area is set as RECOVERY NEEDED and PROHIBIT FURTHER AUTHORIZATION in the DBRC RECON data set. Although the database or the area is protected by DBRC (DB/AREA Authorization function) and therefore cannot be misused, you must run the Database Recovery utility before starting the IMS dependent region. If the Database Recovery utility will be executed before the IMS cold start, ABNORMAL must be set in the subsystem record in the RECON data set for the corresponding IMS. You can set ABNORMAL by using the DBRC CHANGE.SUBSYS command.

When using the corresponding database or area with the /START command again after recovery, you must specify the GLOBAL option to delete PROHIBIT FURTHER AUTHORIZATION from the RECON data set.

- c) Issue the /STA DB GLOBAL or the /STA AREA GLOBAL command.
4. See the status codes in the Database Status list and the DEDB Area Status list to determine if one or more databases or areas have a status of EEQE NOT-DEL.

If a database or an area has this status, complete the following substeps:

- a) Issue the /STOP DB GLOBAL command or the /STOP AREA GLOBAL command.
- b) Delete EEQE with the DBRC command.

**Note:** EEQE for a DL/I database might have been already deleted by the Database Batch Backout utility execution after the IMS DEDB Fast Recovery execution. In this case, you can skip this step.

- c) Issue the /STA DB GLOBAL command or the /STA AREA GLOBAL command.
5. Determine if any areas have a status code of IOERR, CREATE, or INT.STOP(ADS).

See the status codes in the DEDB Area Status list. If you find any areas with one of these status codes, run the DEDB Area Data Set Create utility.

The DEDB Area Data Set Create utility can be executed after the IMS start.

### **Related reference**

Database and area recovery status lists

IMS DEDB Fast Recovery generates status lists for databases and areas. These lists are called the *recovery status lists* and contain the information you need to complete the IMS cold start process.

## Scenario 2: Recovering DEDBs while other IMS subsystems are inactive

The following topics explain the procedures to recover DEDBs when no other active IMS subsystems exist in the DEDB block-level data-sharing environment, or when data sharing is not used.

The entire recovery operation is explained in the following three topics:

- [“Recovering DEDBs while other IMS subsystems are inactive” on page 33](#)
- [“Restarting the IMS subsystem while other IMS subsystems are inactive” on page 35](#)
- [“Completing the recovery procedure while other IMS subsystems are inactive” on page 37](#)

### Recovering DEDBs while other IMS subsystems are inactive

To recover DEDBs, you must identify the state of the system and determine the options for running an IMS DEDB Fast Recovery job.

#### About this task

The steps in this topic guide you through the process of recovering DEDBs when no other active IMS subsystems exist in the DEDB block-level data-sharing environment, or when data sharing is not used.

The entire recovery procedure is explained in three separate topics. The steps in this topic describe the first task, from the start of the recovery procedure to the successful completion of an IMS DEDB Fast Recovery job.

The following diagram depicts the flow of the recovery procedure from the start of the recovery until the successful completion of an IMS DEDB Fast Recovery job.

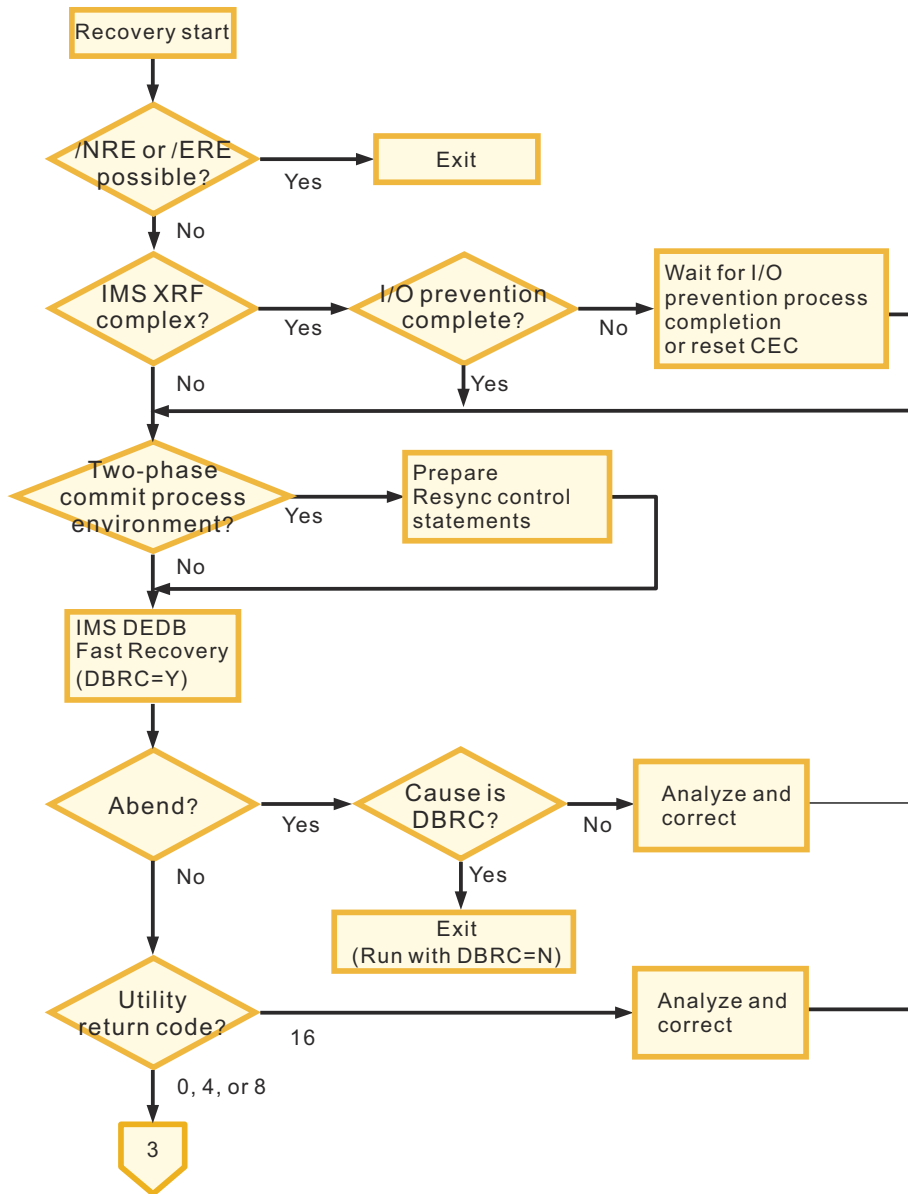


Figure 5. Operation procedure without other active IMS subsystems (Task 1 of 3)

## Procedure

1. Determine whether the IMS subsystem can be started with the /NRE or the /ERE command.

- If the /NRE or the /ERE command can be used to start the system, use either of the commands to restart the IMS subsystem. In this case, the IMS subsystem does not need further recovery operations and you can exit your recovery procedure.
- If these commands are not available, continue with Step “2” on page 34.

2. If you are using an XRF complex, ensure that I/O prevention is complete.

If I/O prevention is not complete, either wait for the I/O prevention process to end or reset Central Electronic Complex (CEC).

3. If you are using a two-phase commit process environment, prepare Resync control statements.

For information about preparing Resync control statements, see “[Preparing and using Resync control statements](#)” on page 45.

4. Run IMS DEDB Fast Recovery with the DBRC=Y option.



See Chapter 4, “JCL and control statements,” on page 49 for JCL requirements for IMS DEDB Fast Recovery.

5. Check the result of the job.

If the job ends abnormally, determine if the cause is due to DBRC.

- If the cause is due to DBRC, you need to run IMS DEDB Fast Recovery with the DBRC=N option. Exit this scenario and follow the instructions in [“Scenario 3: Recovering DEDBs without using RECON data sets”](#) on page 39.
- If the cause is not due to DBRC, analyze and correct the errors, and repeat from Step [“3”](#) on page 34.

Check the utility return code. If the return code is 16, analyze and correct the errors, and repeat from Step [“3”](#) on page 34.

## What to do next

The next recovery task is restarting the IMS subsystem. See [“Restarting the IMS subsystem while other IMS subsystems are inactive”](#) on page 35 for instructions.

### Related reference

#### Troubleshooting

The topics in this section provide you with technical references to help you troubleshoot and diagnose IMS DEDB Fast Recovery problems.

## Restarting the IMS subsystem while other IMS subsystems are inactive

When the IMS DEDB Fast Recovery job completes, you must restart the IMS subsystem.

### Before you begin

Before starting the steps in this topic, you must run IMS DEDB Fast Recovery to recover databases or areas. Make sure that you have completed the steps in [“Recovering DEDBs while other IMS subsystems are inactive”](#) on page 33.

### About this task

The steps in this topic guide you through the process of recovering DEDBs when no other active IMS subsystems exist in the DEDB block-level data-sharing environment, or when data sharing is not used.

The entire recovery procedure is explained in three separate topics. The steps in this topic describe the second task, from the completion of an IMS DEDB Fast Recovery job to the next IMS cold start.

The following diagram depicts the flow of the recovery procedure from the completion of an IMS DEDB Fast Recovery job to the next IMS cold start.

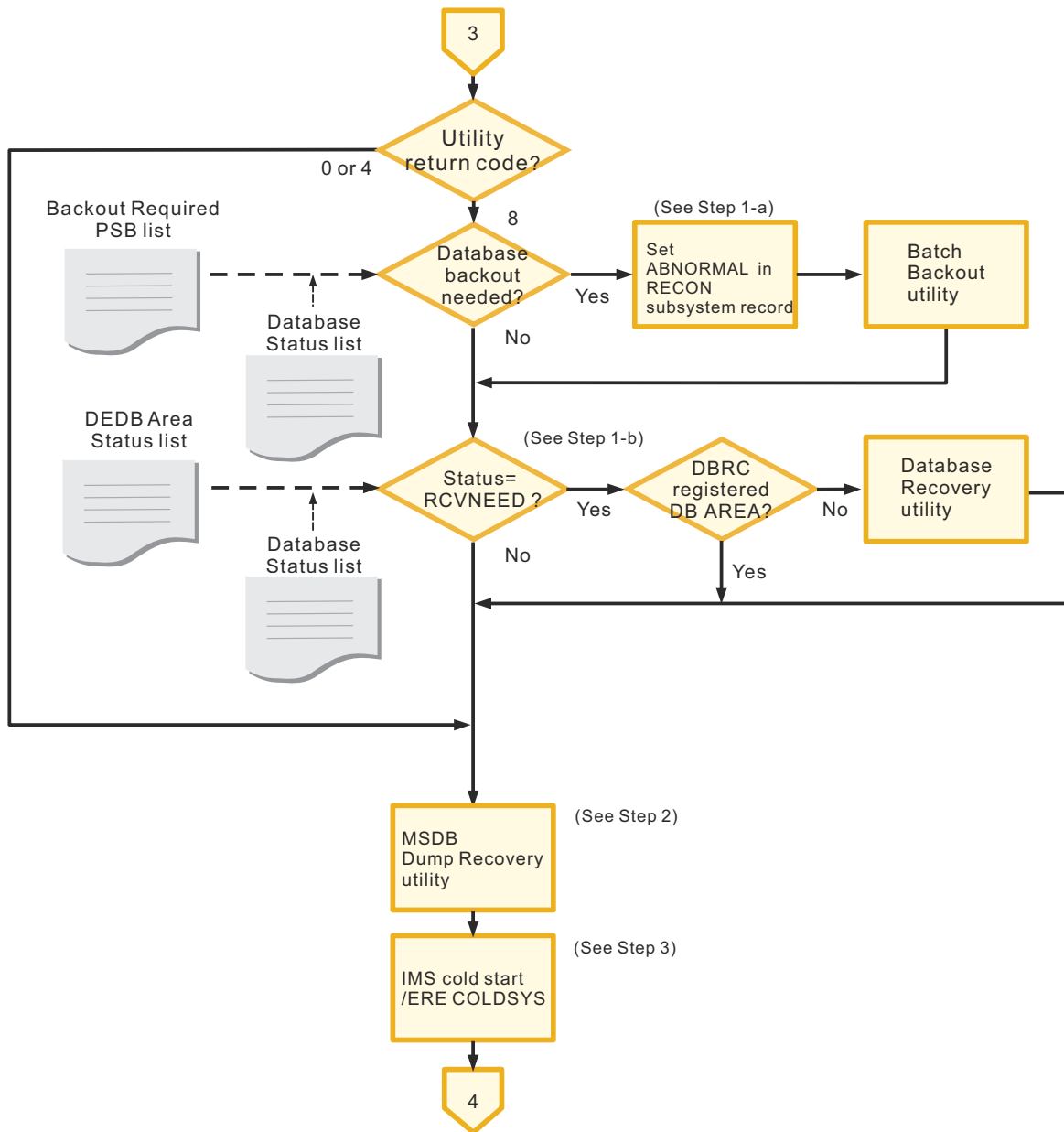


Figure 6. Operation procedure without other active IMS subsystems (Task 2 of 3)

## Procedure

1. If the IMS DEDB Fast Recovery return code is 8, complete the following substeps:

- a) Determine whether the database backout is needed by referring to the Backout Required PSB list and the Database Status list.

If database backout is needed, set ABNORMAL in the RECON subsystem record and run the Batch Backout utility.

**Note:** To run the Batch Backout utility before the IMS cold start, ABNORMAL must be set in the subsystem record in the DBRC RECON data set of the corresponding IMS. If ABNORMAL is not set, use the DBRC CHANGE.SUBSYS command to set the status to ABNORMAL.

- b) Determine whether any databases or areas need to be recovered.

Whether a database or an area needs to be recovered is indicated by the status codes in the Database Status list and in the DEDB Area Status list. If the status code shows RCVNEED for a resource, the resource requires recovery.

When one or more resources have the RCVNEED status code and, if the database or the area is not registered to DBRC, run the Database Recovery utility.

2. Run the MSDB Dump Recovery utility.

**Note:** If the last-used OLDS has been already closed by the Log Recovery utility before the IMS DEDB Fast Recovery execution, the MSDB Dump Recovery utility and IMS DEDB Fast Recovery can be executed concurrently.

3. Perform a cold start on the IMS subsystem by entering the /ERE COLDSYS command.

**Note:** Instead of the IMS cold start command (/ERE COLDSYS), you can use the IMS emergency restart command (/ERE COLDBASE). However, the IMS emergency restart command requires some additional operations to reset the recovery-needed status for a DEDB area and make the other DEDB area data sets available in the multiple area data set (MADS) environment. For more information about IMS emergency restart, see [“Restarting IMS with IMS emergency restart” on page 47](#).

## What to do next

You must complete the recovery procedure by following the instructions in [“Completing the recovery procedure while other IMS subsystems are inactive” on page 37](#).

### Related reference

Database and area recovery status lists

IMS DEDB Fast Recovery generates status lists for databases and areas. These lists are called the *recovery status lists* and contain the information you need to complete the IMS cold start process.

## Completing the recovery procedure while other IMS subsystems are inactive

When the IMS subsystem is restarted, you must check the status of each database and area, and take necessary actions to complete the recovery procedure.

### Before you begin

Before starting the steps in this topic, you must restart the IMS subsystem by following the steps in [“Restarting the IMS subsystem while other IMS subsystems are inactive” on page 35](#).

### About this task

The steps in this topic guide you through the process of recovering DEDBs when no other active IMS subsystems exist in the DEDB block-level data-sharing environment, or when data sharing is not used.

The entire recovery procedure is explained in three separate topics. The steps in this topic describe the third task, from the completion of IMS cold start to the end of the recovery procedure.

The following diagram depicts the flow of the recovery procedure from the completion of the IMS cold start to the end of the recovery procedure.

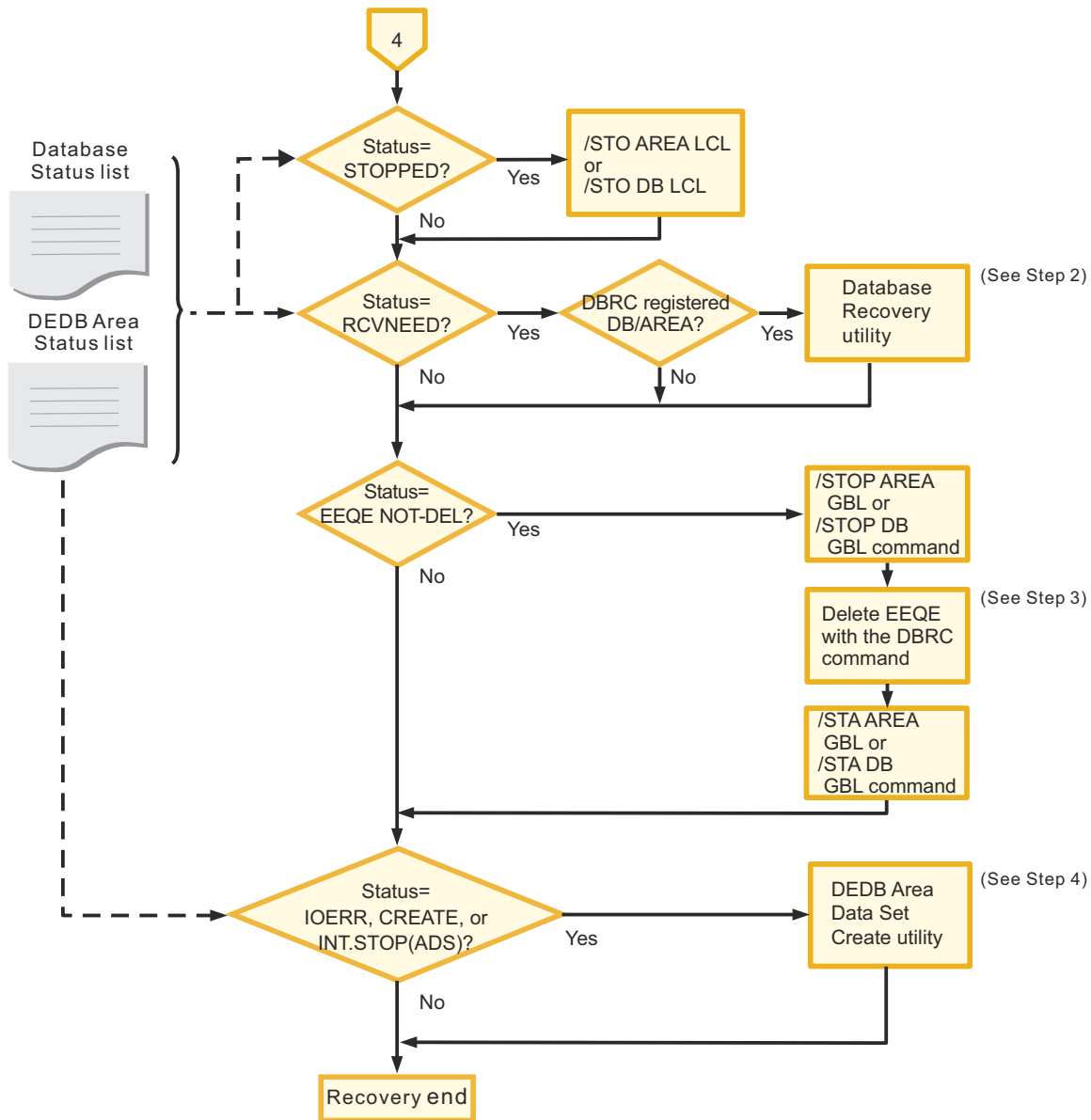


Figure 7. Operation procedure without other active IMS subsystems (Task 3 of 3)

## Procedure

1. Determine if any databases or areas have the status code of STOPPED.

See the status codes in the Database Status list and in the DEDB Area Status list. If a database or an area has this status code, issue the /STO AREA LOCAL command, the /STO DB LOCAL command, or both.

2. Determine whether any databases or areas need to be recovered.

Whether a database or an area needs to be recovered is indicated by the status codes in the Database Status list and in the Area Status list. If the status code for a resource is RCVNEED the resource must be recovered.

When one or more resources have the RCVNEED status code, and if the resource is registered to DBRC, run the Database Recovery utility.

**Note:** The corresponding database or area is set as RECOVERY NEEDED and PROHIBIT FURTHER AUTHORIZATION in the DBRC RECON data set. Although the database or the area is protected by DBRC (DB/AREA Authorization function) and therefore cannot be misused, you must run the Database

Recovery utility before starting the IMS dependent region. If the Database Recovery utility is to be executed before the IMS cold start, ABNORMAL must be set in the subsystem record in the RECON data set for the corresponding IMS. You can set ABNORMAL by using the DBRC CHANGE.SUBSYS command.

When using the corresponding database or area with the /START command again after recovery, you must specify the GLOBAL option to delete PROHIBIT FURTHER AUTHORIZATION from the RECON data set.

3. See the status codes in the Database Status list and the DEDB Area Status list to determine if one or more databases or areas have a status of EEQE NOT-DEL.

If a database or an area has this status, complete the following substeps:

- a) Issue the /STOP DB GLOBAL command or the /STOP AREA GLOBAL command.
- b) Delete EEQE with the DBRC command.

**Note:** EEQE for a DL/I database might have been already deleted by the Database Batch Backout utility execution after the IMS DEDB Fast Recovery execution. In this case, you can skip this step.

- c) Issue the /STA DB GLOBAL command or the /STA AREA GLOBAL command.

4. Determine if any areas have a status code of IOERR, CREATE, or INT.STOP(ADS).

See the status codes in the DEDB Area Status list. If you find any areas with one of these status codes, run the DEDB Area Data Set Create utility.

The DEDB Area Data Set Create utility can be executed after the IMS start.

### **Related reference**

#### Database and area recovery status lists

IMS DEDB Fast Recovery generates status lists for databases and areas. These lists are called the *recovery status lists* and contain the information you need to complete the IMS cold start process.

## **Scenario 3: Recovering DEDBs without using RECON data sets**

The following topics explain the procedures to recover DEDBs when DBRC is unavailable.

The DBRC RECON data set contains log records and database information that is required for database recovery. Database information can be recovered by tracking the latest DBRC LIST.RECON command output list and the console log after executing IMS DEDB Fast Recovery with DBRC=N and re-initializing the RECON data set. Although recovering the log information (such as the start/end time stamps for each OLDS/SLDS) is difficult, log information that was written before IMS failure is no longer required if the user runs the Database Image Copy utility for all databases immediately after the IMS cold start.

The following topics provide the recovery procedure when DBRC=N is specified. These steps are used when the RECON data set cannot be used. The RECON data set needs to be recovered after executing IMS DEDB Fast Recovery. In the data sharing environment, the RECON data set must be recovered after executing IMS DEDB Fast Recovery for all IMS subsystems.

The entire recovery operation is explained in the following three topics:

- [“Recovering DEDBs without using RECON data sets” on page 39](#)
- [“Restarting the IMS subsystem without using RECON data sets” on page 41](#)
- [“Completing the recovery procedure without using RECON data sets” on page 44](#)

### **Recovering DEDBs without using RECON data sets**

To recover DEDBs, you must identify the state of the system and determine the options for running an IMS DEDB Fast Recovery job.

#### **Before you begin**

Before you start your recovery procedure, see [“Considerations for recovering IMS without using RECON data sets” on page 23](#).

## About this task

The steps in this topic guide you through the process of recovering DEDBs when the RECON data set cannot be used.

The entire recovery procedure is explained in three separate topics. The steps in this topic describe the first task, from the start of the recovery procedure to the successful completion of an IMS DEDB Fast Recovery job.

The following diagram depicts the flow of the recovery procedure from the start of the recovery until the successful completion of an IMS DEDB Fast Recovery job.

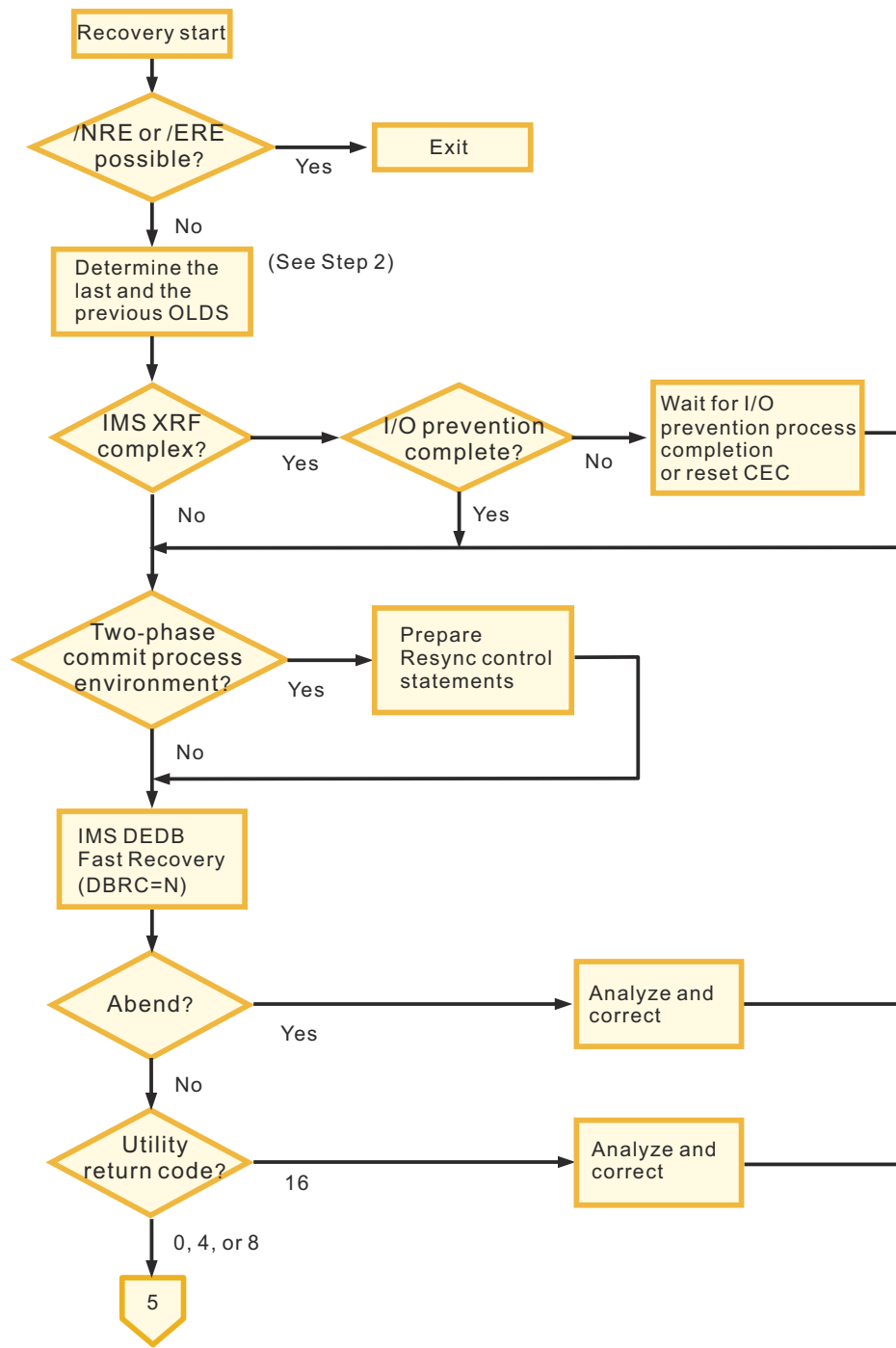


Figure 8. Operation procedure for no DBRC mode (DBRC=N) (Task 1 of 3)

## Procedure

1. Determine whether the IMS subsystem can be started with the /NRE or the /ERE command.
  - If the /NRE or the /ERE command can be used to start the system, use either of the commands to restart the IMS subsystem. In this case, the IMS subsystem does not need further recovery operations and you can exit your recovery procedure.
  - If these commands are not available, continue with Step “2” on page 41.

2. Determine the last and the previous OLDS.

Check the console log to determine the ddname of the OLDS that was in use when IMS failed and the ddname of the previous OLDS. If an emergency restart has already closed the OLDS that was in use at the time of failure, determine the ddname of the OLDS that IMS used last and the ddname of the previous OLDS.

If the OLDS that was in use at the time of IMS failure or the previous OLDS contains a log record X'4301' (OLDS entry table log record), IMS DEDB Fast Recovery uses it to create an OLDS entry table (DSET) and determines the required OLDS. However, if a DSET is not created, if an SLDS is required, or if DBRC=N and AUTO=N are specified, you must specify the ddname and data set name of all OLDSs and SLDSs after IMS recovery start checkpoint (indicated by the message DFR3301I).

If SLDSs are required and are not allocated dynamically, a DD statement must be specified for each SLDS on the job control statement of IMS DEDB Fast Recovery. The ddname must be eight characters. Data sets must not be concatenated on DD statements.

To allocate SLDSs dynamically, provide the SLDS names in the DFRXDYN0 user exit routine. For more information about the DFRXDYN0 user exit routine, see “[DFRXDYN0 user exit](#)” on page 98.

3. If you are using an XRF complex, ensure that I/O prevention is complete.

If I/O prevention is not complete, either wait for the I/O prevention process to end or reset Central Electronic Complex (CEC).

4. If you are using a two-phase commit process environment, prepare Resync control statements.

For information about preparing Resync control statements, see “[Preparing and using Resync control statements](#)” on page 45.

5. Run IMS DEDB Fast Recovery with the DBRC=N option.

See [Chapter 4, “JCL and control statements,”](#) on page 49 for JCL requirements for IMS DEDB Fast Recovery.

6. Check the result of the job.

If the job ends abnormally, or if you receive return code of 16, analyze and correct the errors, and repeat from Step “4” on page 41.

## What to do next

The next recovery task is restarting the IMS subsystem. See “[Restarting the IMS subsystem without using RECON data sets](#)” on page 41 for instructions.

### Related reference

#### Troubleshooting

The topics in this section provide you with technical references to help you troubleshoot and diagnose IMS DEDB Fast Recovery problems.

## Restarting the IMS subsystem without using RECON data sets

When the IMS DEDB Fast Recovery job completes, you must restart the IMS subsystem.

### Before you begin

Before starting the steps in this topic, you must run IMS DEDB Fast Recovery to recover databases or areas. Make sure that you have completed the steps in “[Recovering DEDBs without using RECON data sets](#)” on page 39.

## About this task

The steps in this topic guide you through the process of recovering DEDBs when the RECON data set cannot be used.

The entire recovery procedure is explained in three separate topics. The steps in this topic describe the second task, from the completion of an IMS DEDB Fast Recovery job to the next IMS cold start.

The following diagram depicts the flow of the recovery procedure from the completion of an IMS DEDB Fast Recovery job to the next IMS cold start.

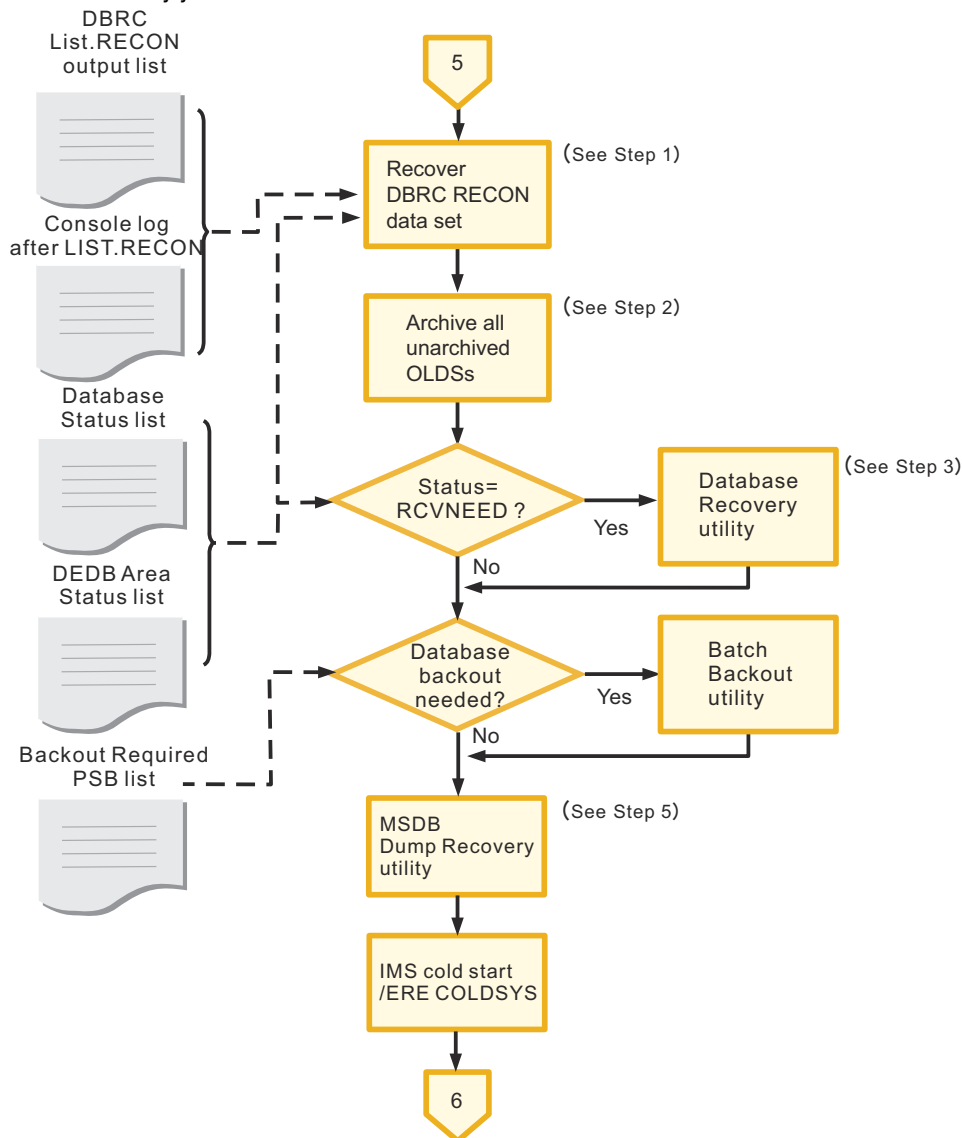


Figure 9. Operation procedure for no DBRC mode (DBRC=N) (Task 2 of 3)

## Procedure

### 1. Recover the DBRC RECON data set.

Perform the following substeps to recover the DBRC RECON data set and to maintain database integrity during the IMS cold start:

- a) Initialize the RECON data set by using DBRC INIT commands such as INIT.RECON, INIT.DB, INIT.DBDS, INIT.ADS, INIT.IC, INIT.CAGRP, and INIT.CA.
- b) Register all available DEDB area data sets with the DBRC CHANGE command.



All area data sets are made unavailable after performing Step “1.a” on page 42. The DEDB Area Status list contains only those areas that were open at the time of IMS failure. Collect information from the latest DBRC LIST.RECON command output list and the console log to register those area data sets whose areas were not opened.

c) Register the following database and database data set status by using the DBRC CHANGE command:

- RECOVERY NEEDED
- PROHIBIT FURTHER AUTHORIZATION
- READ ONLY

After performing Step “1.a” on page 42, the status of all DEDB areas is changed to RECOVERY NEEDED.

**Tip:** To be prepared to recover the RECON data set at any time, execute the DBRC LIST.RECON command and generate the RECON data set list daily.

2. Archive all OLDSs that are not archived.

After the processing of Step “1” on page 42, the contents of the RECON data set are initialized and, therefore, the OLDSs that have not been archived might be reused. Therefore, you must copy all OLDSs that are not archived to SLDS by using the Log Archive utility. When you use this utility, you must prepare your own JCL because the DBRC GENJCL.ARCHIVE command cannot be used. The Log Archive utility must be executed without using the DBRC function (DBRC=N on the EXEC parameter).

3. Determine whether any databases or areas need to be recovered.

Whether a database or an area needs to be recovered is indicated by the status codes in the Database Status list and in the DEDB Area Status list. If the status code shows RCVNEED for a resource, the resource requires recovery.

When one or more resources have the RCVNEED status code, run the Database Recovery utility. The Database Recovery utility must be executed without using the DBRC function (DBRC=N on the EXEC parameter) because it is difficult to recover the online log records and image copy data set information in the DBRC RECON data set.

4. Determine whether the database backout is needed by referring to the Backout Required PSB list.

If database backout is needed, run the Batch Backout utility.

5. Run the MSDB Dump Recovery utility.

If the last-used OLDS has been already closed by the Log Recovery utility before the IMS DEDB Fast Recovery execution, the MSDB Dump Recovery utility and IMS DEDB Fast Recovery can be executed concurrently.

6. Perform a cold start on the IMS subsystem by entering the /ERE COLDSYS command.

## What to do next

You must complete the recovery procedure by following the instructions in [“Completing the recovery procedure without using RECON data sets” on page 44.](#)

### Related reference

[Database and area recovery status lists](#)

IMS DEDB Fast Recovery generates status lists for databases and areas. These lists are called the *recovery status lists* and contain the information you need to complete the IMS cold start process.

## Completing the recovery procedure without using RECON data sets

When the IMS subsystem is restarted, you must check the status of each database and area, and take necessary actions to complete the recovery procedure.

### Before you begin

Before starting the steps in this topic, you must restart the IMS subsystem by following the steps in “Restarting the IMS subsystem without using RECON data sets” on page 41.

### About this task

The steps in this topic guide you through the process of recovering DEDBs when the RECON data set cannot be used.

The entire recovery procedure is explained in three separate topics. The steps in this topic describe the third task, from the completion of IMS cold start to the end of the recovery procedure.

The following diagram depicts the flow of the recovery procedure from the completion of the IMS cold start to the end of the recovery procedure.

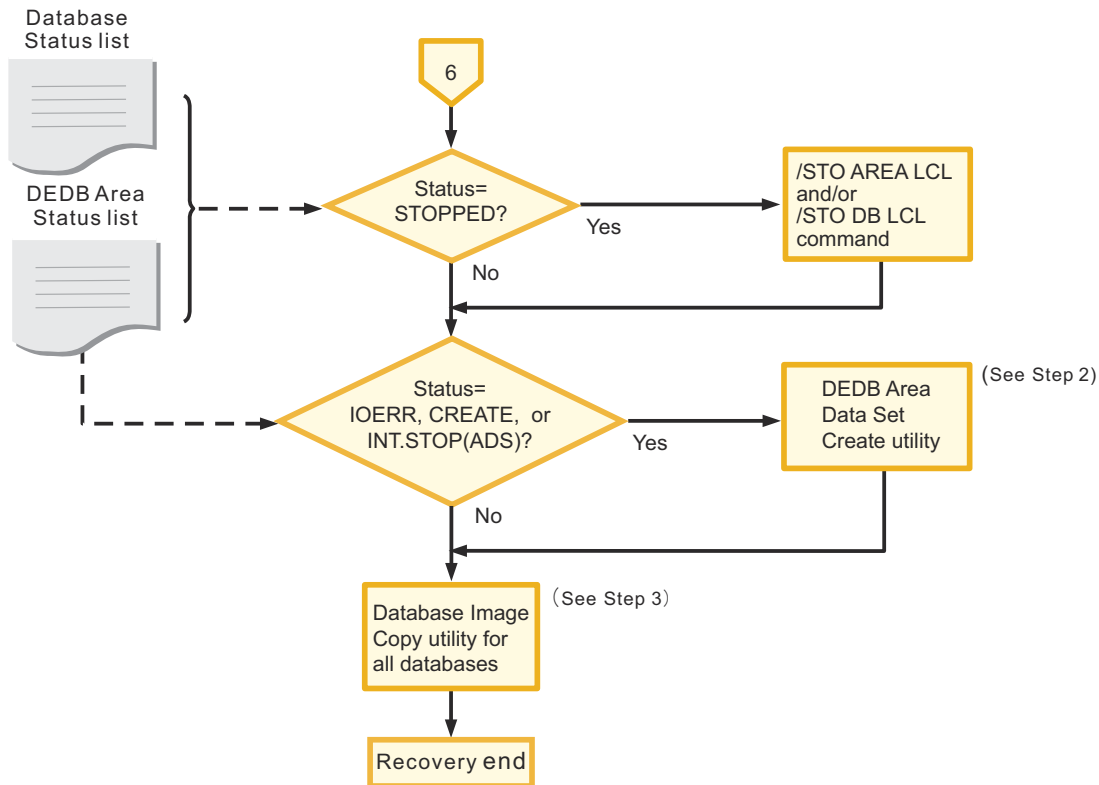


Figure 10. Operation procedure for no DBRC mode (DBRC=N) (Task 3 of 3)

### Procedure

1. Determine if any databases or areas have the status code of STOPPED.

See the status codes in the Database Status list and in the DEDB Area Status list. If a database or an area has this status code, issue the /STO DB LOCAL command, the /STO AREA LOCAL command, or both.

2. Determine if any areas have the status code of IOERR, CREATE, or INT.STOP(ADS).

See the status codes in the DEDB Area Status list. If any areas have one of these status codes, run the DEDB Area Data Set Create utility.

**Note:** You can run the DEDB Area Data Set Create utility any time after IMS online processing starts.

3. Run the Database Image Copy utility for all the databases.

The recovered RECON data set does not contain all necessary information for the Database Recovery utility and, therefore, the Database Image Copy utility must be performed for all databases as soon as possible.

### Related reference

#### Database and area recovery status lists

IMS DEDB Fast Recovery generates status lists for databases and areas. These lists are called the *recovery status lists* and contain the information you need to complete the IMS cold start process.

## Preparing and using Resync control statements

---

If any transactions have in-doubt status at IMS, MVS, or a system abnormal termination in a two-phase commit process environment such as DBCTL, you must use Resync control statements to specify whether to commit or abort the in-doubt transactions in the sync point process.

### Procedure

1. Determine which transactions have in-doubt status.

Select one of the following methods (1-a, 1-b, or 1-c) or make your own method for determining an in-doubt transaction that suits your environment.

#### 1-a.

List recovery tokens that have an in-doubt status at IMS failure.

The IMS master console log shows DFS0693I messages for RIS (Recoverable Indoubt Structure) created by transactions. The message shows the recovery token for the transaction. List these recovery tokens.

**Note:** Though the sync point process phase 1 of the transaction is completed, if RIS has not been created yet, you cannot get a recovery token.

#### 1-b.

Run IMS DEDB Fast Recovery to get recovery tokens with in-doubt status at IMS failure. The execution is done without specifying Resync control statements in the RESYNCTL DD. If there is a transaction with in-doubt status, IMS DEDB Fast Recovery ends with RC=16 without doing recovery and generates a Resync Control Statement list showing all recovery tokens of in-doubt transactions.

**Note:** This method is surer than method 1-a. If, however, there is an in-doubt transaction, you must run IMS DEDB Fast Recovery twice.

#### 1-c.

Take no action to determine the in-doubt transactions.

If the action for an in-doubt transaction is always the same, you do not have to determine the recovery tokens for in-doubt transactions. In this case, specify only UOR=ALL in Step [“3” on page 45](#).

2. Determine whether each in-doubt transaction must be committed or aborted.
3. Prepare the Resync control statements.

According to the result of Step [“1” on page 45](#) and [“2” on page 45](#), prepare the Resync control statements. See [“Resync control statement” on page 62](#) for information about coding the Resync control statements.

4. Run IMS DEDB Fast Recovery with the Resync control statements.

If you selected Step 1-a, IMS DEDB Fast Recovery cannot resolve the in-doubt status of a transaction that has completed the sync point process phase 1 but for which RIS has not been created yet. In this case, IMS DEDB Fast Recovery ends with RC=16 without recovery, and generates the Resync Control Statement list, which shows all recovery tokens for transactions in in-doubt status. Add the recovery tokens that have in-doubt status without RIS creation, and repeat the procedure, starting from Step “2” on page 45.

**Note:** IMS DEDB Fast Recovery writes a resync commit log record (X'5637') or resync abort log record (X'5638') according to Resync control statements. Then IMS DEDB Fast Recovery closes the OLDS. You cannot change the actions for in-doubt transactions after recovery.

## Preparing and using Area Recovery Retry control statements

---

IMS DEDB Fast Recovery generates the Area Recovery Retry control statements in the output data set that is specified by the RETLIST DD statement. By using the Area Recovery Retry control statements, you can reprocess only the selected the areas.

### About this task

To have IMS DEDB Fast Recovery generate the Area Recovery Retry control statement, the following conditions must be met:

- CFRET=Y is specified on the EXEC parameter.
- The RETLIST DD statement is provided as an output data set.
- The recovery of some block-level data-sharing VSO areas has failed because of connectivity errors in CF structures.

### Procedure

1. Specify CFRET=Y on the EXEC parameter. Also specify an output data set on the RETLIST DD statement.
2. Run IMS DEDB Fast Recovery.
3. If some block-level data-sharing VSO areas cannot be recovered because of connectivity errors for CF structures, Area Recovery Retry control statements are generated in the data set specified by the RETLIST DD statement. For such areas, a status of RETRY (*CFreason*) is shown in the DEDB Area Status list. *CFreason* indicates the cause of the error. See the DEDB Area Status list and remove the cause of the error.
4. Prepare Area Recovery Retry control statements in the input data set specified in the AREASLCT DD statement, and repeat from Step “2” on page 46.

### What to do next

1. If areas remain whose error cannot be removed by repetition of Step “2” on page 46, “3” on page 46, and “4” on page 46, they must be recovered by use of the Database Recovery utility. If DBRC=Y is specified, run IMS DEDB Fast Recovery with CFRET=N, or issue the DBRC command, to make the areas unavailable until they are recovered by the Database Recovery utility.
2. If there is no other connector for a block-level data-sharing VSO area and the recovery is completed successfully with IMS DEDB Fast Recovery, the structures related to the area are deleted from CF. If IMS DEDB Fast Recovery runs for the area again, IMS DEDB Fast Recovery recognizes it as a connectivity error, because there is no structure to be recovered. If IMS DEDB Fast Recovery runs with CFRET=N specified, the area is made unavailable. Be careful with the second or later execution.

### Related reference

[DEDB Area Status list](#)

For all DEDB areas that were open when IMS failed, the DEDB Area Status list describes the status of the areas after IMS DEDB Fast Recovery execution. The list provides the names of the available area data sets, the status of the area at the time when IMS failed, and the user actions required for each DEDB area.

## Restarting IMS with IMS emergency restart

After running IMS DEDB Fast Recovery, you can also perform the IMS emergency restart by using the /ERE COLDBASE command instead of the IMS cold start /ERE COLDSYS command.

The IMS emergency restart (/ERE COLDBASE) analyzes log records and determines that areas already recovered by IMS DEDB Fast Recovery are in *recovery-needed* status because IMS DEDB Fast Recovery writes no IMS log records for the database recovery and the IMS emergency restart does not recognize the recovery with IMS DEDB Fast Recovery. The message DFS2574I AREA=*areaname* STOPPED, RECOVERY NEEDED is issued. Although these areas and area data sets (ADSs) are recovered correctly by IMS DEDB Fast Recovery, they are marked as follows:

- RECOVERY NEEDED for the areas
- UNAVAIL for the all ADSs related to the area

You can resolve the unavailable status in the DBRC RECON data set by using DBRC commands. When you start IMS by using the /ERE COLDBASE command instead of the /ERE COLDSYS command, perform the following operations for the successfully recovered area and ADS in addition to the /ERE COLDSYS recovery procedures.

## Using IMS emergency restart when other IMS subsystems are active

Complete the following steps to restart the IMS subsystems with IMS emergency restart and to reset the status of areas when other IMS subsystems are active in the DEDB block-level data-sharing environment.

### Before you begin

The following steps assume that you are familiar with DBRC commands. For details about using DBRC commands, see *IMS Commands*.

### Procedure

1. Enter the /DBR AREA GLOBAL command or the /STO AREA command on all other IMS subsystems.

If the command is already entered for another reason, you do not need to enter it again.

2. Enter the /ERE COLDBASE command.

At the emergency restart completion, the following message is issued for each area recovered by IMS DEDB Fast Recovery.

```
DFS2574I AREA=areaname STOPPED, RECOVERY NEEDED
```

3. Enter the DBRC NOTIFY.RECOV command to reset the recovery-needed status.

```
NOTIFY.RECOV DBD(dbname) AREA(areaname) -  
ADDN(adsname) RCVTIME(yydddhmsst)
```

**Note:** The RCVTIME parameter of the DBRC NOTIFY.RECOV command requires that the effective time stamp shows the date when the specified area was recovered with an image copy data set. To specify this time stamp, you must have previously taken an image copy of the ADS.

4. Enter the DBRC CHANGE.ADS command to reset the ADS UNAVAIL status for other ADSs if they are in the multiple area data sets (MADS) environment.

```
CHANGE.ADS DBD(dbname) AREA(areaname) -  
ADDN(adsname) AVAIL
```

5. Enter the /STA AREA GLOBAL command.

## Using IMS emergency restart when no other IMS subsystems are active

Complete the following steps to restart the IMS subsystems with IMS emergency restart and to reset the status of areas when no other IMS subsystems are active in the DEDB block-level data-sharing environment, or when data sharing is not used.

### Before you begin

The following steps assume that you are familiar with DBRC commands. For details about using DBRC commands, see *IMS Commands*.

### Procedure

1. Enter the /ERE COLDBASE command.

At the emergency restart completion, the following message is issued for each area recovered by IMS DEDB Fast Recovery.

```
DFS2574I AREA=areaname STOPPED, RECOVERY NEEDED
```

2. Enter the DBRC NOTIFY.RECOV command to reset the recovery-needed status.

```
NOTIFY.RECOV DBD(dbname) AREA(areaname) -  
ADDN(adsname) RCVTIME(yydddhhmsst)
```

**Note:** The RCVTIME parameter of the DBRC NOTIFY.RECOV command requires that the effective time stamp shows the date when the specified area was recovered with an image copy data set. To specify this time stamp, you must have previously taken an image copy of the ADS.

3. Enter the DBRC CHANGE.ADS command to reset the ADS UNAVAIL status for other ADSs if they are in the multiple area data sets (MADS) environment.

```
CHANGE.ADS DBD(dbname) AREA(areaname) -  
ADDN(adsname) AVAIL
```

4. Enter the /STA AREA command.

---

## Chapter 4. JCL and control statements

The following topics describe the inputs that are required for an IMS DEDB Fast Recovery job.

**Topics:**

- [“Input to and output from IMS DEDB Fast Recovery” on page 49](#)
- [“JCL requirements ” on page 50](#)
- [“How log data sets are allocated” on page 61](#)
- [“Resync control statement” on page 62](#)
- [“Area Recovery Retry control statement” on page 63](#)
- [“Skeleton JCL for generating MSDB Dump Recovery utility JCL” on page 65](#)
- [“Skeleton JCL for generating DBRC commands ” on page 66](#)
- [“JCL examples” on page 67](#)

---

### Input to and output from IMS DEDB Fast Recovery

IMS DEDB Fast Recovery uses IMS resources that are required to recover data entry databases (DEDBs) as job input. When IMS DEDB Fast Recovery recovers DEDBs, it generates information about recovered DEDBs and other information that is needed for IMS cold start as job output.

The following figure shows the general data flow, input to, and output from IMS DEDB Fast Recovery.

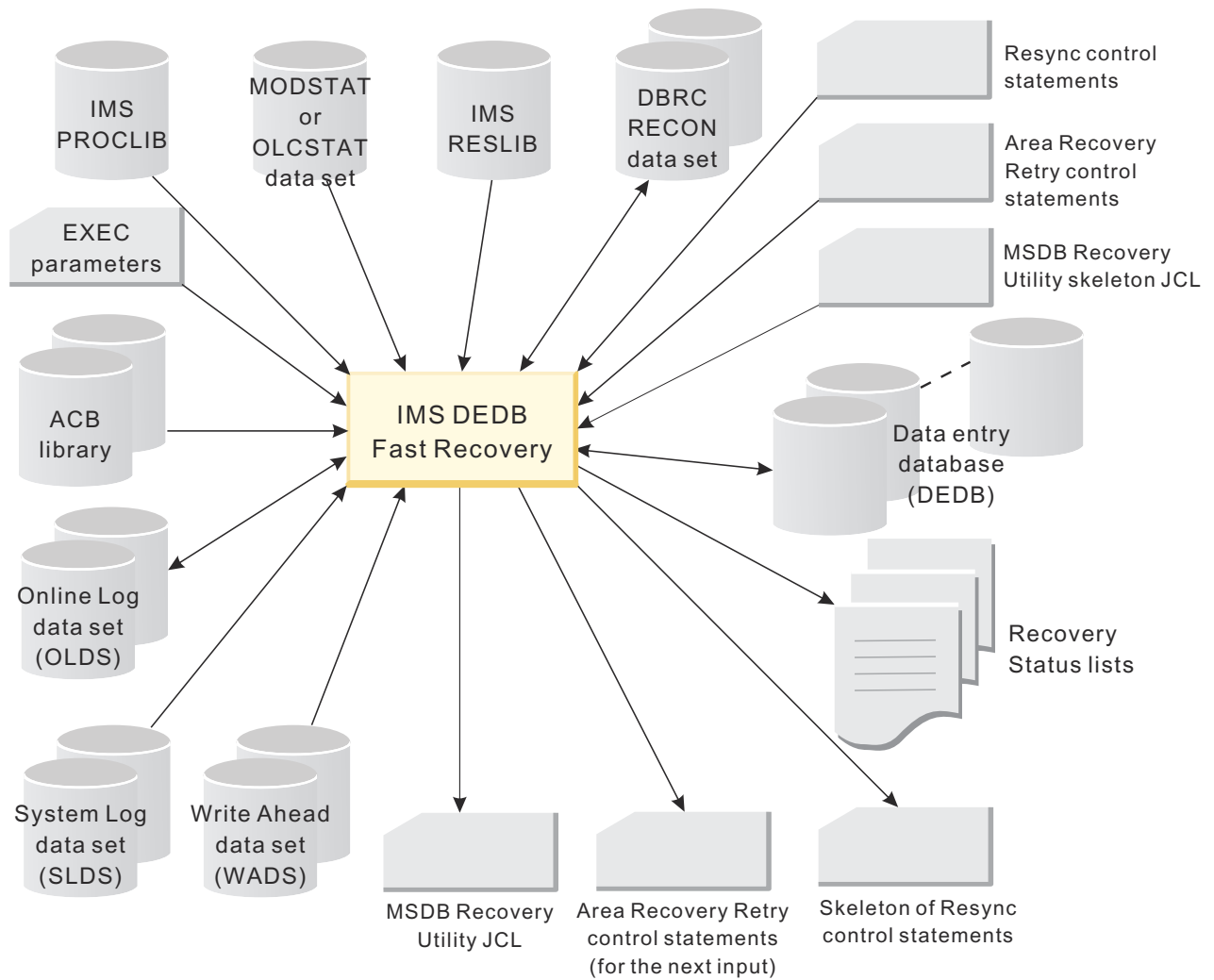


Figure 11. Input to and output from IMS DEDB Fast Recovery

## JCL requirements

IMS DEDB Fast Recovery provides easy procedures for setting up and running a job. Consider preparing the JCL ahead of time. IMS DEDB Fast Recovery runs as an MVS batch job.

IMS DEDB Fast Recovery requires the following JCL statements.

Subsections:

- [“JOB statement” on page 50](#)
- [“EXEC statement” on page 50](#)
- [“DD statements” on page 55](#)

For JCL examples, see [“JCL examples” on page 67](#).

### JOB statement

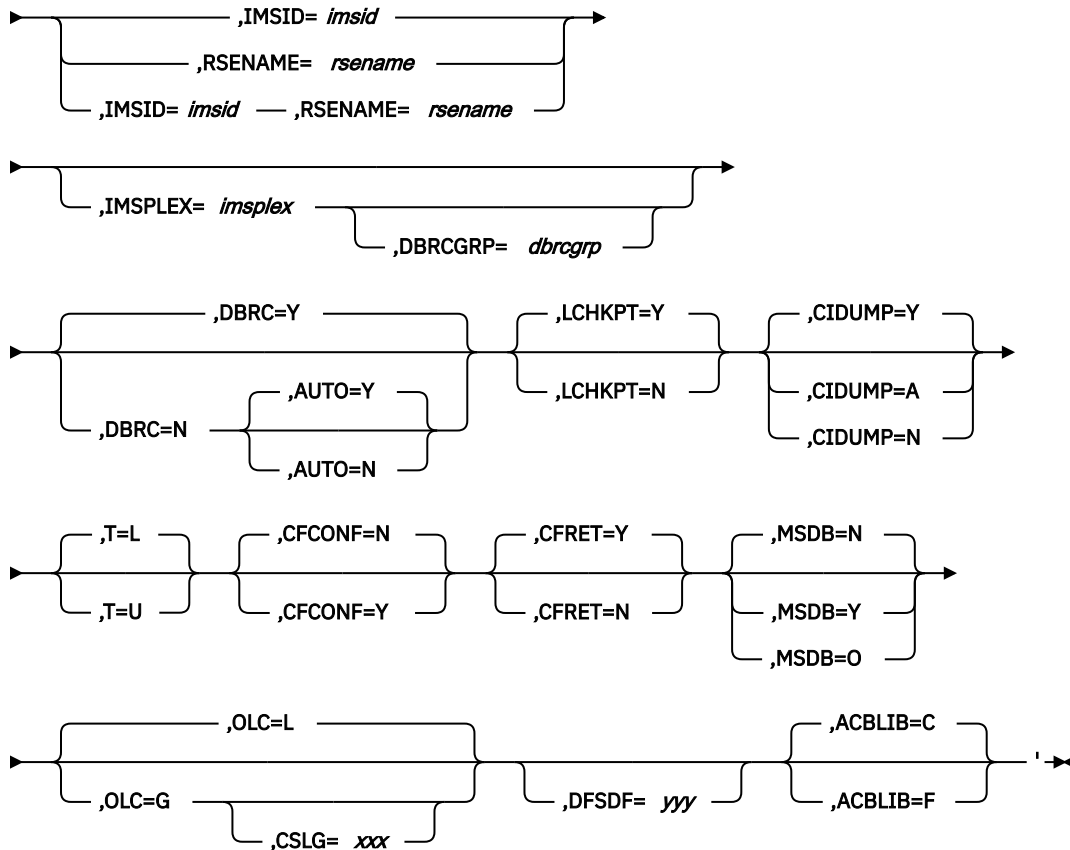
JOB indicates the start of JCL.

### EXEC statement

The EXEC statement must be in the following form:



►► EXEC — PGM=DFRMAIN0, — PARM= — ' — SUF= *suffix* —►



**SUF=*suffix***

Specifies a single-character control program nucleus identifier of the IMS system to be recovered.

There is no default value.

**IMSID=*imsid***

Specifies a subsystem identifier (one to four characters) of the IMS system to be recovered. This parameter must be specified when the IMS is not an extended recovery facility (XRF) complex or has *DBCTL standby* configuration. If the IMS has *DBCTL standby* configuration, both IMSID and RSENAME parameters are required. In other cases, the IMSID parameter is mutually exclusive with the RSENAME parameter.

There is no default value.

**RSENAME=*rrename***

Specifies the Recoverable Service Element (RSE) name (one to eight characters) of the IMS XRF complex to be recovered. This parameter must be specified if the IMS system is an XRF complex or has *DBCTL standby* configuration. If the IMS has *DBCTL standby* configuration, both IMSID and RSENAME parameters are required. In other cases, the RSENAME parameter is mutually exclusive with the IMSID parameter.

There is no default value.

**IMSPLEX=*implex***

Specifies the IMSplex name of the IMS system that is to be recovered, which must be an IMSplex group name identifier (one to five characters). This parameter must be specified only if both of the following two conditions are met:

- The DBRC=Y parameter is specified or defaulted
- The targeted IMS belongs to an IMSplex group represented by the IMSplex name

**Note:** When IMS DEDB Fast Recovery is run with these conditions, the automatic RECON loss notification is available.

You cannot give an IMSplex name by the SCI Registration exit routine (DSPSCIX0) that is provided by DBRC. For the details of the SCI Registration exit routine (DSPSCIX0), see *IMS Exit Routines*.

If a name is specified in the EXEC parameter, the name given in the exit overrides it.

If the targeted IMS does not belong to any IMSplex group, this parameter must not be specified. If it is, the job terminates abnormally with code U3512, according to the return code from DBRC.

There is no default value.

**DBRCGRP=dbrcgrp**

Specifies the DBRC group ID (one to three characters) of the IMS system that is to be recovered. The DBRC group ID is an identifier that is assigned to a group of DBRC instances that make an access to the same DBRC RECON data set in an IMSplex. This parameter must be specified only if all the following three conditions are met:

- The DBRC=Y parameter is specified or defaulted
- The targeted IMS was running through SCI
- The DBRC group ID is registered to identify the DBRC RECON data set in an IMSplex

The default is DBRCGRP=001 (It is the same as the default value of DBRC.)

The job will end abnormally with code U3512, according to the return code from DBRC as in the following cases:

- The DBRCGRP parameter is specified though the IMS system that is to be recovered belongs to the IMSplex group but does not belong to the DBRC group.
- The DBRCGRP parameter is not specified though the IMS system that is to be recovered belongs to the DBRC group.

If the DBRCGRP parameter is specified, you must also specify the IMSPLEX parameter. If you specify DBRC=Y or if you omit the DBRC parameter, and you specify the DBRCGRP parameter but do not specify the IMSPLEX parameter, message DFR3001E showing RSN=1B is issued, and the job ends with a return code of 16.

If the IMSPLEX parameter is specified, either of the following cases is possible:

- DBRC group ID is given by the SCI Registration exit routine (DSPSCIX0) provided by DBRC.
- The value specified by the DBRCGRP parameter can be overridden by the SCI Registration exit routine (DSPSCIX0) provided by DBRC. For the details of the SCI Registration exit routine (DSPSCIX0), see *IMS Exit Routines*.

**DBRC=**

Specifies whether to use the DBRC RECON data set to determine the last-used OLDS. The default is DBRC=Y.

Use DBRC=N only when all DBRC RECON data sets are unusable or when IMS DEDB Fast Recovery terminates abnormally because of a DBRC function failure. In either case, you must recover the DBRC RECON data sets, even if they are usable, after running IMS DEDB Fast Recovery and before the IMS cold start.

**AUTO=**

Specifies whether the automatic determination function is to be used for determining the last OLDS (AUTO=Y) or whether the operator will determine it manually by replying to the WTOR message (AUTO=N). This parameter is valid only when DBRC=N. The default is AUTO=Y.

**LCHKPT=**

Specifies whether to start recovery log processing from the Fast Path checkpoint (LCHKPT=Y) or from the checkpoint that is required for backout of DL/I databases (LCHKPT=N). The default is LCHKPT=Y.

If there are no DL/I database definitions for the IMS to be recovered, log processing starts from the Fast Path checkpoint regardless of this parameter.

Specify LCHKPT=N if the IMS to be recovered contains DL/I database definitions and the Backout Required PSB list, which lists databases that need backout, is required. If you specify LCHKPT=Y to reduce log processing time when there are DL/I database definitions, some of the databases that need backout might be left off the list. Even in this case, however, all the PSBs that need backout are listed.

**CIDUMP=**

Specifies whether to write a dump of the recovered CIs into the RCIDUMP data set when the data set is specified in the execution JCL.

**CIDUMP=Y**

Writes a dump of the recovered CIs. Even if the output operation is terminated abnormally because, for example, the output data set does not have enough space, the recovery process continues without writing the dump.

**CIDUMP=A**

Writes a dump of the recovered CIs. If the output is terminated abnormally because, for example, the output data set does not have enough space, IMS DEDB Fast Recovery also terminates abnormally.

**CIDUMP=N**

Does not write a dump of the recovered CIs.

The default is CIDUMP=Y. If CIDUMP=Y or CIDUMP=A is specified but the RCIDUMP data set is not in the JCL, the job terminates abnormally with an abend code of U3007.

**T=**

Specifies whether Universal Coordinated Time (UTC) is to be shown along with local time in the report header.

**T=L**

Only local time appears in each report header.

**T=U**

UTC appears along with local time in each report header.

The default is T=L.

**CFCONF=**

Specifies whether to suspend the IMS DEDB Fast Recovery execution when at least one connection to a CF structure, which belongs to a block-level data-sharing VSO area, fails. Specify CFCONF=Y to suspend the execution with a WTOR message (DFR3601A) when the connection to a CF structure fails. Specify CFCONF=N to allow its execution.

This parameter is effective only if the failed IMS system is using block-level data-sharing VSO areas.

The default is CFCONF=N.

**CFRET=**

Specifies the response to a CF connectivity error. CFRET=Y keeps a block-level data-sharing VSO area available on DBRC even if the recovery fails because of a CF connectivity error. CFRET=N makes the area unavailable with this kind of error.

This parameter is effective only if the failed IMS system is using block-level data-sharing VSO areas. The default is CFRET=Y.

The CFRET=Y execution generates Area Recovery Retry control statements into the RETLIST DD data set. The Area Recovery Retry control statements contain the names of the areas that were not made unavailable and were not recovered, and they are the input of AREASLCT DD statement for the next execution. You can selectively run IMS DEDB Fast Recovery again for the incomplete areas by specifying the area names in the AREASLCT DD statement. If the failed IMS system is using block-level data-sharing VSO areas and CFRET=Y is specified for IMS DEDB Fast Recovery execution, you must specify the RETLIST DD statement for output.

**Note:** If there is no other connector for a block-level data-sharing VSO area and the recovery is completed successfully with IMS DEDB Fast Recovery, the structures related to the area are deleted

from CF. If IMS DEDB Fast Recovery runs for the area again, IMS DEDB Fast Recovery recognizes the deleted structures as a connectivity error, because there is no structure to be recovered. The IMS DEDB Fast Recovery execution with CFRET=N and DBRC=Y specified makes the area unavailable on DBRC. Be careful for the second or later execution. Especially if IMS DEDB Fast Recovery terminates abnormally after the recovery of some block-level data-sharing VSO areas, specify CFRET=Y in the next execution to keep the areas available.

#### **MSDB=**

Specifies whether to automatically generate the input JCL for recovering the main storage database (MSDB) for the MSDB Dump Recovery utility. To generate it, specify MSDB=Y or MSDB=O. For the default, MSDB=N, the JCL is not generated. The specifications MSDB=Y and MSDB=O are different in how the MSDBCP $n$  DD statements will be specified in the JCL for the MSDB Dump Recovery utility ( $n$  represents from 1 to 4 when IMS system is an XRF complex, from 1 to 2 in other cases). The following lists describe the difference between MSDB=Y and MSDB=O.

#### **MSDB=Y**

The MSDBCP $n$  DD name and data set name pair specified for the JCL for IMS DEDB Fast Recovery will be used without change for the MSDBCP $n$  DD statement.

#### **MSDB=O**

Among the MSDB checkpoint data sets that contain 1) checkpoint IDs that are older than (or the same as) the Fast Path checkpoint ID of the relevant IMS and 2) valid data, IMS DEDB Fast Recovery selects the latest one. The name of the data set selected is used for all MSDBCP $n$  DD statements.

**Note:** The MSDB Dump Recovery utility selects the older MSDB checkpoint data set (of the later pair in an XRF complex) to recover an MSDB. If you specify MSDB=O, IMS DEDB Fast Recovery specifies the later data set for all MSDBCP $n$  DD statements in the output JCL for MSDB recovery. This shortens the recovery time, because the MSDB Dump Recovery utility always selects the later one.

MSDB=Y or MSDB=O can be specified with DBRC=Y or DBRC=N, AUTO=Y. If DBRC=N, AUTO=Y is specified, the following considerations apply:

- If the automatic determination function for the use of OLDS (AUTO=Y) does not work because the recovery checkpoint for DEDB is in an SLDS, the JCL creation function is deactivated when IMS DEDB Fast Recovery is terminated.
- If the recovery checkpoint for DEDB is in an OLDS but an SLDS is required for the MSDB Recovery, the JCL is generated without SLDS specification and warning message DFR3715W is issued.

#### **OLC=**

Specifies the scope of the online change of the IMS system to be recovered.

#### **OLC=L**

The online change applies locally to the IMS system, and IMS DEDB Fast Recovery decides the active ACBLIB data set on the basis of the record in the MODSTAT or the MODSTAT2 data set.

#### **OLC=G**

The online change, including the ACB library member online change function, applies globally to the IMS system—that is, the IMS system uses online change libraries consistently with other IMS systems across the IMSplex to which it belongs. On the basis of the record that is in the OLCSTAT data set, IMS DEDB Fast Recovery decides the active ACBLIB data set and then checks the availability of the ACB library members.

The default is OLC=L.

#### **CSLG=xxx**

This parameter is the same as the CSLG= parameter that is specified in the EXEC parameter or in the DFSPBxxx IMS.PROCLIB member of the IMS system that is to be recovered. Specify 1- to 3- character suffix of the DFSCGxxx IMS.PROCLIB member that contains parameters related to the Common Service Layer (CSL).

If OLC=G is specified, this parameter, the DFSDF parameter, or both must also be specified.

If OLC=L is specified, or if the OLC= parameter is omitted, this parameter will be ignored.

There is no default value.

### **DFSDF=yyy**

This parameter is the same as the DFSDF= parameter that is specified in the EXEC parameter or in the DFSPBxxx IMS.PROCLIB member of the IMS system that is to be recovered. Specify a 1- to 3-character suffix of the member name DFSDFyyy IMS.PROCLIB where the Common Service Layer (CSL) is specified as a section.

If OLC=G is specified, this parameter, the CSLG parameter, or both must also be specified.

If OLC=L is specified, or if the OLC= parameter is omitted, this parameter will be ignored.

There is no default value.

### **ACBLIB=**

Specifies whether to enable the automatic determination function. When this function is enabled, IMS DEDB Fast Recovery searches for active application control blocks (ACBs) and uses the detected active ACBs.

#### **ACBLIB=C**

IMS DEDB Fast Recovery detects active application control blocks automatically.

If the IMS management of ACBs is enabled, IMS DEDB Fast Recovery uses the active ACBs in the IMS directory.

If active ACBs are managed in ACBLIB data sets, IMS DEDB Fast Recovery uses the active ACBs found in the ACB library that the IMSACBA DD or IMSACBB DD statement specifies.

#### **ACBLIB=F**

IMS DEDB Fast Recovery uses the active ACBs found in the ACB library that the IMSACBA DD statement specifies.

Use ACBLIB=F only when the IMS management of ACBs is enabled and IMS directory data sets cannot be used.

The default is ACBLIB=C.

## **DD statements**

### **STEPLIB DD**

Specifies the library containing the IMS DEDB Fast Recovery load modules. Because IMS DEDB Fast Recovery runs as an MVS authorized program, this library must be registered as an APF authorized library. For an explanation of how to register, see the *MVS Initialization and Tuning Reference*.

The IMS.SDFSRESL (the library containing IMS load modules) of the IMS to be recovered must also be specified in the STEPLIB statement. IMS DEDB Fast Recovery uses the IMS module (DFSVC000) in the data set:

- By checking the version and release in the module, IMS DEDB Fast Recovery verifies and determines the version and release of the IMS being used.
- To display messages to the system console of the IMS to be recovered, IMS DEDB Fast Recovery uses the routing code and the descriptor code of the system console contained in the module.

IMS DEDB Fast Recovery also uses IMS DBRC modules.

A user-written logger exit routine (DFSFLGX0) is invoked during the execution of IMS DEDB Fast Recovery if the exit routine is present. DFSFLGX0 is called once with an initialization call, once with a write call for each log buffer of data that is written, and once with a termination call.

If you want to use automatic RECON loss notification, specify the data set that contains the dynamic allocation parameter lists for the DBRC RECON data sets in the IMSDALIB concatenation or the STEPLIB concatenation.

To use IMS-managed ACBs in an IMS managed ACB environment, specify the data set that contains the IMS Catalog Definition exit routine (DFS3CDX0) to the STEPLIB concatenation. To allocate the IMS directory data sets dynamically, specify the data set that contains the DFSMDA member with the TYPE=CATDSDLQ statement.

#### **PROCLIB DD**

When OLC=G is specified in the EXEC parameter, specify the IMS.PROCLIB data set which includes the DFSCGxxx member, DFSDFyyy member (xxx is the value specified in the CSLG= EXEC parameter, and yyy is the value specified in the DFSDF= EXEC parameter), or both. IMS DEDB Fast Recovery dynamically allocates the OLCSTAT data set by using the name that is specified in the OLCSTAT= parameter in the member. You do not need to specify the OLCSTAT DD statement in the JCL.

If the OLCSTAT= parameter is specified in both DFSCGxxx and DFSDFyyy, one in DFSCGxxx is used.

To use IMS-managed ACBs in an IMS managed ACB environment, specify the IMS.PROCLIB data set that includes the DFSDFxxx member (xxx is the value specified for the DFSDF= parameter of the EXEC statement). This member must contain the ACBMGMT=CATALOG parameter in the CATALOG *imsid* section or the CATALOG section. If both sections are defined in the member, IMS DEDB Fast Recovery uses definitions in the CATALOG *imsid* section.

#### **IMSDALIB DD**

Specifies the input data set containing the dynamic allocation parameter lists for log data sets.

If you want to use automatic RECON loss notification, specify the input data set that contains the dynamic allocation parameter lists for the DBRC RECON data sets in the IMSDALIB concatenation or the STEPLIB concatenation.

#### **IMSACBA DD**

#### **IMSACBB DD**

Specifies the ACB libraries of the IMS system to be recovered.

IMS DEDB Fast Recovery uses these libraries to initialize DEDB basic control blocks (DMCB and DMAC).

If the IMS management of ACBs is enabled, this parameter is ignored.

**Note:** If some of the databases specified in IMS definition are not actually used in the IMS subsystem, the NOTINIT status for those databases appears in a Database Status list. Even if ACBLIBs specified in the execution JCL are different from the ones used by the failed IMS, IMS DEDB Fast Recovery tries to redo DEDBs (apply the uncommitted update to the CI and write the updated CI to DASD) by using the libraries specified in the JCL when the libraries contain related necessary members. Because IMS DEDB Fast Recovery cannot detect this error, you must be careful in specifying the libraries to be used.

#### **IMSBSDS DD**

Specifies the IMS bootstrap data set. Use this DD statement to run IMS DEDB Fast Recovery in an IMS-managed ACBs environment without accessing DBRC RECON data sets.

This DD statement is useful when the IMS management of ACBs is enabled but the IMS catalog database is not registered to DBRC RECON data sets.

#### **Usage notes:**

- The final qualifier of the IMS bootstrap data set must be BSDS.
- If this DD statement is supplied, the DFSMDA member with the TYPE=CATDSDLQ statement is not used.
- This DD statement is mutually exclusive with ACBLIB=F in the EXEC parameter.

#### **MODSTAT DD**

#### **MODSTAT2 DD**

When OLC=L is specified or defaulted in the EXEC parameter, specify the MODSTAT data set of the IMS system to be recovered. The MODSTAT2 DD statement is necessary only if the IMS system is an XRF complex.

IMS DEDB Fast Recovery uses this data set to determine the name of the ACB library that was in use when IMS failed. For the IMS XRF complex, two data sets are necessary for the active and alternate IMS systems. For the recovery of warm standby IMS system in a DBCTL environment, specify the MODSTAT data set of the active IMS system, and not of the standby IMS system.

If OLC=G is specified in the EXEC parameter, these data sets are not required and will be ignored even if they are specified.

#### **OLCSTAT DD**

When OLC=G is specified in the EXEC parameter, specify the OLCSTAT data set of the IMS system that is to be recovered. Because IMS DEDB Fast Recovery dynamically allocates the OLCSTAT data set that is specified in the OLCSTAT= parameter in the DFSCGxxx IMS.PROCLIB member or the DFSDFyyy IMS.PROCLIB member (xxx is the value specified in the CSLG= EXEC parameter, and yyy is the value specified in the DFSDF= EXEC parameter), you do not need to specify this DD statement.

IMS DEDB Fast Recovery uses this data set for the following purposes:

- To determine the name of the ACB library that was in use when the IMS system failed.
- To check the status of the ACBLIB member OLC when the IMS system failed. If, however, the OLCSTAT data set is formatted by an IMS release earlier than IMS 10.1, the status of the ACBLIB member OLC is not checked.

#### **DFSWADS*n* DD**

Specifies the write-ahead data sets (WADSs) (where *n* is 0 - 9). You can specify all WADSs used during IMS online execution, but you must include the WADS that was in use when IMS failed. To avoid executing IMS DEDB Fast Recovery against the active IMS system, you must specify DISP=OLD in the DD statement.

WADSs that are defined as large format data sets and WADSs that are allocated in the extended addressing space (EAS) of an extended address volume (EAV) can be specified.

IMS DEDB Fast Recovery uses WADS to build log blocks not yet written in the OLDS that was in use when IMS failed, writes them at the end of that OLDS, and closes it.

IMS DEDB Fast Recovery can allocate the data set dynamically without the DD statement. See [“How log data sets are allocated”](#) on page 61.

#### **DFSOLP*nn* DD**

#### **DFSOLS*nn* DD**

Specifies the online log data sets (OLDSs) that IMS DEDB Fast Recovery is to read to determine the recovery start checkpoint. *nn* is 00 - 99. DFSOLP*nn* indicates the primary OLDS, and DFSOLS*nn* indicates the secondary OLDS. The OLDS ddnames are the same as the ddnames used at IMS online execution.

OLDSs that are defined as large format data sets, OLDSs that are defined as DFSMS striped extended-format data sets, and OLDSs that are allocated in the extended addressing space (EAS) of an extended address volume (EAV) can be specified.

If the transaction that did not reach a sync point at IMS failure had already created DL/I database update log records or Fast Path log records, IMS DEDB Fast Recovery creates and writes a sync point failure log record into the OLDS to invalidate those log records.

In a two-phase commit process environment such as DBCTL, for a transaction whose status at IMS failure was indoubt, IMS DEDB Fast Recovery creates a sync point commit or abort log record and writes it into the OLDS to resolve the in-doubt status. Resync control statements determine whether IMS DEDB Fast Recovery writes a sync point commit log record or a sync point abort log record. See [“Resync control statement”](#) on page 62.

IMS DEDB Fast Recovery can allocate the data set dynamically without the DD statement. See [“How log data sets are allocated”](#) on page 61.

**IMSLOGR DD**  
**IMSLOGR2 DD**  
**sssssss DD**

Specifies the system log data sets (SLDSs) that IMS DEDB Fast Recovery reads to determine the recovery start checkpoint.

SLDSs that are defined as large format data sets and SLDSs that are defined as DFSMS striped extended-format data sets can be specified.

If DBRC=Y, specify IMSLOGR (primary SLDS) and IMSLOGR2 (secondary SLDS). If multiple SLDSs are required, concatenate the data sets in the order they are used (the latest-used data set comes last) on each IMSLOGR and IMSLOGR2 DD statement.

If DBRC=N, specify DD statements with any ddnames (sssssss DD) to allocate the data sets. DD statements must be eight characters.

IMS DEDB Fast Recovery can allocate the data set dynamically without the DD statement. See [“How log data sets are allocated”](#) on page 61.

**RECON1 DD**  
**RECON2 DD**  
**RECON3 DD**

Specifies the DBRC RECON data set. These statements are required when DBRC=Y.

The DBRC RECON data set in parallel access mode can be specified.

The DBRC RECON data set that is allocated in the extended addressing space (EAS) of an extended address volume (EAV) can be specified.

If you want to use automatic RECON loss notification, specify the input data set that contains the dynamic allocation parameter lists for the DBRC RECON data sets in the IMSDALIB concatenation or the STEPLIB concatenation. Do not specify the RECON $n$  DD statement ( $n=1$  to 3).

IMS DEDB Fast Recovery uses this data set to determine the names of the IMS log data sets (OLDS or SLDS) to be used during IMS recovery. This data set is not necessary when DBRC=N.

IMS DEDB Fast Recovery updates the DBRC RECON data set for the following conditions:

- The DEDB area data set that could not be recovered because of an I/O error during the IMS DEDB Fast Recovery execution is registered as unavailable in the RECON data set. The nonrecoverable DEDB area data set that could not be recovered because of the uncommitted database changes is registered as unavailable in the RECON data set.
- If the DEDB Area Data Set Create utility was in process when IMS failed, IMS DEDB Fast Recovery updates the RECON data set to reset its in-process status to enable re-execution.
- If the DEDB area or the area data set was being stopped when IMS failed, IMS DEDB Fast Recovery continues processing and registers the area or the area data set as stopped in the RECON data set.
- In the IMS XRF complex, if the I/O toleration Extended Error Queue Element (EEQE) and the I/O toleration buffer existed when IMS failed, IMS DEDB Fast Recovery uses the buffer to recover the VSAM control interval (CI) in the DEDB area and then deletes the I/O toleration EEQE from the RECON data set.
- In a two-phase commit process environment such as DBCTL, if a transaction has an in-doubt status at IMS failure, and in-doubt EEQEs have been already created, IMS DEDB Fast Recovery deletes the following EEQEs:
  - For DEDB areas, it deletes all in-doubt EEQEs.
  - For a DL/I database, it deletes only the in-doubt EEQEs related to the transaction that IMS DEDB Fast Recovery commits.
- When IMS DEDB Fast Recovery closes the OLDS that was in use when IMS failed, it updates the OLDS information in the RECON data set.



**DEDBSNAP DD**

Specifies the output data set for a snap dump of the damaged DEDB VSAM CIs that IMS DEDB Fast Recovery reads for recovery. Snap dumps are generated only when this statement is specified.

**RCIDUMP DD**

Specifies the output data set for an image of the DEDB VSAM CIs updated by IMS DEDB Fast Recovery. It must be a sequential data set with a blocked variable record format. For the way to specify parameters for the output, see the explanation of the [CIDUMP=](#) parameter. If a BLKSIZE parameter on the RCIDUMP DD statement is omitted from the execution JCL, IMS DEDB Fast Recovery sets it to 32,760 bytes. If BLKSIZE is specified, the specified value is used. IMS DEDB Fast Recovery sets the maximum value of a variable logical record length to the value that is 4 bytes smaller than the block size. The value you specify for BLKSIZE in the RCIDUMP data set in the JCL must be equal to or greater than the maximum length of the CI expected to be written plus 40, because you must consider the maximum length of the recovered CI and the length of the control information written with the CI. For the format of the RCIDUMP data set, see [“RCIDUMP data set format” on page 97](#). You can print an image of the output VSAM CI as a snap dump using the Recovered CI Print program. See [Chapter 6, “Recovered CI Print program,” on page 91](#).

**RCISUMM DD**

Specifies the output data set for the number of the DEDB VSAM CIs recovered by IMS DEDB Fast Recovery. It lists the number of the CIs recovered in each area and the total number recovered.

**RCIBMAP DD**

Specifies the output data set for the bitmap of the DEDB VSAM CIs recovered by IMS DEDB Fast Recovery. It is written for each recovery buffer in each area.

**SYSPRINT DD**

Specifies the output data set for the recovery status lists that IMS DEDB Fast Recovery generates. This statement is required.

**RSYLIST DD**

Specifies the output data set for the skeleton of Resync control statements. If IMS DEDB Fast Recovery runs in a two-phase commit process environment such as DBCTL, specify the DD statement. Otherwise, the DD statement is not necessary, because there are no cases of resync.

IMS DEDB Fast Recovery generates the skeleton only in the following case:

- Some transactions have an in-doubt status, and
- No Resync control statement is specified in RESYNCTL DD, or the specified Resync control statements cannot resolve all in-doubt status transactions.

**RESYNCTL DD**

Specifies the input data set for Resync control statements that determine whether the in-doubt transaction is committed or aborted in the sync point process. It is mandatory if there are any in-doubt transactions. It is necessary only in the two-phase commit process environment. For more information, see [“Resync control statement” on page 62](#).

**RETLIST DD**

Specifies the output data set to generate Area Recovery Retry control statements, which become the input for the data set specified by the AREASLCT DD statement for the next execution. This is required if IMS DEDB Fast Recovery runs with CFRET=Y specified. For the recovery of the block-level data-sharing VSO area, if an error in connectivity to a CF structure occurs, IMS DEDB Fast Recovery gives up the recovery for the area without marking the area as needing recovery. Area Recovery Retry control statements generated in the data set contain the names of the areas. For Area Recovery Retry control statements, see [“Area Recovery Retry control statement” on page 63](#).

**AREASLCT DD**

Specifies the input data set containing Area Recovery Retry control statements. It is used to select the areas to be recovered. The selection can be applied only for DEDB areas. For Area Recovery Retry control statements, see [“Area Recovery Retry control statement” on page 63](#).

**MSDBIN DD**

Specifies the input data set that contains the skeleton JCL for the MSDB Dump Recovery utility. This data set is required when you specify MSDB=Y or MSDB=O. For the details of the skeleton JCL, read [“Skeleton JCL for generating MSDB Dump Recovery utility JCL”](#) on page 65.

**MSDBOUT1 DD****MSDBOUT2 DD**

Specifies the output data sets to which the JCL for the MSDB Dump Recovery utility will be written. One of these is required when you specify MSDB=Y or MSDB=O. You can specify either or both of them. If you specify both, the same JCL is written in both data sets.

```
//MSDBOUTn DD SYSOUT=(A,INTRDR)
```

By specifying MSDBOUT $n$  ( $n=1$  or  $2$ ) as is done here, you can submit the MSDB Dump Recovery utility job. By specifying MSDBOUT $n$  as a data set, you can have the output JCL written in it. In the IMS DEDB Fast Recovery internal process, the DCB specification is RECFM=FB, LRECL=80.

There is no log data set contention between IMS DEDB Fast Recovery and the MSDB Dump Recovery utility, because IMS DEDB Fast Recovery writes the JCL after all log data set processes are over.

**MSDBCP1 DD****MSDBCP2 DD****MSDBCP3 DD****MSDBCP4 DD**

Specifies the input data sets for MSDB checkpoint. These are required when you specify MSDB=Y or MSDB=O. The DD statements point to the MSDB checkpoint data sets. If the IMS system to recover is not an XRF complex, MSDBCP3 and MSDBCP4 are not required.

**DBRCIN DD**

Specifies the input data set that contains the skeleton JCL for the DBRC commands to notify backout elements. For more information, see [“Skeleton JCL for generating DBRC commands”](#) on page 66.

**DBRCOUTL DD****DBRCOUTV DD****DBRCOUTN DD**

Specifies the output data sets to which the DBRC commands with the skeleton JCL will be written. DBRCOUTL is required when you specify a DBRCIN DD statement. DBRCOUTV and DBRCOUTN are optional. The difference is as follows:

**DBRCOUTL**

All commands are written in this data set, though some might be incomplete because of lack of parameters.

**DBRCOUTV**

Of the commands written in DBRCOUTL, only the complete commands are written in this data set.

**DBRCOUTN**

Of the commands written in DBRCOUTL, only the incomplete commands are written in this data set.

**Note:** The time stamp of the X'5607' log record is in Universal Coordinated Time (UTC), and contains the signed packed-decimal local time zone offset for when the time stamp was created. The UOR time for DBRC commands is converted to local time and local time zone offset from the time stamp of X'5607' log record.

For more information, see [“Skeleton JCL for generating DBRC commands”](#) on page 66.

Because IMS DEDB Fast Recovery allocates the DEDB area data sets dynamically, DD statements for the DEDB area data sets are optional.

The DEDB area data sets that are allocated in the extended addressing space (EAS) of an extended address volume (EAV) can be specified.

**Note:** The Hardware Configuration Definition (HCD) helps relieve the virtual storage constraint by allowing UCBs to be defined in 31-bit storage above the 16 MB line (IODEVICE LOCANY=YES). IMS DEDB Fast Recovery can access the DEDB area data sets that reside on devices whose UCBs reside above the 16 MB line or below the 16 MB line. When you allocate JCL, IMS DEDB Fast Recovery creates a *Captured UCB* in private storage below the 16 MB line to allow access to the DEDB area data sets. The DEDB area data sets that are allocated with JCL will use the TIOT below the 16 MB line. In this case, the total number of DD statements which can be specified to IMS DEDB Fast Recovery cannot exceed the maximum limit of TIOT. However, to take advantage of the additional DD definition capacity that is provided by the Extended TIOT (XTIOT), you must use dynamic allocation if you specified IODEVICE LOCANY=YES or IODEVICE LOCANY=NO.

For more information about Hardware Configuration Definition, see the *Hardware Configuration Definition (HCD) User's Guide*.

IMS DEDB Fast Recovery determines the DISP= attribute for a data set as follows:

- DISP=SHR in an IMS XRF complex
- DISP=OLD if the area is registered to DBRC and SHARELVL=0
- DISP=SHR if the area is registered to DBRC and SHARELVL=1, 2, or 3
- DISP=OLD if the area is not registered to DBRC and the dynamic allocation parameter lists are not registered by the DFSMDA macro
- The same DISP= attribute as that of the DFSMDA macro if the area is not registered to DBRC and the dynamic allocation parameter lists are registered by the DFSMDA macro

## How log data sets are allocated

---

IMS DEDB Fast Recovery allocates the log data sets from the DD statements that are specified in the execution JCL. If the DD statements are not coded, IMS DEDB Fast Recovery dynamically allocates the log data sets.

Subsections:

- [“Allocation priority” on page 61](#)
- [“Log data set selection at DBRC=N, AUTO=Y execution” on page 62](#)

### Allocation priority

Regardless of the IMS DEDB Fast Recovery execution mode specified in the EXEC parameter, DD statements in the execution JCL are used with the top priority to allocate the log data sets (OLDS, WADS, or SLDS). If there is no DD statement for OLDS, SLDS, or WADS, the data set is allocated dynamically.

If IMS DEDB Fast Recovery runs with DBRC=Y specified, the data sets are allocated dynamically as follows:

#### **OLDS**

Allocated by using the data set name in the RECON data set (see [note 1](#)).

#### **SLDS**

Allocated by using the data set name in the RECON data set (see [note 1](#)).

#### **WADS**

The RECON data set has no data set name for WADS. It is allocated by using dynamic allocation parameter list member DFSWADS $n$  (see [note 2](#)).

If IMS DEDB Fast Recovery runs with DBRC=N specified, the data sets are allocated dynamically as follows:

#### **OLDS**

Allocated by using the dynamic allocation parameter list member DFSOLP $nn$ , DFSOLS $nn$  (see [note 2](#)).

#### **SLDS**

Allocated by using the dynamic allocation parameter list member IMSLOGR (see [notes 2](#) and [3](#)).

## WADS

Allocated by using the dynamic allocation parameter list member DFSWADS*n* (see [note 2](#)).

### Notes:

1. If IMS DEDB Fast Recovery uses a log data set name in the RECON data set, the user exit DFRXDYN0 is not called.
2. The member is registered with the DFSMDA macro. The member must be registered in the data set specified by the STEPLIB DD or the IMSDALIB DD statement. IMS DEDB Fast Recovery searches them first in STEPLIB DD, and then in IMSDALIB. IMS DEDB Fast Recovery loads the member into its own storage and performs dynamic allocation. You can use user exit DFRXDYN0 to change the data set name just before dynamic allocation.
3. Because there is no data set name in the dynamic allocation parameter list member IMSLOGR, user exit DFRXDYN0 is required to specify the data set name at dynamic allocation.

**Related reading:** For information about the DFRXDYN0 user exit routine, see [“DFRXDYN0 user exit”](#) on page 98.

### Log data set selection at DBRC=N, AUTO=Y execution

- AUTO=Y does not support the SLDS user environment. In other words, if the recovery start checkpoint is in SLDS, IMS DEDB Fast Recovery cannot start reading SLDS automatically. In this case, message DFR3110A is issued and the user must specify DD names for SLDS and OLDS.
- IMS DEDB Fast Recovery requires all OLDSs used by the failed IMS system. The series of OLDSs that contain a Recovery Startable checkpoint or later is not enough.

## Resync control statement

---

Resync control statements are used by IMS DEDB Fast Recovery to process the in-doubt transactions in the sync point process.

If there are any transactions with in-doubt status at IMS, MVS, or a system abnormal termination in a two-phase commit process environment such as DBCTL, use the Resync control statements to either commit or abort in the sync point process.

You can have IMS DEDB Fast Recovery prepare a skeleton of the Resync control statements for any in-doubt transactions that IMS DEDB Fast Recovery might detect during an IMS DEDB Fast Recovery job.

**Related reading:** See [“Preparing and using Resync control statements”](#) on page 45 for further information.

Subsections:

- [“Rules for control statements”](#) on page 62
- [“Control statement format”](#) on page 63

### Rules for control statements

- A control statement is coded in the form of an 80-column punched-card image between column 1 and column 72.
- A control statement must be in a single line; it cannot be continued on succeeding lines.
- The two keyword parameters UOR= and ACT= must be specified.
- A keyword parameter can start in any column, provided the statement ends by the 72nd column.
- No blanks can be inserted between keywords, =, and parameters.
- Two keyword parameters must be separated by commas (,), and no blanks are allowed before or after a comma (,).
- At least one blank is needed after the last (second) parameter, if the parameter does not end in the 72nd column.

- Characters following blanks after the last keyword in a control statement are regarded as comments.
- You cannot specify any keyword parameter more than once in a control statement.
- Two or more control statements cannot be specified for one in-doubt transaction.
- A control statement can be specified only for an in-doubt transaction.

## Control statement format



### UOR=*recovery-token* |ALL

#### *recovery-token*

Specifies the Recovery Token ID for an in-doubt transaction. The Recovery Token ID is 24 characters long. The first eight characters specify a subsystem ID. If the ID is shorter than 8 bytes, the ID starts from the left side and blank characters fill the remaining bytes. The next 16 characters specify 8-byte hexadecimal codes.

Example:

```
UOR=CICS1  A3E4F8B43EF0E902
```

#### ALL

Specifies that the process determined by the ACT= parameter is to be run for all in-doubt transactions. If the UOR=*recovery-token* is also specified, the action is superseded for the transaction.

Example:

```
UOR=ALL , ACT=COMMIT
UOR=CICS1  A3E4F8B43EF0E902 , ACT=ABORT
```

The transaction indicated by recovery token CICS1 A3E4F8B43EF0E902 is aborted. All other in-doubt transactions are committed.

### ACT=COMMIT|ABORT

#### COMMIT

Specify COMMIT to commit the transaction.

#### ABORT

Specify ABORT to abort the transaction.

Example of a statement:

```
UOR=CICS1  A3E4F8B43EF0E902 , ACT=COMMIT
```

### Related reference

#### [Resync Control Statement list](#)

The Resync Control Statement list is used to prepare Resync control statements correctly in a two-phase commit process environment such as DBCTL.

## Area Recovery Retry control statement

Area Recovery Retry control statements are used by IMS DEDB Fast Recovery to recover areas selectively without affecting other areas.

If a connectivity error occurs during an IMS DEDB Fast Recovery execution for which CFRET=Y is specified, and a block-level data-sharing VSO area is being recovered, IMS DEDB Fast Recovery gives up the recovery for the area but does not make the area unavailable. After removing the cause of the error, prepare a set of Area Recovery Retry control statements to recover the areas selectively and thus prevent

other areas from being affected. The *RETRY* (*CFreason*) status for such an area is shown in the DEDB Area Status list. *CFreason* indicates the cause of the error.

In the first run of IMS DEDB Fast Recovery, a skeleton of Area Recovery Retry control statement can be generated in the data set that is specified by the RETLIST DD statement. In the second run, that is, when IMS DEDB Fast Recovery is run only for selected areas, IMS DEDB Fast Recovery takes in the Area Recovery Retry control statements from the data set that is specified in the AREASLCT DD statement.

**Related reading:** See the description of the RETLIST DD statement in [“JCL requirements”](#) on page 50.

Subsections:

- [“Rules for Area Recovery Retry control statement”](#) on page 64
- [“Examples of Area Recovery Retry control statement”](#) on page 64

## Rules for Area Recovery Retry control statement

- A control statement and a keyword are coded in free format (columns 1–72) in an 80-byte record.
- A control statement with an asterisk (\*) in column 1 is treated as a comment.
- The first line must contain only one-character string, INCLUDE or EXCLUDE.

### INCLUDE

Specifies the names of the areas to be recovered in the subsequent lines.

### EXCLUDE

Specifies the names of the areas not to be recovered in the subsequent lines.

- The second or later lines have area names. Each name is separated from other names by one or more blanks.
- The maximum number of area names that can be specified is 1000.

## Examples of Area Recovery Retry control statement

If IMS DEDB Fast Recovery is to recover only the specified areas, the statement is as follows:

```
//AREASLCT DD *
INCLUDE
* THE FOLLOWING AREAS ARE RECOVERED
AREA0001 AREA0002 AREA0003 AREA0004 AREA0005 AREA0006
AREA0007 AREA0008 AREA0009 AREA0010 AREA0011 AREA0012
/*
```

If IMS DEDB Fast Recovery is to recover all areas except for the areas specified, the statement is as follows:

```
//AREASLCT DD *
EXCLUDE
* THE FOLLOWING AREAS ARE NOT RECOVERED
AREA0001 AREA0002 AREA0003 AREA0004 AREA0005 AREA0006
AREA0007 AREA0008 AREA0009 AREA0010 AREA0011 AREA0012
/*
```

### Related tasks

[Preparing and using Area Recovery Retry control statements](#)

IMS DEDB Fast Recovery generates the Area Recovery Retry control statements in the output data set that is specified by the RETLIST DD statement. By using the Area Recovery Retry control statements, you can reprocess only the selected the areas.

### Related reference

[DEDB Area Status list](#)

For all DEDB areas that were open when IMS failed, the DEDB Area Status list describes the status of the areas after IMS DEDB Fast Recovery execution. The list provides the names of the available area data sets, the status of the area at the time when IMS failed, and the user actions required for each DEDB area.

## Skeleton JCL for generating MSDB Dump Recovery utility JCL

IMS DEDB Fast Recovery generates DD statements for the MSDB Dump Recovery utility from the skeleton input. The output can be used as a part of JCL for the MSDB Dump Recovery utility.

Subsections:

- “[Skeleton JCL for creating MSDB Dump Recovery utility JCL](#)” on page 65
- “[\\$\\$ statements for MSDB Dump Recovery utility JCL](#)” on page 65

### Skeleton JCL for creating MSDB Dump Recovery utility JCL

The following figure is an example of a skeleton JCL for the MSDB Dump Recovery utility.

Specify `$$IEFRDER` where you want to insert the `IEFRDER` DD statement, and `$$MSDBCP` where you want to insert the `MSDBCPn` DD statements.

```
//MSDBRCV JOB (#ACNT),MSGCLASS=A,CLASS=A
//      EXEC PGM=DBFDBDRO
//*****
//* MSDB RECOVERY UTILITY *
//*****
//STEPLIB DD DSN=IMS.SDFSRESL,DISP=SHR
//SYSUDUMP DD SYSOUT=A
//MSDBPRT DD SYSOUT=A
//*          MESSAGE PRINT FILE
//MSDBINIT DD DSN=IMS.MSDBLM03,DISP=(NEW,CATLG,DELETE),
//          UNIT=SYSDA,VOL=SER=IMSDCL,
//          DCB=(BLKSIZE=13030,RECFM=VBT,LRECL=13026),
//          SPACE=(CYL,1)
$$MSDBCP
$$IEFRDER
//*          RECOVER ALL MSDB'S
//MSDBCTL DD *
//          RECOVERY DBN=ALL
/*
```

Figure 12. Skeleton JCL for the MSDB Dump Recovery utility

The JCL is written in the input data set specified by the `MSDBIN` DD statement. The completed JCL statements are written in the output data set specified by `MSDBOUT1` and `MSDBOUT2` DD statements. These two data sets produce the same output data.

### \$\$ statements for MSDB Dump Recovery utility JCL

The `$$` statement is specified in the skeleton JCL, and will be replaced by necessary DD statements in the generated JCL. If the first and second columns of the skeleton JCL contain `$$`, the line is interpreted as a `$$` statement. The `$$` statements can be specified multiple times. If there is an error in the `$$` statement, the error statement is ignored and the process is continued.

There are two types of `$$` statements:

#### `$$IEFRDER` or `$$stepname.IEFRDER`

If you want to specify a job step name, specify *stepname*. An `IEFRDER` DD statement, with `DSN=` and `DISP=SHR` subparameters, will be inserted at this place.

This DD statement describes the log data sets that contain the IMS system log, which is used for the MSDB recovery operations. In a dual logging environment, if an error is detected in the primary log data set, the secondary log data set name will be set.

### **\$\$MSDBCP or \$\$stepname.MSDBCP**

If you want to specify a job step name, specify *stepname*. An MSDBCP $n$  DD statement, with DSN= and DISP=SHR subparameters, will be inserted at this place.  $n$  is from 1 to 4 when the IMS system to recover is an XRF complex, from 1 to 2 in other cases.

This DD statement describes the MSDB checkpoint data sets. The specification differs according to how you specify MSDB=. For details of specifying the MSDB= parameter, read “[JCL requirements](#)” on [page 50](#).

## **Skeleton JCL for generating DBRC commands**

IMS DEDB Fast Recovery generates DBRC commands for creating backout records from the skeleton input. You can use the output for submitting DBRC commands.

Subsections:

- “[Skeleton JCL for generating a JCL with DBRC commands](#)” on [page 66](#)
- “[\\$\\$ statement for generating DBRC commands](#)” on [page 66](#)

### **Skeleton JCL for generating a JCL with DBRC commands**

The following figure is an example of a skeleton JCL for generating DBRC NOTIFY.BKOUT and CHANGE.BKOUT commands.

Specify \$\$DBRCBK0 where you want to insert the DBRC NOTIFY.BKOUT and CHANGE.BKOUT commands to create backout records.

```
//DBRCCMD JOB (#ACNT) ,MSGCLASS=A, CLASS=A
//*****
//* DBRC COMMAND *
//*****
// EXEC PGM=DSPURX00
//STEPLIB DD DSN=IMS.SDFSRESL,DISP=SHR
//SYSPRINT DD SYSOUT=*
//SYSUDUMP DD SYSOUT=*
//RECON1 DD DSN=IMS.RECON1,DISP=SHR
//RECON2 DD DSN=IMS.RECON2,DISP=SHR
//RECON3 DD DSN=IMS.RECON3,DISP=SHR
//SYSIN DD *
$$DBRCBK0
/*
```

*Figure 13. Skeleton JCL for DBRC commands*

The JCL is written in the input data set specified by the DBRCIN DD statement. The completed commands with the skeleton JCL are written in the output data set specified by the following data sets.

#### **DBRCOUTL**

All commands are written in this data set, though some might be incomplete because of lack of parameters.

#### **DBRCOUTV**

Of the commands written in DBRCOUTL, only the complete commands are written in this data set.

#### **DBRCOUTN**

Of the commands written in DBRCOUTL, only the incomplete commands are written in this data set.

### **\$\$ statement for generating DBRC commands**

The \$\$ statement is specified in the skeleton JCL, and will be replaced by DBRC commands in the generated JCL. If the first and second columns of the skeleton JCL contain \$\$, the line is interpreted as a \$\$ statement. The \$\$ statements can be specified multiple times. If there is an error in the \$\$ statement, the error statement is ignored and the process is continued.



## \$\$DBRCBKO

DBRC commands to create backout records will be inserted at this place. The first command is NOTIFY.BKOUT; the second or later ones are CHANGE.BKOUT commands. These commands are accompanied by SSID, PSB, DBD, UOR, and UORTIME parameters. All created commands appear in the data set specified by DBRCOUTL DD statements. If IMS DEDB Fast Recovery cannot create UORTIME and or DBD parameters, they appear as XXXXXXXXXXXXXXXXXXXX+XX:XX, XXXXXXXX, or both. These incomplete commands appear in the data set specified by DBRCOUTN DD statements. The complete commands appear in the data set specified by the DBRCOUTV DD statements.

The following figure is an example of the commands generated.

```
NOTIFY.BKOUT  SSID(IMA1      ) -
               UOR(C9D4C1F14040404000000000100000000) -
               UORTIME(16296170644413109+09:00) -
               PSB(FPLOAD16) -
               DBD(DH41TS01,DX41TS01)
CHANGE.BKOUT  SSID(IMA1      ) -
               UOR(C9D4C1F14040404000000000200000000) -
               UORTIME(16296170702008210+09:00) -
               PSB(FPLOAD17) -
               DBD(DH41M502,DX41M502)
```

**Note:** If you specify LCHKPT=Y on the EXEC parameter, you might see incomplete commands.

## JCL examples

You can use sample JCL statements to prepare your IMS DEDB Fast Recovery JCL statements.

Subsections:

- [“IMS DEDB Fast Recovery sample JCL: Non-XRF complex” on page 67](#)
- [“IMS DEDB Fast Recovery sample JCL: XRF complex” on page 68](#)
- [“IMS DEDB Fast Recovery sample JCL: Two-phase commit process environment” on page 68](#)
- [“IMS DEDB Fast Recovery sample JCL: Global online change environment” on page 69](#)
- [“IMS DEDB Fast Recovery sample JCL: IMS management of ACBs environment \(Catalog Definition exit routine\)” on page 69](#)
- [“IMS DEDB Fast Recovery sample JCL: IMS management of ACBs environment \(DFSDFxxx PROCLIB member\)” on page 70](#)

### IMS DEDB Fast Recovery sample JCL: Non-XRF complex

The following figure shows a sample JCL for IMS DEDB Fast Recovery for a non-XRF complex.

```

//DFRG01 JOB (ACCT#),PGMRNAME,
//      MSGCLASS=A,CLASS=A,MSGLEVEL=(1,1)
//DFR EXEC PGM=DFRMAIN0,PARM='DBRC=Y,SUF=C,IMSID=IMA1'
//STEPLIB DD DSN=DFR.SDFRLMD0,DISP=SHR
//      DD DSN=IMS.SDFSRESL,DISP=SHR
//SYSPRINT DD SYSOUT=A
//SYSUDUMP DD SYSOUT=A
//RCIDUMP DD DSN=DFR.RCIDUMP,DISP=SHR
//RCISUMM DD SYSOUT=A
//RCIBMAP DD SYSOUT=A
//DEDBSNAP DD SYSOUT=A
//MODSTAT DD DSN=IMS.MODSTAT,DISP=SHR
//IMSACBA DD DSN=IMS.ACBLIBA,DISP=SHR
//IMSACBB DD DSN=IMS.ACBLIBB,DISP=SHR
//DFSWADS0 DD DSN=IMS.WADS0,DISP=SHR
//DFSWADS1 DD DSN=IMS.WADS1,DISP=SHR
//DFSOLP00 DD DSN=IMS.OLP00,DISP=SHR
//DFSOLS00 DD DSN=IMS.OLS00,DISP=SHR
//DFSOLP01 DD DSN=IMS.OLP01,DISP=SHR
//DFSOLS01 DD DSN=IMS.OLS01,DISP=SHR
//DFSOLP02 DD DSN=IMS.OLP02,DISP=SHR
//DFSOLS02 DD DSN=IMS.OLS02,DISP=SHR
//RECON1 DD DSN=IMS.RECON1,DISP=SHR
//RECON2 DD DSN=IMS.RECON2,DISP=SHR
//RECON3 DD DSN=IMS.RECON3,DISP=SHR

```

Figure 14. Sample JCL for IMS DEDB Fast Recovery (non-XRF complex)

### IMS DEDB Fast Recovery sample JCL: XRF complex

The following figure shows a sample JCL for IMS DEDB Fast Recovery for an XRF complex.

```

//DFRG02 JOB (ACCT#),PGMRNAME,
//      MSGCLASS=A,CLASS=A,MSGLEVEL=(1,1)
//DFR EXEC PGM=DFRMAIN0,PARM='DBRC=Y,SUF=M,RSENAME=XRFIMSA'
//STEPLIB DD DSN=DFR.SDFRLMD0,DISP=SHR
//      DD DSN=IMS.SDFSRESL,DISP=SHR
//SYSPRINT DD SYSOUT=A
//SYSUDUMP DD SYSOUT=A
//RCIDUMP DD DSN=DFR.RCIDUMP,DISP=SHR
//RCISUMM DD SYSOUT=A
//RCIBMAP DD SYSOUT=A
//DEDBSNAP DD SYSOUT=A
//MODSTAT DD DSN=IMS.MODSTAT,DISP=SHR
//MODSTAT2 DD DSN=IMS.MODSTAT2,DISP=SHR <===== XRF ONLY
//IMSACBA DD DSN=IMS.ACBLIBA,DISP=SHR
//IMSACBB DD DSN=IMS.ACBLIBB,DISP=SHR
//DFSWADS0 DD DSN=IMS.WADS0,DISP=SHR
//DFSWADS1 DD DSN=IMS.WADS1,DISP=SHR
//DFSOLP00 DD DSN=IMS.OLP00,DISP=SHR
//DFSOLS00 DD DSN=IMS.OLS00,DISP=SHR
//DFSOLP01 DD DSN=IMS.OLP01,DISP=SHR
//DFSOLS01 DD DSN=IMS.OLS01,DISP=SHR
//DFSOLP02 DD DSN=IMS.OLP02,DISP=SHR
//DFSOLS02 DD DSN=IMS.OLS02,DISP=SHR
//RECON1 DD DSN=IMS.RECON1,DISP=SHR
//RECON2 DD DSN=IMS.RECON2,DISP=SHR
//RECON3 DD DSN=IMS.RECON3,DISP=SHR

```

Figure 15. Sample JCL for IMS DEDB Fast Recovery (XRF complex)

### IMS DEDB Fast Recovery sample JCL: Two-phase commit process environment

The following figure shows a sample JCL for IMS DEDB Fast Recovery for a two-phase commit process environment.

```

//DFRG03 JOB (ACCT#),PGMRNAME,
// CLASS=H,MSGCLASS=A,MSGLEVEL=(1,1)
//DFR EXEC DSN=DFRMAIN0,PARM='DBRC=Y,SUF=C,IMSID=IMA1'
//STEPLIB DD DSN=DFR.SDFRLMD0,DISP=SHR
// DD DSN=IMS.SDFSRESL,DISP=SHR
//SYSPRINT DD SYSOUT=A
//SYSABEND DD SYSOUT=A
//RCIDUMP DD DSN=DFR.RCIDUMP,DISP=SHR
//RCISUMM DD SYSOUT=A
//RCIBMAP DD SYSOUT=A
//DEDBSNAP DD SYSOUT=A
//MODSTAT DD DSN=IMS.MODSTAT,DISP=SHR
//IMSACBA DD DSN=IMS.ACBLIBA,DISP=SHR
//IMSACBB DD DSN=IMS.ACBLIBB,DISP=SHR
//DFSWADS0 DD DSN=IMS.WADS0,DISP=OLD
//DFSWADS1 DD DSN=IMS.WADS1,DISP=OLD
//DFSOLP00 DD DSN=IMS.OLP00,DISP=OLD
//DFSOLS00 DD DSN=IMS.OLS00,DISP=OLD
//DFSOLP01 DD DSN=IMS.OLP01,DISP=OLD
//DFSOLS01 DD DSN=IMS.OLS01,DISP=OLD
//DFSOLP02 DD DSN=IMS.OLP02,DISP=OLD
//DFSOLS02 DD DSN=IMS.OLS02,DISP=OLD
//RECON1 DD DSN=IMS.RECON1,DISP=SHR
//RECON2 DD DSN=IMS.RECON2,DISP=SHR
//RECON3 DD DSN=IMS.RECON3,DISP=SHR
//RSYLIST DD SYSOUT=B <=== 2 PHASE COMMIT PROCESS ONLY
//RESYNCTL DD * <=== 2 PHASE COMMIT PROCESS ONLY
UOR=CICS1 AECC2DEBBD6B9E07,ACT=COMMIT <=== 2 PHASE COMMIT PROCESS ONLY
/* <=== 2 PHASE COMMIT PROCESS ONLY

```

Figure 16. Sample JCL for IMS DEDB Fast Recovery (two-phase commit process environment)

## IMS DEDB Fast Recovery sample JCL: Global online change environment

The following figure shows a sample JCL for IMS DEDB Fast Recovery for a global online change environment.

```

//DFRG04 JOB (ACCT#),PGMRNAME,
// CLASS=H,MSGCLASS=A,MSGLEVEL=(1,1)
//DFR EXEC DSN=DFRMAIN0,
// PARM='DBRC=Y,SUF=C,IMSID=IMA1,OLC=G,CSLG=G01'
//STEPLIB DD DSN=DFR.SDFRLMD0,DISP=SHR
// DD DSN=IMS.SDFSRESL,DISP=SHR
//PROCLIB DD DSN=IMS.PROCLIB,DISP=SHR
//SYSPRINT DD SYSOUT=A
//SYSABEND DD SYSOUT=A
//RCIDUMP DD DSN=DFR.RCIDUMP,DISP=SHR
//RCISUMM DD SYSOUT=A
//RCIBMAP DD SYSOUT=A
//DEDBSNAP DD SYSOUT=A
//*OLCSTAT DD DSN=IMS.OLCSTAT,DISP=SHR <== OPTIONAL
//IMSACBA DD DSN=IMS.ACBLIBA,DISP=SHR
//IMSACBB DD DSN=IMS.ACBLIBB,DISP=SHR
//DFSWADS DD DSN=IMS.WADS0,DISP=OLD
//DFSWADS1 DD DSN=IMS.WADS1,DISP=OLD
//DFSOLP00 DD DSN=IMS.OLP00,DISP=OLD
//DFSOLS00 DD DSN=IMS.OLS00,DISP=OLD
//DFSOLP01 DD DSN=IMS.OLP01,DISP=OLD
//DFSOLS01 DD DSN=IMS.OLS01,DISP=OLD
//DFSOLP02 DD DSN=IMS.OLP02,DISP=OLD
//DFSOLS02 DD DSN=IMS.OLS02,DISP=OLD
//RECON1 DD DSN=IMS.RECON1,DISP=SHR
//RECON2 DD DSN=IMS.RECON2,DISP=SHR
//RECON3 DD DSN=IMS.RECON3,DISP=SHR
/*

```

Figure 17. Sample JCL for IMS DEDB Fast Recovery (global online change environment)

## IMS DEDB Fast Recovery sample JCL: IMS management of ACBs environment (Catalog Definition exit routine)

The following figure is a sample JCL for IMS DEDB Fast Recovery to run in an IMS management of ACBs environment using the Catalog Definition exit routine (DFS3CDX0).

```

//DFRGO5 JOB (ACCT#),PGMRNAME,
//      class="H",MSGCLASS=A,MSGLEVEL=(1,1)
//DFR EXEC DSN=DFRMAIN0,
//      PARM='DBRC=Y,SUF=C,IMSID=IMA1'
//STEPLIB DD DSN=DFR.SDFRLMD0,DISP=SHR
//      DD DSN=DFR.USERLIB,DISP=SHR
//      DD DSN=IMS.SDFSRESL,DISP=SHR
//SYSPRINT DD SYSOUT=A
//SYSABEND DD SYSOUT=A
//RCIDUMP DD DSN=DFR.RCIDUMP,DISP=SHR
//RCISUMM DD SYSOUT=A
//RCIBMAP DD SYSOUT=A
//DEDBSNAP DD SYSOUT=A
//DFSWADS DD DSN=IMS.WADS0,DISP=OLD
//DFSWADS1 DD DSN=IMS.WADS1,DISP=OLD
//DFSOLP00 DD DSN=IMS.OLP00,DISP=OLD
//DFSOLS00 DD DSN=IMS.OLS00,DISP=OLD
//DFSOLP01 DD DSN=IMS.OLP01,DISP=OLD
//DFSOLS01 DD DSN=IMS.OLS01,DISP=OLD
//DFSOLP02 DD DSN=IMS.OLP02,DISP=OLD
//DFSOLS02 DD DSN=IMS.OLS02,DISP=OLD
//RECON1 DD DSN=IMS.RECON1,DISP=SHR
//RECON2 DD DSN=IMS.RECON2,DISP=SHR
//RECON3 DD DSN=IMS.RECON3,DISP=SHR
/*

```

Figure 18. Sample JCL for IMS DEDB Fast Recovery (IMS management of ACBs environment using DFS3CDX0)

### IMS DEDB Fast Recovery sample JCL: IMS management of ACBs environment (DFSDFxxx PROCLIB member)

The following figure is a sample JCL for IMS DEDB Fast Recovery to run in an IMS management of ACBs environment using the DFSDF= parameter and the PROCLIB DD statement. The DFSDF= parameter and the PROCLIB DD statements specify the DFSDFxxx member of the IMS.PROCLIB data set.

```

//DFRGO6 JOB (ACCT#),PGMRNAME,
//      class="H",MSGCLASS=A,MSGLEVEL=(1,1)
//DFR EXEC DSN=DFRMAIN0,
//      PARM='DBRC=Y,SUF=C,IMSID=IMA1,DFSDF=001'
//STEPLIB DD DSN=DFR.SDFRLMD0,DISP=SHR
//      DD DSN=IMS.SDFSRESL,DISP=SHR
//PROCLIB DD DSN=IMS.PROCLIB,DISP=SHR
//SYSPRINT DD SYSOUT=A
//SYSABEND DD SYSOUT=A
//RCIDUMP DD DSN=DFR.RCIDUMP,DISP=SHR
//RCISUMM DD SYSOUT=A
//RCIBMAP DD SYSOUT=A
//DEDBSNAP DD SYSOUT=A
//DFSWADS DD DSN=IMS.WADS0,DISP=OLD
//DFSWADS1 DD DSN=IMS.WADS1,DISP=OLD
//DFSOLP00 DD DSN=IMS.OLP00,DISP=OLD
//DFSOLS00 DD DSN=IMS.OLS00,DISP=OLD
//DFSOLP01 DD DSN=IMS.OLP01,DISP=OLD
//DFSOLS01 DD DSN=IMS.OLS01,DISP=OLD
//DFSOLP02 DD DSN=IMS.OLP02,DISP=OLD
//DFSOLS02 DD DSN=IMS.OLS02,DISP=OLD
//RECON1 DD DSN=IMS.RECON1,DISP=SHR
//RECON2 DD DSN=IMS.RECON2,DISP=SHR
//RECON3 DD DSN=IMS.RECON3,DISP=SHR
/*

```

Figure 19. Sample JCL for IMS DEDB Fast Recovery (IMS management of ACBs environment using the DFSDFxxx PROCLIB member)

---

## Chapter 5. Database and area recovery status lists

IMS DEDB Fast Recovery generates status lists for databases and areas. These lists are called the *recovery status lists* and contain the information you need to complete the IMS cold start process.

By using the specified system logs, IMS DEDB Fast Recovery identifies all DEDB areas that need recovery, allocates them dynamically, and performs recovery.

IMS DEDB Fast Recovery generates the following recovery status lists. Examples and further descriptions for the lists are provided in the following topics.

### **Backout Required PSB list**

This list names the DL/I databases and associated PSB names that have to be backed out by the IMS Batch Backout utility.

### **Database Status list and the DEDB Area Status list**

These lists show the status of the DL/I databases and DEDB areas at the time when IMS failed, and provide actions required before and after IMS cold start to maintain database integrity.

### **OLDS/SLDS list**

This list shows which log data sets were used by IMS DEDB Fast Recovery.

### **DEDB Snap Dump list**

This list provides snap dumps of the damaged area control intervals (CIs) that IMS DEDB Fast Recovery reads to recover a DEDB.

### **OLDS Sort list**

This list is produced only when certain parameters are specified.

If DBRC=N and AUTO=Y are specified, IMS DEDB Fast Recovery determines the last-used and previously used OLDS and prints the OLDS Sort list of OLDSs used and their status.

### **Recovered CI Summary list**

This list shows the number of VSAM CIs recovered and the information associated with the CIs in each area where IMS DEDB Fast Recovery recovered VSAM CIs.

### **Recovered Data CI Bitmap**

This list shows bitmap of the updated data CIs for each recovery buffer in each area.

### **Resync Control Statement list**

This list is provided to prepare Resync control statements correctly in a two-phase commit process environment such as DBCTL.

### **External Subsystem (ESS) UOR Status list**

This list shows in-doubt UORs in the external subsystem; for example, a Db2<sup>®</sup> subsystem is one of the external subsystems. When the failed IMS was the sync point coordinator, this list provides the actions required for the in-doubt UORs in the external subsystem.

### **MSDB Checkpoint Data Set list**

This list is generated when you run IMS DEDB Fast Recovery with MSDB=Y or MSDB=O specified. It is generated in the data set specified by the SYSPRINT DD statement.

### **Topics:**

- [“Backout Required PSB list” on page 72](#)
- [“Database Status list ” on page 72](#)
- [“OLDS/SLDS list” on page 74](#)
- [“Resync Control Statement list” on page 76](#)
- [“DEDB Area Status list” on page 77](#)
- [“DEDB Snap Dump list” on page 82](#)
- [“OLDS Sort list” on page 82](#)
- [“Recovered CI Summary list” on page 85](#)

- “Recovered Data CI Bitmap” on page 86
- “External Subsystem UOR Status list” on page 87
- “MSDB Checkpoint Data Set list” on page 87

## Backout Required PSB list

The Backout Required PSB list names the DL/I databases you need to recover by use of the Batch Backout utility. The database names are listed by the names of applications (PSBs) that were active when IMS failed.

The following figure shows an example of the Backout Required PSB list.

```

IMS DEDB FAST RECOVERY V2R2      --- BACKOUT REQUIRED PSB LIST                TIME 19:03:13  DATE 10/24/2021  P - 1
PSBNAME_  RECOVERY_TOKEN(HEX)      RECOVERY_TOKEN(CHAR)  UOR_TIME(OFFSET)      DATABASE
Fpload16  C9D4C1F14040404000000000100000000  IMA1  .....  2021297100138711630(+09:00)  DH41TS01
                                                DX41TS01
Fpload17  C9D4C1F14040404000000000200000000  IMA1  .....  2021297100151893324(+09:00)  DH41M502
                                                DX41M502
Fpload18  C9D4C1F14040404000000000300000000  IMA1  .....  2021297100205200504(+09:00)  DH41M602
                                                DX41M602
END OF REPORT

```

Figure 20. Backout Required PSB list

### Report field descriptions

#### PSBNAME

The PSB name you need to specify when running the Batch Backout utility.

#### RECOVERY TOKEN

The 16-byte recovery identifier, in hexadecimal and character format. IMS creates the recovery identifier to identify the unit of recovery.

#### UOR TIME (OFFSET)

The start time of UOR (found in the X'5607' log record). The numeric offset in the form *hh:mm* appears inside the parentheses. The time stamp of the X'5607' log record is in Universal Coordinated Time (UTC), and contains the signed packed-decimal local time zone offset for when the time stamp was created.

#### DATABASE

The DL/I databases (DBD name or HALDB partition name) that will be recovered when you run the Batch Backout utility.

**Note:** If you specify LCHKPT=Y on the EXEC parameter, the following texts might be displayed:

- For the UOR time field: NOT FOUND
- For the DBD name field: DBNAME NOT FOUND

The following message might appear in the list:

#### **THERE WAS NO BACKOUT REQUIRED PSB**

No application programs needed backout.

## Database Status list

The Database Status list names the DL/I, DEDB, and MSDB databases whose control blocks were not initialized or were in a stopped state when IMS failed. The names of DL/I databases you need to recover are also shown.

After the next IMS cold start, and before running application programs, see this list to stop the listed DL/I databases and recover them with the IMS provided utilities.

The following figure shows an example of the Database Status list. Table 1 on page 73 lists the status codes and the required actions. Be sure to perform the recommended operations completely to ensure data integrity.

```

IMS DEDB FAST RECOVERY V2R2      --- DATA BASE STATUS LIST      TIME 15:03:00  DATE 9/05/2021  P - 1
-----
DBD_NAME  REASON1 REASON2  ERROR DD_NAME
-----
DBDATA1   NOTINIT
DBDATA2   NOTINIT
DBDATA3   STOPPED
DBFSAMD1  NOTINIT
DBFSAMD2  NOTINIT
DBFSAMD3  NOTINIT
DEDBJN01  NOTINIT
DEDB0002  NOTINIT
DH41M502  NOTINIT
DH41TS01  BKONEED
          IOTEEQE  DH41TS01
DI21PART  NOTINIT
DX41M502  NOTINIT
HDAM0001  IOTEEQE RCVNEED  HDAMDD01 HDAMDD11
HDAM0002  IOTEEQE RCVNEED  HDAMDD02
HDAM0003  NOTINIT
MSDBLM03  NOTINIT
MSDBLM04  NOTINIT
END OF REPORT

```

Figure 21. Database Status list

## Report field descriptions

### DBD NAME

The database name (DBD name, HALDB master name, or HALDB partition name).

### REASON1

The database status code that does not require any special action. See the following table.

### REASON2

The database status code that requires special action. See the following table.

### ERROR DD NAME

The ddname of the data set that needs recovery.

The following table lists the status codes and the required actions.

Status code		Database status	Required actions before the IMS cold start	Required actions after the IMS cold start
REASON1	REASON2			
NOTINIT (see <a href="#">note</a> )		The database control block was not initialized.	None.	Check that it is not used.
	STOPPED (see <a href="#">note</a> )	The database was in a stopped state.	None.	Stop with the /STOP command.
	BKONEED	An update log did not reach a sync point.	Batch backout.	None.
IOTEEQE IOEEEQE	RCVNEED RCVNEED	The database contains the I/O toleration, write-error, user-specified, or PERM-specified EEQE and needs recovery before cold start because it is not protected by DBRC.	DB recovery.	None.
IOTEEQE IOEEEQE		The database contains the I/O toleration, write-error, user-specified, or PERM-specified EEQE. DBRC continues to protect the database by EEQE.	None.	DB recovery.

Table 1. Status codes in the Database Status list (continued)

Status code		Database status	Required actions before the IMS cold start	Required actions after the IMS cold start
REASON1	REASON2			
NORCVDB	RCVNEED	The database is defined as recovery not required, and the SLDS found in the log data set after the recovery start checkpoint was used by IMS DEDB Fast Recovery.	None.	Re-create the database if necessary.
IDTEEQE	NOT-DEL	In-doubt EEQE information remains undeleted. Or, the EEQE was not deleted because DBRC=N was specified.	None.	Delete all in-doubt EEQE information created by IMS in this DL/I database with the DBRC CHANGE.DBDS command. Make sure that the target DL/I database is deallocated from all IMS subsystems.
IDTEEQE	SYNC	IMS DEDB Fast Recovery processed the in-doubt EEQE of the database, and other IMS subsystems must be notified of the in-doubt EEQE.	If other active data-sharing IMS subsystems exist, deallocate the database from another IMS by using the / STOP command.	Restart the database in all IMS subsystems by using the /START command.

**Note:** The status codes NOTINIT and STOPPED apply to all databases. The other codes apply only to DL/I databases.

## OLDS/SLDS list

The OLDS/SLDS list names the OLDSs and SLDSs used by IMS DEDB Fast Recovery. The names are listed in the order of use.

The following figure shows an example of the OLDS/SLDS list.

```

IMS DEDB FAST RECOVERY V2R2      --- OLDS/SLDS LIST                               TIME 15:03:00  DATE  9/04/2021  P -  1
1.SLDS(P) DSNAME=IMS.SLDSP.A1.D21247.T1439594.V00
*** CHKPT 21247/1440362 IS CONTAINED ***
1.SLDS(S) DSNAME=IMS.SLDSS.A1.D21247.T1439594.V00
*** CHKPT 21247/1440362 IS CONTAINED ***

2.OLDS(P) DDNAME=DFSOLP00 DSNAME=IMS.A1.OLP00
*** FP CHKPT 21247/1458224 IS CONTAINED ***
2.OLDS(S) DDNAME=DFSOLS00 DSNAME=IMS.A1.OLS00
*** FP CHKPT 21247/1458224 IS CONTAINED ***

3.OLDS(P) DDNAME=DFSOLP01 DSNAME=IMS.A1.OLP01
*** USED AT THE TIME OF IMS FAILURE *****
3.OLDS(S) DDNAME=DFSOLS01 DSNAME=IMS.A1.OLS01
*** USED AT THE TIME OF IMS FAILURE *****

END OF REPORT

```

Figure 22. OLDS/SLDS list

### Report field descriptions

#### SLDS(P)

The primary SLDS was used.



**SLDS(S)**

The secondary SLDS was used.

**OLDS(P)**

The primary OLDS was used.

**OLDS(S)**

The secondary OLDS was used.

The following messages might appear in the list:

**\*\*\* CHKPT yyddd/hhmmss IS CONTAINED \*\*\***

The recovery start checkpoint log used by IMS DEDB Fast Recovery is in the data set.

**\*\*\* FP CHKPT yyddd/hhmmss IS CONTAINED \*\*\***

The DEDB recovery start checkpoint log used by IMS DEDB Fast Recovery for DEDB recovery is in the data set.

**\*\*\* USED AT THE TIME OF IMS FAILURE \*\*\***

The data set was in use by IMS when it failed.

If the OLDS that was in use when IMS failed was dual and one of the OLDS caused an open error, an I/O error, or a dynamic allocation error, IMS DEDB Fast Recovery generates messages as shown in the following figure, and continues processing.

**Note:** If IMS DEDB Fast Recovery cannot get the data set name of the OLDS that caused a dynamic allocation error, the following text might be displayed for the DSNAME= field:

```
*** DSNAME NOT FOUND ***
```

In this case, recover the data set in error by using the normal OLDS after the IMS DEDB Fast Recovery execution, or use the DBRC CHANGE.PRILOG or CHANGE.SECLOG command to register the error status to DBRC.

Message for dynamic allocation failure

```
*****
***
***   WARNING --- WARNING --- WARNING --- WARNING --- WARNING --- WARNING   ***
***
***           DYNAMIC ALLOCATION FAILED DURING REDO PROCESSING.           ***
***           RECOVER THIS OLDS DATA SET FROM VALID ONE TO AVOID MISUSING IT. ***
***
***   WARNING --- WARNING --- WARNING --- WARNING --- WARNING --- WARNING   ***
***
*****
```

Message for open failure

```
*****
***
***   WARNING --- WARNING --- WARNING --- WARNING --- WARNING --- WARNING   ***
***
***           OPEN FAILED DURING REDO PROCESSING.           ***
***           RECOVER THIS OLDS DATA SET FROM VALID ONE TO AVOID MISUSING IT. ***
***
***   WARNING --- WARNING --- WARNING --- WARNING --- WARNING --- WARNING   ***
***
*****
```

Message for write error

```
*****
***
***   WARNING --- WARNING --- WARNING --- WARNING --- WARNING --- WARNING   ***
***
***           LOG RECORD WRITE OPERATION FAILED DURING REDO PROCESSING. ***
***           RECOVER THIS OLDS DATA SET FROM VALID ONE TO AVOID MISUSING IT. ***
***
***   WARNING --- WARNING --- WARNING --- WARNING --- WARNING --- WARNING   ***
***
*****
```

Figure 23. Error messages in the OLDS/SLDS list

## Resync Control Statement list

The Resync Control Statement list is used to prepare Resync control statements correctly in a two-phase commit process environment such as DBCTL.

The list displays the following information for each condition:

- In a non-two-phase commit process environment, or if there is no in-doubt transaction, the list indicates that there are no in-doubt UORs, and the RESYNCTL DD data set is ignored.
- If there are some in-doubt transactions and the Resync control statements are provided correctly in the RESYNCTL DD data set, the list indicates that all in-doubt UORs are resolved.
- If there are some in-doubt transactions, and at least one incorrect or no Resync control statement is provided in RESYNCTL DD data set, the list shows all recovery tokens in in-doubt status transactions. If incorrect statements are provided, the list shows error messages for the statement as well.

### Error messages for Resync control statements generated in the RSYLIST DD data set

The following list explains the error messages for Resync control statements that are generated in the RSYLIST DD data set.

**\*\* KEYWORD PARAMETER MUST START AT MOST ON COLUMN 34 (FOR ACT=COMMIT) OR 35(FOR ACT=ABORT) \*\***

Explanation: A statement exceeds the 72nd column.

**\*\* CONTROL STATEMENT DOESN'T START WITH VALID KEYWORD \*\***

Explanation: An incorrect keyword is detected in a statement.

- \*\* FIRST PARAMETER VALUE DOESN'T FOLLOW COMMA \*\***  
Explanation: No comma (,) is detected after the first parameter.
- \*\* MORE THAN ONE UOR=KEYWORD PARAMETERS ARE SPECIFIED \*\***
- \*\* MORE THAN ONE ACT=KEYWORD PARAMETERS ARE SPECIFIED \*\***  
Explanation: There are duplicate UOR= or ACT= keyword parameters in one statement.
- \*\* UOR=KEYWORD PARAMETER IS MISSING \*\***
- \*\* ACT=KEYWORD PARAMETER IS MISSING \*\***  
Explanation: No UOR= or ACT= keyword parameter is in a statement.
- \*\* INVALID CHARACTER FOR UOR LOW-HALF ON COLUMN nn \*\***  
Explanation: An incorrect character is specified at column nn. The character must be a hexadecimal code (0 to 9, or A to F).
- \*\* ACT= PARAMETER HAS INVALID VALUE \*\***  
Explanation: The value for the ACT= keyword parameter is not COMMIT or ABORT.
- \*\* SECOND PARAMETER VALUE DOESN'T FOLLOW BLANK \*\***  
Explanation: No blank character is detected after the second parameter.
- \*\* SPECIFIED INDOUBT UOR NOT FOUND \*\***  
Explanation: The in-doubt transaction specified by the Resync control statement is not found.
- \*\* SAME UOR VALUE ALREADY SPECIFIED BY PREVIOUS CONTROL STATEMENT \*\***  
Explanation: Duplicate recovery token values are detected.
- \*\* RESYNCTL DATA SET OPEN ERROR OCCURRED \*\***  
Explanation: The data set specified by the RESYNCTL DD statement cannot be opened.
- \*\* NECESSARY CONTROL STATEMENT(S) NOT PROVIDED \*\***  
Explanation: Some necessary Resync control statements are missing. IMS DEDB Fast Recovery cannot resolve the in-doubt status transactions.
- \*\* WARNING \*\* OLDS IS CLOSED IN DBRC. \*\* WARNING \*\***
- \*\* WARNING \*\* OPEN NEW OLDS IN DBRC. \*\* WARNING \*\***  
Explanation: The OLDS that is in use at IMS failure is already closed on DBRC. IMS DEDB Fast Recovery terminates with RC=16, even if all statements are correctly specified. Open OLDS on DBRC using the NOTIFY.PRILOG (and NOTIFY.SECLOG) DBRC command, and run IMS DEDB Fast Recovery again.

## DEDB Area Status list

For all DEDB areas that were open when IMS failed, the DEDB Area Status list describes the status of the areas after IMS DEDB Fast Recovery execution. The list provides the names of the available area data sets, the status of the area at the time when IMS failed, and the user actions required for each DEDB area.

The following figure shows an example of the DEDB Area Status list.

```

IMS DEDB FAST RECOVERY V2R2          --- DEDB AREA STATUS LIST          TIME 15:03:00  DATE 9/05/2021  P - 1
AREA NAME OPT  STATUS                AVAILABLE DATA SET AND CF STRUCTURE
*DB21AR0
*DB21AR1
DB22AR2 V      RCVNEED (NONRCV) (DB22AR21) (DB22AR22) (DB22AR23)
DB23AR1 VO     RCVNEED (IOTEEQE) (DB23AR11) (DB23AR21) (DB23AR22) (DB23AR23)
DB23AR2
DB24AR1
DB24AR2
DB24AR3 VO     RCVNEED (CFCONER) (DB24AR11) (DB24AR21) (DB24AR22) (DB24AR23)
DB30AR0 VOL    RCVNEED (CFCONER) STR1= RDODDB24AR3STR1 STR2=
(DB24AR31)
DB30AR1 VOL    RCVNEED (CFNOTDF) STR1= (V$$$RDODMAS_512 )
(DB30AR01)
DB30AR2 VOL    RCVNEED (CFALCER) STR1= (V$$$RDODMAS_2048)
(DB30AR11) (DB30AR12)
DB30AR3 VOL    RCVNEED (CFCONLS) STR1= (V$$$RDODMAS_2048)
(DB30AR31) (DB30AR32) (DB30AR33)
DB30AR4 VOL    RCVNEED (CFREDER) STR1= (V$$$RDODMAS_2048)
(DB30AR41)
END OF REPORT

```

Figure 24. DEDB Area Status list

## Report field descriptions

The names of all DEDB areas that were open when IMS failed are shown in the AREA NAME column. In the case of the user-recoverable DEDB, an asterisk (\*) is shown as the first character in the AREA NAME column.

The OPT column shows the following VSO options (VSO and PRELOAD) and the PREOPEN option for the area used by IMS:

### V

The area was a VSO area when IMS failed.

### O

The area was preopened when IMS failed.

### L

The area was preloaded when IMS failed. L always appears with both V and O, because the preloaded area must be a preopened VSO area.

Areas not listed were not open when IMS failed. Areas not open but in a stopped state are listed with a status code of STOPPED, NOPENED.

The data set status is shown only when the area requires user action to ensure database integrity. The status codes of IOERR, REORG, CREATE, HSSP, DELETE, SCAN, SYNC, and INT.STOP are shown only for the areas defined as the DEDB block-level data-sharing area. The status FORCE OPEN, SYNC (IOTEEQE), and SYNC (IDTEEQE) might be shown for a non-block-level data-sharing area.

If DBRC needs recovery, and you run IMS DEDB Fast Recovery with DBRC=N, you use this list to recover the DBRC RECON data set.

[Table 2 on page 79](#) shows the user action required for each status.

The data set name associated with each area is listed under AVAILABLE DATA SET AND CF STRUCTURE. Data sets whose names are in parentheses are not available.

If the failed IMS uses block-level data-sharing VSO areas, the structure name related to each area is listed under AVAILABLE DATA SET AND CF STRUCTURE. If an area is not in RETRY status and structure names related to the area are not in parentheses, the structure is disconnected normally. That means, if there are any other connectors, the structure remains. If there are no other connectors, the structure is deleted from CF when IMS DEDB Fast Recovery is disconnected. If an area is in RETRY status, and the structure names related to the area are not in parentheses, the failed-persistent connection of the failed IMS is maintained, and the structure remains.

If a structure name is in parentheses, the cause might be one of the following reasons:

- The area is VUNloaded.

If an area is not in RCVNEED status and all the structure names related to the area are in parentheses, the area is VUNloaded. There is no structure related to the area.

- The structure is deleted because of connection loss.

If an area is not in RCVNEED or RETRY status and one of the two structure names is in parentheses, a connection is lost for the structure. The structure that lost connection to an IMS is disconnected normally and deleted by another IMS that maintains connection with the structure or by IMS DEDB Fast Recovery. The other structure is recovered successfully and disconnected normally.

If an area is in RETRY status and one of the two structure names related to the area is in parentheses, the connection for the structure is lost. The structure that lost the connection to an IMS is disconnected normally and deleted by another IMS that maintains connection with the structure or by IMS DEDB Fast Recovery. For the other structure, the failed-persistent connection of the failed IMS is maintained, and the structure remains.

- The area is unavailable, and the related structures cannot be used.

If an area is in RCVNEED status and all structure names related to the area are in parentheses, the structures related to the area are disconnected normally.

**Note:** Normal disconnection of a structure means that the failed persistent connection at IMS failure is removed.

Table 2. Status codes in the DEDB Area Status list

Status code	Status of area or area data set	Actions required before the IMS cold start	Actions required after the IMS cold start
STOPPED, NOPENED	The area was in stopped state.	None.	Stop the area with the / STOP command.
RCVNEED RCVNEED (CFreason)	The area needs recovery. CFreason indicates the cause of the access error of CF structure during the recovery of block-level data-sharing VSO areas. For the CFreason, see the note to this table.	DB recovery (can be executed after the IMS cold start if the status is registered to DBRC).	None.
RCVNEED (NONRCV)	The area needs recovery. The area is a nonrecoverable DEDB area, and any CI updates for the area are compromised by the failure of IMS. If possible, IMS DEDB Fast Recovery registers the area to DBRC as recovery needed.	DB has to be restored from an image copy, a repro, or some other source, because the area has no DB change logs in OLDS/SLDS. (This action can be taken after the IMS cold start if the status is registered to DBRC).	None.

Table 2. Status codes in the DEDB Area Status list (continued)

Status code	Status of area or area data set	Actions required before the IMS cold start	Actions required after the IMS cold start
IOERR	There was an error in one of the data sets in this area during the IMS DEDB Fast Recovery processing. Other IMS subsystems must be notified of it.	If other active data-sharing IMS subsystems exist, deallocate the area from another IMS by using the /STOP command.	Restart the area in all IMS subsystems (except for areas shown as INT.STOP(AREA)) by using the /START command.
INT.STOP(AREA)	The area is now in stopped state, and other IMS subsystems must be notified.		For the areas shown as IOERR, INT.STOP(ADS) or CREATE, re-create unavailable area data sets by using the Area Data Set Create utility.
INT.STOP(ADS)	Several area data sets in the area are now in stopped state, and other IMS subsystems must be notified.		
CREATE	The Area Data Set Create utility was being processed for the area.		
REORG	The Direct Reorganization utility was being processed for the area.		
HSSP	An application program using the HSSP function was being processed for the area.		
SCAN	The Scan utility was being processed for the area.		
DELETE	The Delete utility was being processed for the area. Other IMS subsystems must be notified or the status must be reset.		
SYNC(AREA)	Other IMS subsystems were being notified of the area status.		
SYNC(ADS)	Other IMS subsystems were being notified of the area data set status in the area. They must be notified again.		
SYNC(IOTEEQE) SYNC(IDTEEQE) SYNC(WRTEEQE)	IMS DEDB Fast Recovery processed the I/O toleration EEQE(IOTEEQE), the in-doubt EEQE(IDTEEQE), or the write error EEQE(WRTEEQE) of the area. Other IMS subsystems must be notified of the EEQE.		
FORCE OPEN	The area containing the I/O toleration EEQE was forced to open.	N/A	N/A

Table 2. Status codes in the DEDB Area Status list (continued)

Status code	Status of area or area data set	Actions required before the IMS cold start	Actions required after the IMS cold start
IOTEEQE NOT DELETE IDTEEQE NOT DELETE WRTEEQE NOT DELETE	I/O toleration EEQE information remains undeleted. In-doubt EEQE information remains undeleted. Or, the EEQE was not deleted because DBRC=N was specified.	None.	Delete all EEQE information created by IMS in this area with the DBRC CHANGE.DBDS command. Make sure that the target area is deallocated from all IMS subsystems.
RETRY (CFreason)	The block-level data-sharing VSO area needs another trial of IMS DEDB Fast Recovery. CFreason identifies the cause of the connectivity error of the CF structure. For CFreason, see the note to this table.	Remove the cause of the problem and execute IMS DEDB Fast Recovery for the area again.	N/A
CF DISCON FAILED	An error was detected during disconnection from the block-level data-sharing VSO area. The recovery process for the area has been completed.	N/A	N/A

**Notes:**

- CFreason shows one of the following reasons:

**CFCONER**

Connection error

**CFNOTDF**

No definition

**CFALCER**

No structure

**CFCONLS**

Connection loss

**CFREDER**

Read error

**CFDELER**

Entry deletion error

**CFCASER**

Casting out error

An error message is shown for each error. See the explanation of the message.

- If there is no other connector for a block-level data-sharing VSO area and the recovery is completed successfully by IMS DEDB Fast Recovery, the structures related to the area are deleted from CF. If IMS DEDB Fast Recovery runs for the area again, IMS DEDB Fast Recovery recognizes that a structure that should exist does not actually exist. Although the CFRET=Y execution generates RETRY (CFALCER) as a status code, you do not have to run IMS DEDB Fast Recovery again. The CFRET=N execution generates RCVNEED (CFALCER) as a status code. Be careful with the second or later execution.

## DEDB Snap Dump list

The DEDB Snap Dump list is a snap dump of the damaged VSAM CIs that IMS DEDB Fast Recovery read to recover a DEDB.

The following figure shows an example of damaged data CIs.

```

JOB DFR220          STEP STEP1          TIME 150300  DATE 21248          CPUID = FF011EF62064  PAGE 00000001
  PSW AT ENTRY TO SNAP  078D1000 0000704A ILC 02 INTC 0033
-STORAGE
DB=DEDBJN21 AREA=DB21AR0 DD=DB21AR01 CI RBA=00400000 OFFSET=000238 LENGTH=001DC8 DAMAGED
00008020 032C0202 00000000 06000000 00000080 F0F0F0F0 F0F0F0F8 F0F0F0F0 F0F0F0F0 *.....0000000800000000*
00008040 00000000 00000000 00000000 00000000 00000000 00000000 00000000 *.....*
  LINES 00008060-00008080 SAME AS ABOVE
000080A0 00000000 00000000 00000000 00000600 00000000 0080F0F0 F0F0F0F0 F0F8F0F0 *.....000000800*
000080C0 F0F0F0F0 F0F00000 00000000 00000000 00000000 00000000 00000000 *000000.....*
000080E0 00000000 00000000 00000000 00000000 00000000 00000000 00000000 *.....*
  LINE 00008100 SAME AS ABOVE
00008120 00000000 00000000 00000000 00000000 00000000 06000000 00000080 F0F0F0F0 *.....0000*
00008140 F0F0F0F8 F0F0F0F0 F0F0F0F0 00000000 00000000 00000000 00000000 *0000000000.....*
00008160 00000000 00000000 00000000 00000000 00000000 00000000 00000000 *.....*
  LINE 00008180 SAME AS ABOVE
000081A0 00000000 00000000 00000000 00000000 00000000 00000000 00000600 00000000 *.....*
000081C0 0080F0F0 F0F0F0F0 F0F8F0F0 F0F0F0F0 F0F00000 00000000 00000000 00000000 *..0000000800000000.....*
000081E0 00000000 00000000 00000000 00000000 00000000 00000000 00000000 *.....*
  LINES 00008200-00008220 SAME AS ABOVE
00008240 06000000 00000080 F0F0F0F0 F0F0F0F8 F0F0F0F0 F0F0F0F0 00000000 00000000 *.....0000008000000000.....*
00008260 00000000 00000000 00000000 00000000 00000000 00000000 00000000 *.....*
  LINES 00008280-000082A0 SAME AS ABOVE
000082C0 00000000 00000600 00000000 0080F0F0 F0F0F0F0 F0F8F0F0 F0F0F0F0 F0F00000 *.....0000008000000000..*
000082E0 00000000 00000000 00000000 00000000 00000000 00000000 00000000 *.....*
  LINES 00008300-00008320 SAME AS ABOVE
00008340 00000000 00000000 00000000 00000000 00000000 01004000 00003FF9 3FF90000 *.....9.9..*

```

Figure 25. Damaged data CI snap dump

The following figure shows an example of damaged data CIs when CUSN, RBA, and VSAM control fields are damaged.

```

JOB DFR220          STEP STEP1          TIME 150300  DATE 21248          CPUID = FF011EF62064  PAGE 00000001
  PSW AT ENTRY TO SNAP  078D1000 8001B9CE ILC 02 INTC 0033
-STORAGE
DB=DEDBJN23 AREA=DB23AR0 DD=DB23AR02 CI RBA=0000FC00 DAMAGED
00BB7120                                     02C40802 *.....D..*
00BB7140 40000000 00000000 00000000 00000000 00000000 00000000 00000000 *.....*
00BB7160 00000000 00000000 00000000 00000000 00000000 00000000 00000000 *.....*
  LINES 00BB7180-00BB7200 SAME AS ABOVE
00BB7220 00000000 00000000 00000000 00000000 00000000 00000000 40404040 *.....*
00BB7240 40404040 40404040 40404040 40404040 40404040 40404040 40404040 *.....*
  LINES 00BB7260-00BB73E0 SAME AS ABOVE
00BB7400 8000012F 00000000 00000000 00000000 00000000 00000000 00000000 *.....*
00BB7420 00000000 00000000 00000000 00000000 00000000 00000000 00000000 *.....*
  LINES 00BB7440-00BB7500 SAME AS ABOVE
00BB7520 00000000 00000000 00000000 00000000 00000000 00000000 00000000 *.....*

```

Figure 26. Damaged data CI snap dump (CUSN, RBA, and VSAM control fields are damaged)

## OLDS Sort list

The OLDS Sort list shows all OLDS used in the process of automatic determination of the last-used and previously used OLDS, sorted by the time of their creation. The list indicates the status of any OLDS that caused an error during the sort process. IMS DEDB Fast Recovery generates this list only when DBRC=N, AUTO=Y is specified.

The following figure shows a sample of an OLDS Sort list.



SEQ	OLDS DDNAME		1ST BSN	1ST LSN	1ST BLK TIME		(LOCAL TIME)
	PRIMARY	SECONDARY			LOGGED TIME STAMP & OFFSET		
001	DFSOLP03	DFSOLS03	0000000A	00000000000000D6	2021278/081051136120	+09:00	(2021278/171051136120)
002	DFSOLP04	DFSOLS04	0000000B	00000000000000E2	2021278/081157140380	+09:00	(2021278/171157140380)
003	DFSOLP05	DFSOLS05	0000000C	0000000000000150	2021278/081202272668	+09:00	(2021278/171202272668)
004	DFSOLP02	DFSOLS02	00000001	0000000000000001	2021294/105230832705	+09:00	(2021294/195230832705)
005	DFSOLP01		00000001	0000000000000001	2021298/094600476971	+09:00	(2021298/184600476971)
006	DFSOLP00	DFSOLS00	00000001	0000000000000001	2021298/100136237126	+09:00	(2021298/190136237126)

\*\*\* ERROR DETECTED OR IGNORED OLDS \*\*\*

OLDS DDNAME		STATUS	
PRIMARY	SECONDARY	PRIMARY	SECONDARY
	DFSOLS01		OLDER BLOCK
DFSOLP06	DFSOLS06	OPEN ERROR	OPEN ERROR
DFSOLP07	DFSOLS07	READ ERROR	INVALID BLOCK
DFSOLP96	DFSOLS96	ALLOCATION ERROR	ALLOCATION ERROR
DFSOLP97	DFSOLS97	NO RECORD FOUND	NO RECORD FOUND
DFSOLP98	DFSOLS98	DUMMY SPECIFIED	DUMMY SPECIFIED
DFSOLP99	DFSOLS99	PRE-FORMATTED	PRE-FORMATTED

END OF REPORT

Figure 27. OLDS Sort list

## Report field descriptions

### SEQ

The OLDS sequence number assigned by IMS DEDB Fast Recovery. The number is incremented by 1 from the oldest data set. Sequence numbers might be assigned to the OLDSs that were not used by IMS, but they must not be used in the later process.

### OLDS DDNAME

The ddname of the OLDS whose first block could be read. For dual OLDSs, a pair of OLDSs is shown on the same line.

#### PRIMARY

Shows the status of the primary OLDS.

#### SECONDARY

Shows the status of the secondary OLDS.

### 1ST BSN

The first block sequence number of the OLDS.

### 1ST LSN

The first record sequence number of the OLDS.

### 1ST BLK TIME

The date/time value in the first block suffix of the OLDS.

### LOGGED TIME STAMP & OFFSET

Indicates the date/time and offset value expressed by the UTC in the log record.

### (LOCAL TIME)

Indicates the local date/time value calculated from the UTC and offset.

### \*\*\* PREV \*\*\*

IMS DEDB Fast Recovery recognized this data set as the second-last OLDS. If the IMS to be recovered has used only one OLDS or a pair of OLDSs, this indication might be incorrect, but it cannot cause any problem in the subsequent process.

### \*\*\* LAST \*\*\*

IMS DEDB Fast Recovery recognized this data set as the last OLDS.

Listed under \*\*\* ERROR DETECTED OR IGNORED OLDS \*\*\* are all OLDSs that were allocated dynamically or specified by a DD statement but were not sorted because an error was detected or the OLDS was not required.

### OLDS DDNAME

The ddname of the OLDS in error. For dual OLDSs, a pair of OLDSs is shown on the same line.

**PRIMARY**

Shows the status of the primary OLDS.

**SECONDARY**

Shows the status of the secondary OLDS.

**ERROR DETECTED OR IGNORED OLDS**

The error status.

**PRIMARY**

Shows the status of the primary OLDS.

**SECONDARY**

Shows the status of the secondary OLDS.

**ALLOCATION ERROR**

The dynamic allocation failed. IMS DEDB Fast Recovery terminates with a return code of 16 unless allocation for the secondary OLDS was successful, in which case it continues.

**OPEN ERROR**

The open failed. IMS DEDB Fast Recovery terminates with a return code of 16 unless the open for the secondary OLDS was successful, in which case it continues.

**READ ERROR**

The read of the first block failed. IMS DEDB Fast Recovery terminates with a return code of 16 unless the read for the secondary OLDS was successful, in which case it continues.

**INVALID BLOCK**

The first block read was not a valid log record block (the last record was not an X'48' log record).

If IMS DEDB Fast Recovery tries to read an OLDS or a pair of dual OLDSs that had been started when IMS failed, and if it cannot read the data set because of an allocation error, an open error, a read error, or the presence of an invalid block, it terminates with a return code of 16. IMS DEDB Fast Recovery ignores any error in an OLDS that had not been started when IMS failed, and continues processing.

**OLDER BLOCK**

This OLDS block was older than the other OLDS block in the pair of dual OLDSs.

**NO RECORD FOUND**

The OLDS was empty and no log blocks could be read. IMS DEDB Fast Recovery continues without using the OLDS.

**DUMMY SPECIFIED**

DUMMY was specified on the DD statement for this OLDS. IMS DEDB Fast Recovery continues without using the OLDS.

**PRE-FORMATTED**

The OLDS was formatted in a specific format. IMS DEDB Fast Recovery continues without using the OLDS.

When IMS DEDB Fast Recovery determines whether the OLDS was formatted, it checks the following conditions:

- A single logging environment
  - The OLDS has been opened successfully, and the first block can be read.
  - The first two bytes of the logical record in the first block (LL) contain the value of the block size – 4.
  - The data portion of the logical record is filled with the same byte image.
- A dual logging environment

For both the primary and the secondary OLDSs, IMS DEDB Fast Recovery checks the same conditions as in the single logging. In addition, it checks the combined status of the pair of OLDSs. If an OLDS in the pair was formatted in the preceding conditions, IMS DEDB Fast Recovery determines the process according to the status of the other OLDS.

The following table shows the status of an OLDS in the pair and the IMS DEDB Fast Recovery action taken if another OLDS was formatted. Basically, OLDSs are assumed to be formatted only when a pair of OLDSs was formatted in the same byte image.

Table 3. OLDS block verifications in the dual logging

Status of the first block in an OLDS in the pair	Status of the other OLDS that IMS DEDB Fast Recovery assumed was formatted	IMS DEDB Fast Recovery action
Formatted	Formatted	Continues without the other OLDS
Normal	Invalid block	Continues with the normal OLDS
Allocation error	Invalid block	Terminates with RC=16 or continues (See note)
Open error	Invalid block	Terminates with RC=16 or continues (See note)
Read error	Invalid block	Terminates with RC=16 or continues (See note)
DUMMY specified	Formatted	Continues without the other OLDS
No record found	Formatted	Continues without the other OLDS
Formatted in a different byte image	Invalid block	Terminates with RC=16 or continues (See note)

**Note:** If the OLDS had been started when IMS failed, IMS DEDB Fast Recovery terminates with RC=16. Otherwise it continues without using the other OLDS in the pair.

## Recovered CI Summary list

The Recovered CI Summary list shows the number of VSAM CIs recovered and the additional information for each area that contains the CIs. For the area shown as RCVNEED in a DEDB Area Status list, the same information is also written in a Recovered CI Summary list.

The following figure shows an example of the Recovered CI Summary list.

```

IMS DEDB FAST RECOVERY V2R2      --- RECOVERED CI SUMMARY LIST      TIME 15:03:00  DATE 9/05/2021  P - 1
AREA_NAME  OPT  STATUS      SHR  # OF  # OF DATA  # OF 2ND  # OF DATA
          OPT  STATUS      SHR  ADS'S  RECOVERED  RECOVERED  CAST OUT
DB22AR0  VOL  RCVNEED      0     1           6           1           5
DB23AR0  VOL              0     1           5           1           6
DB23AR1  VOL              0     1           5           1           6
DB23AR2  VOL              0     3           25          3           5
TOTAL NO. OF AREA'S RECOVERED OR CAST OUT :           3
TOTAL NO. OF DATA CI'S RECOVERED         :          36
TOTAL NO. OF 2ND CI'S RECOVERED           :           5
TOTAL NO. OF DATA CI'S CAST OUT          :          16
END OF REPORT

```

Figure 28. Recovered CI Summary list

### Report field descriptions

#### OPT

This column gives the VSO options (VSO and PRELOAD) and the PREOPEN option for the area used by IMS. The meanings of the indicators are the same as for a DEDB Area Status list. This column is useful because many CIs might be recovered in the VSO area.

#### STATUS

If the status that is shown in the STATUS column in a DEDB Area Status list provides supplementary information about the number of recovered CIs, the status is listed in the STATUS column in the

Recovered CI Summary list. For example, RCVNEED status, which means that a recovery was tried but failed, is listed because it shows why the number of recovered CIs is not listed. Though other IMS must be notified of the SYNC (IOTEEQE) status, this status is not listed, because it is not related to the number of recovered CIs. Use the DEDB Area Status list for system recovery. The meanings of the indicators are the same as for a DEDB Area Status list.

### SHR

This column gives the area sharing level. In the non-block-level data-sharing area, control CIs are always recovered. In the block-level data-sharing area, control CIs are recovered only when the area status was updated.

### # OF ADS'S

This column gives the number of area data sets available.

### # OF DATA CI'S RECOVERED

This column gives the number of data CIs recovered. Even if a CI that has areas in multiple area data sets was recovered, it is counted as a single CI, because a data CI has the same contents in areas regardless of area data sets.

### # OF 2ND CI'S RECOVERED

This column gives the number of control CIs recovered. Each area data set contains a control CI, which might be different from CIs in other area data sets.

### # OF DATA CI'S CAST OUT

This column gives the number of cast-out data CIs. The CIs are counted in the same way as in the # OF DATA CI'S RECOVERED column.

## Recovered Data CI Bitmap

The Recovered Data CI Bitmap shows bitmap of the updated data CIs for each recovery buffer in each area.

For the recovery buffer, see “Recovered CI Summary list” on page 85.

The following figure shows an example of the Recovered Data CI Bitmap.

AREA_NAME	CISZ	START RBA	RECOVERED DATA CI BITMAP	TIME	DATE	P	1
--- RECOVERED DATA CI BITMAP							
			.....+...1...+...2...+...3...+...4...+...5...+...6...+...7...+...8...+...9...+...0	15:03:00	9/05/2021	-	1
BOCN01	2000	004B0000	NO CI RECOVERED FROM RBA 00000000 TO 004AE000 -----X-----				
		00640000	NO CI RECOVERED FROM RBA 00578000 TO 0063E000 -----X-----				
		00708000	-----X-----				
		00960000	NO CI RECOVERED FROM RBA 007D0000 TO 0095E000 -----X-----				
CMFL03	4000	007D0000	NO CI RECOVERED FROM RBA 00A28000 TO 01480000 NO CI RECOVERED FROM RBA 00000000 TO 007CC000 -----X-X-----				
CMFL21	4000	007D0000	NO CI RECOVERED FROM RBA 00960000 TO 00C20000 NO CI RECOVERED FROM RBA 00000000 TO 007CC000 -XXXXXXXX-XXX-----X-X-----				
DB22AR0	0400	00000000	NO CI RECOVERED FROM RBA 00960000 TO 00C20000 --X-----XXX-----				
DB23AR1	0800	00000000	NO CI RECOVERED FROM RBA 00019000 TO 00074000 --XXXXX-----				
DB23AR2	0800	00000000	NO CI RECOVERED FROM RBA 00032000 TO 00086800 --X-----XXXX-----				
		00000000	NO CI RECOVERED FROM RBA 00032000 TO 00086800 -----XX-----				
			NO CI RECOVERED FROM RBA 00032000 TO 00086800				
END OF REPORT							

Figure 29. Recovered data CI bitmap

## Report field descriptions

### CISZ

This column gives the size of the VSAM CIs recovered by IMS DEDB Fast Recovery, in hexadecimal. Because the value is fixed in each area, it is listed on the line at the changing point to another area and at the first line in every page.

### START RBA

This column gives the RBA value for the first point in the bitmap of the line, in hexadecimal.

The bitmap area shows whether the CIs recovered by IMS DEDB Fast Recovery exist in the continuous 100 CIs from the RBA shown in the START RBA column. One column represents one CI. X means the CI was recovered by IMS DEDB Fast Recovery. Otherwise, - appears. For the first and second CIs in an area, this indicator has no meaning. When IMS DEDB Fast Recovery has recovered none of 100 CIs listed on one or more lines, the following message appears:

```
NO CI RECOVERED FROM RBA rba_value1 TO rba_value2
```

**Note:** *rba\_value1* and *rba\_value2* are RBA values in hexadecimal.

The indicator X does not appear for cast-out data CIs. In the recovery of a block-level data-sharing VSO area, cast-out data CIs are not shown in the bitmap area.

## External Subsystem UOR Status list

The External Subsystem UOR Status list reports External Subsystem ID, Recovery Token, and actions required for the in-doubt Unit of Recovery (UOR) in the external subsystems when the IMS failed.

If the external subsystems contain any in-doubt UORs, IMS DEDB Fast Recovery reports the status by issuing message DFR3563E. And the user must take corrective actions in the external subsystems, by referring to the External Subsystem (ESS) UOR Status list. Otherwise, IMS DEDB Fast Recovery indicates that there is no in-doubt UOR in any external subsystem on the list.

The following figure shows an example of the ESS UOR Status list.

```
IMS DEDB FAST RECOVERY V2R2      --- ESS UOR STATUS LIST      TIME 15:03:00  DATE 9/05/2021  P - 1
ESS ID   RECOVERY TOKEN(HEX)      RECOVERY TOKEN(CHAR)  ACTION
DSN7     C2E3E2F14040404000000000100000009  BTS1                  COMMIT
DSN7     C2E3E2F14040404000000000200000001  BTS1                  ABORT
END OF REPORT
```

Figure 30. External Subsystem UOR Status list

### Report field descriptions

#### ESS ID

The name of any external subsystem containing in-doubt UORs that require action.

#### RECOVERY TOKEN(HEX)

#### RECOVERY TOKEN(CHAR)

The 16-byte recovery identifier, in both hexadecimal and character format, that IMS creates to identify each UOR.

#### ACTION

The action required for the UOR, as follows:

##### COMMIT

Complete any updates that this UOR made in the external subsystem. IMS committed the UOR, regardless of whether UOR was completed in the external subsystem.

##### ABORT

Discard any updates that this UOR made in the external subsystem. IMS did not reach the sync point for the UOR.

#### THERE WAS NO ACTION REQUIRED UOR FOR EXTERNAL SUB-SYSTEMS.

Specifies that there are no in-doubt UORs in any external subsystems.

## MSDB Checkpoint Data Set list

If you run IMS DEDB Fast Recovery with MSDB=Y or MSDB=O specified, an MSDB checkpoint data set list is generated in the data set specified by the SYSPRINT DD statement.

The following figure shows an example of the MSDB Checkpoint Data Set list.

```

IMS DEDB FAST RECOVERY V2R2      --- MSDB CHECKPOINT DATA SET LIST          TIME 15:03:00  DATE  9/04/2021  P -  1

MSDB= PARAMETER   : 0
SELECTED DSN FOR ALL MSDBCP DD : IMS.MSDBCP1
CURRENT FP CHECKPOINT ID : 21247/1458224
DD NAME  STATUS          CHECKPOINT ID  DATA SET NAME
-----  -
MSDBCP1  VALID            21247/1458224  IMS.MSDBCP1
MSDBCP2  ONLY INIT         N/A             IMS.MSDBCP2
END OF REPORT

```

Figure 31. MSDB Checkpoint Data Set list

## Report field descriptions

The first three lines in the figure give the following information:

### MSDB=PARAMETER

The MSDB= parameter value specified for the IMS DEDB Fast Recovery JCL.

### SELECTED DSN FOR ALL MSDBCP DD

The name of the MSDB checkpoint data set selected and specified by IMS DEDB Fast Recovery in the input JCL for MSDB Dump Recovery utility. It is generated only when MSDB=O is specified.

### CURRENT FP CHECKPOINT ID

The current Fast Path checkpoint ID. It is used to compare with the checkpoint ID in the MSDB checkpoint data set. This line is not generated if an error occurred at the beginning of an IMS DEDB Fast Recovery run before the Fast Path checkpoint was determined.

The table in the figure shows the following information:

### DD NAME

The DD name of the MSDB checkpoint data sets.

### STATUS

The data set status, as follows:

#### VALID

The data set is valid for MSDB recovery.

#### ONLY INIT

The data set has not been used since IMS cold start.

#### UNAVAIL

The data set is not valid for MSDB recovery.

#### OPEN ERROR

The data set cannot be opened.

#### NO ALLOC.(NO DD)

There is no DD statement specification for the DD name in the IMS DEDB Fast Recovery JCL.

#### NO ALLOC.(DUMMY)

DUMMY is specified for the DD name in the IMS DEDB Fast Recovery JCL.

#### EMPTY

The data set specified is empty.

#### RDJFCB ERROR

The RDJFCB macro was unsuccessful.

#### XRF/NON-XRF CONFLICT

The IMS DEDB Fast Recovery run mode and the information in the MSDB checkpoint data set are inconsistent.

### CHECKPOINT ID

When the STATUS column is VALID, it is the checkpoint ID, including the MSDB checkpoint data set. When the status is XRF/NON-XRF CONFLICT, it is the checkpoint ID with brackets. For other status, N/A is shown.

**DATA SET NAME**

The name of the MSDB checkpoint data set. When the data set name is unknown, N/A is shown.





---

## Chapter 6. Recovered CI Print program

After you run an IMS DEDB Fast Recovery job, you can use the Recovered CI Print program to generate a list of recovered CIs.

### Topics:

- [“Recovered CI Print program overview” on page 91](#)
- [“JCL requirements for the Recovered CI Print program” on page 92](#)
- [“Control statements for the Recovered CI Print program” on page 92](#)
- [“Example of JCL statements for the Recovered CI Print program” on page 94](#)
- [“Output from the Recovered CI Print program” on page 94](#)

---

### Recovered CI Print program overview

The Recovered CI Print program (DFRCIDM0) is an MVS batch program for printing an image of the recovered CIs that IMS DEDB Fast Recovery wrote in the RCIDUMP data set.

The images of recovered CIs are written in ascending order of DEDB areas.

The program writes the images of the CIs, except the control CIs and the cast-out CIs, in ascending order of RBAs for the area. For the cast-out CI, CAST OUT appears in the subheader in the recovered CI dump list.

The RCIDUMP data set contains the image of all CIs recovered by IMS DEDB Fast Recovery. You can select which CIs to print:

- All CIs
- All CIs in specific DEDBs
- All CIs in specific areas
- CIs in specific RBAs

You can specify the CI selection in the control statements for the Recovered CI Print program.

The Recovered CI Print program generates the following two lists:

- Control statements and messages list

This is a list of the specified control statements and the messages written by Recovered CI Print program.

- Recovered CI dump list

This list is a dump of the CIs specified on the control statements. In the first pages of the lists, the subsystem identifier of the IMS recovered by IMS DEDB Fast Recovery and the recovery date and time are listed. For the CI image, you can select either of the following formats:

- The output format of the DFSMS AMS program
- The output format of the MVS SNAP macro

### Related reference

[Control statements for the Recovered CI Print program](#)

The control statements for the Recovered CI Print program specify the target databases, areas, and RBA CIs for printing the recovered CIs.

[Output from the Recovered CI Print program](#)

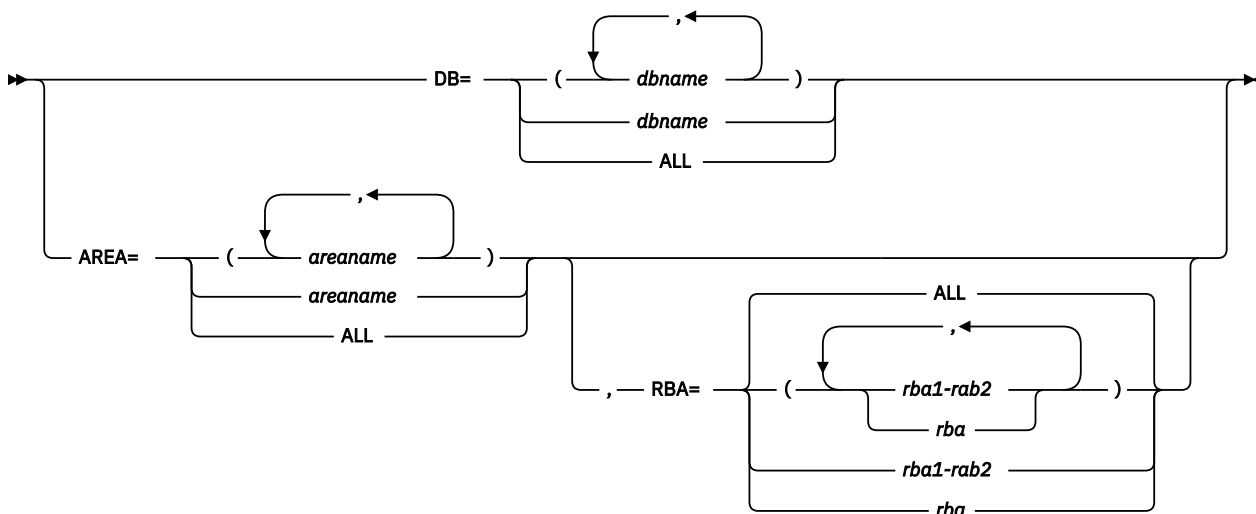


## Rules for control statements

- A control statement is coded in the form of an 80-column punched-card image and is placed from column 1 to 72.
- A control statement must contain all required keywords.
- No blanks are allowed between keywords, =, and parameters.
- Two keyword parameters must be separated by commas (,), and no blanks are allowed before and after commas (,).
- Characters following blanks after the last keyword in a control statement are regarded as comments.
- You can specify multiple control statements.
- You must specify at least one control statement.
- Any statement containing an asterisk (\*) in column 1 is regarded as a comment.

## Control statements format

The control statements format is as follows:



### **DB=(dbname...) | dbname | ALL**

Specifies database names. The Recovered CI Print program processes all recovered CIs in the specified DEDB. If ALL is specified, the Recovered CI Print program processes all recovered CIs in the data sets specified in the RCIDUMP DD statement.

Even if duplicate database names are specified in a control statement or the same database names are specified in more than one control statement, an error does not occur and the specified database is processed.

If ALL is specified, the Recovered CI Print program ignores the specifications of DB= and AREA= and processes all recovered CIs in the data set.

The SYSIN data set must have a control statement specifying at least one DB= or AREA=.

The maximum number that can be specified in a DB= statement is 1000.

### **AREA=(areaname...) | areaname | ALL**

Specifies area names. The Recovered CI Print program processes all recovered CIs in the specified area. If ALL is specified, the Recovered CI Print program processes all recovered CIs in the data sets specified in the RCIDUMP DD statement. Specifying AREA=ALL provides the same function as DB=ALL.

Even if the duplicate area names are specified in a control statement or the same area names are specified in more than one control statement, an error does not occur and the specified area is processed.

If ALL is specified, the Recovered CI Print program ignores the specifications of DB= and AREA= and processes all recovered CIs in the data set.

The SYSIN data set must have a control statement specifying at least one DB= or AREA=.

The maximum number that can be specified in an AREA= statement is 1000.

**RBA=(rba1-rba2 | rba...) | rba1-rba2 | rba | ALL**

Specifies CI RBAs. When RBAs are specified by a range such as *rba1-rba2*, *rba1* must be less than or equal to *rba2*. The Recovered CI Print program processes the CIs in the RBAs specified by the RBA= parameter, which are contained in the specified areas.

If ALL is specified, the Recovered CI Print program processes all recovered CIs in the specified areas.

The specified RBA value is valid for all areas specified on a control statement.

If any RBA values specified in a control statement overlap, the Recovered CI Print program processes all RBAs combined.

If the same area names and different RBA values are specified in more than one control statement, the Recovered CI Print program processes all RBAs combined.

The RBA value must be an eight-digit hexadecimal number.

The default is ALL.

## Example of JCL statements for the Recovered CI Print program

The following figure shows sample JCL statements for the Recovered CI Print program.

```
//PRINTPGM JOB (ACCT#),PGMRNAME ,
//          MSGCLASS=A,CLASS=A,MSGLEVEL=(1,1)
//DFRPRT   EXEC PGM=DFRCIDM0,PARM='FORMAT=COMPACT'
//STEPLIB  DD   DSN=DFR.SDFRLMD0,DISP=SHR
//RCIDUMP  DD   DSN=DFR.RCIDUMP,DISP=SHR
//SYSPRINT DD   SYSOUT=A
//RCIPRINT DD   SYSOUT=A
//SYSUDUMP DD   SYSOUT=A
//SYSIN    DD   *
AREA=ALL
/*
```

Figure 32. JCL example for the Recovered CI Print program

## Output from the Recovered CI Print program

The Recovered CI Print program generates the control statements and messages list and the recovered CI dump list.

Subsections:

- [“Control statements and messages list” on page 94](#)
- [“Recovered CI dump list” on page 95](#)

### Control statements and messages list

The control statements and messages list provides list of the specified control statements and the messages that are written by Recovered CI Print program.

The following figures show examples of the control statements and messages list.

```

IMS DEDB FAST RECOVERY V2R2    --- CONTROL STATEMENTS AND MESSAGES LIST          TIME 11:04:57    DATE 9/13/2021  P - 1
SOURCE CONTROL STATEMENTS

0.....1.....2.....3.....4.....5.....6.....7.....8
1234567890123456789012345678901234567890123456789012345678901234567890

AREA=DB23AR2,RBA=ALL
AREA=DB23AR5,RBA=(00001000-00003000)
AREA=DB23AR6,RBA=00007000
***** END OF STATEMENTS *****

```

Figure 33. Control statements and messages list (control statements)

```

IMS DEDB FAST RECOVERY V2R2    --- CONTROL STATEMENTS AND MESSAGES LIST          TIME 11:04:57    DATE 9/13/2021  P - 2
BRH1005I AREA = DB23AR2  DB = DEDBJN23      3 CI'S PRINTED
BRH1005I AREA = DB23AR5  DB = DEDBJN23      1 CI'S PRINTED
BRH1005I AREA = DB23AR6  DB = DEDBJN23      1 CI'S PRINTED

```

Figure 34. Control statements and messages list (messages)

## Recovered CI dump list

The recovered CI dump list shows a dump of the CIs specified on the control statements.

For the CI image, you can select either of the following formats:

- The output format of the DFSMS AMS program
- The output format of the MVS SNAP macro

In the first pages of the lists, the subsystem identifier of the IMS recovered by IMS DEDB Fast Recovery and the recovery date and time are listed.

The following figure shows an example of the list in the DFSMS AMS program format.

```

IMS DEDB FAST RECOVERY V2R2    --- RECOVERED CI DUMP LIST          TIME 15:53:37    DATE 8/28/2021  P - 1

IMS SYSTEM FAILED:  IMSID   = IMA1
RECOVERY DATE:      8/28/2021
RECOVERY TIME:      15:52:32

DB=DEDBJN23 AREA=DB23AR6          CI RBA=0000E000
000000 22140102 0000E008 017F0000 E36E0000 00000000 00000000 00000000 00000000 *....."..T>.....*
000020 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000 *.....*
000040 00000000 00000000 00000000 00000000 C12306F0 F0F2F8C1 40C1D9F0 F6607BF0 *.....A..0028A AR06-#0*
000060 F140C1D9 7EF640E4 D6E67EF0 40C1D77E F040C9D5 C9E340D3 D6C1C440 7BF0F140 *1 AR=6 UOW=0 AP=0 INIT LOAD #01 *
000080 40404040 40404040 40404040 40404040 40404040 40404040 40404040 40404040 *
0000A0 40404040 40404040 40404040 40404040 40404040 40404040 40404040 40404040 *
0000C0 40404040 40404040 40404040 40404040 40404040 40404040 40404040 40404040 *
0000E0 40404040 40404040 40404040 40404040 40404040 40404040 40404040 40404040 *
000100 40404040 40404040 40404040 40404040 40404040 40404040 40404040 40404040 *
000120 40404040 40404040 40404040 40404040 40404040 40404040 40404040 40404040 *
000140 40404040 40404040 40404040 40404040 40404040 40404040 40404040 40404040 *
000160 40404040 40404040 40404040 40404040 40404040 40404040 40404040 40404040 *
000180 40404040 40404040 40404040 40404040 40404040 40404040 40404040 40404040 *
0001A0 40404040 40404040 40404040 40404040 40404040 40404040 40404040 40404040 *
0001C0 40404040 40404040 40404040 40404040 40404040 40404040 40404040 40404040 *
0001E0 40404040 40404040 40404040 40404040 40404040 40404040 40404040 40404040 *
000200 40404040 40404040 40404040 40404040 40404040 40404040 40404040 40404040 *
000220 40404040 40404040 40404040 40404040 40404040 40404040 40404040 40404040 *
000240 40404040 40404040 40404040 40404040 40404040 40404040 40404040 40404040 *
000260 40404040 40404040 40404040 40404040 40404040 40404040 40404040 40404040 *
000280 40404040 40404040 40404040 40404040 40404040 40404040 40404040 40404040 *
0002A0 40404040 40404040 40404040 40404040 40404040 40404040 40404040 40404040 *
0002C0 40404040 40404040 40404040 40404040 40404040 40404040 40404040 40404040 *
0002E0 40404040 40404040 40404040 40404040 40404040 40404040 40404040 40404040 *
000300 40404040 40404040 40404040 40404040 40404040 40404040 40404040 40404040 *

```

Figure 35. Recovered CI dump list in the DFSMS AMS program format

The following figure shows an example of the list in the MVS SNAP macro format.

IMS SYSTEM FAILED: IMSID = IMA1  
 RECOVERY DATE: 8/28/2021  
 RECOVERY TIME: 15:52:32

```

DB=DEDBJN23 AREA=DB23AR6 CI RBA=0000E000
000000 22140102 0000E008 017F0000 E36E0000 00000000 00000000 00000000 00000000 *.....".T>.....*
000020 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000 *.....*
000040 00000000 00000000 00000000 00000320 C12306F0 F0F2F8C1 40C1D9F0 F6607BF0 *.....A..0028A AR06-#0*
000060 F140C1D9 7EF640E4 D6E67EF0 40C1D77E F040C9D5 C9E340D3 D6C1C440 7BF0F140 *1 AR=6 UOW=0 AP=0 INIT LOAD #01 *
000080 40404040 40404040 40404040 40404040 40404040 40404040 40404040 40404040 *
      LINES 0000A0-000340 SAME AS ABOVE
000360 40404040 40404040 40404040 4040017F 0000E6D4 0000EA3A 0000EDA0 0000F106 * ..WM.....1.*
000380 0000F46C 0000F7D6 0000FB40 0000FEAA 00000000 00000000 00000000 00000000 *..4%..70... ..*
0003A0 00000000 00000000 00000000 00000000 00000000 0320C123 06F0F0F2 F8C240C1 *.....A..0028B A*
0003C0 D9F0F660 7BF0F140 C1D97EF6 40E4D6E6 7EF040C1 D77EF040 C9D5C9E3 40D3D6C1 *R06-#01 AR=6 UOW=0 AP=0 INIT LOA*
0003E0 C4407BF0 F2404040 40404040 40404040 40404040 40404040 40404040 40404040 *D #02 *
000400 40404040 40404040 40404040 40404040 40404040 40404040 40404040 40404040 *
      LINES 000420-0006A0 SAME AS ABOVE
0006C0 40404040 40404040 40404040 40404040 40404040 017F0000 00000000 00000000 * ..".....*
0006E0 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000 *.....*
000700 00000000 00000000 00000000 00000000 00000000 00000000 00000320 C12306F0 *.....A..0*
000720 F0F2F8C3 40C1D9F0 F6607BF0 F140C1D9 7EF640E4 D6E67EF0 40C1D77E F040C9D5 *028C AR06-#01 AR=6 UOW=0 AP=0 IN*
000740 C9E340D3 D6C1C440 7BF0F340 40404040 40404040 40404040 40404040 40404040 *IT LOAD #03 *
000760 40404040 40404040 40404040 40404040 40404040 40404040 40404040 40404040 *
      LINES 000780-000A00 SAME AS ABOVE
000A20 40404040 40404040 40404040 40404040 40404040 40404040 40400200 00000000 * ..".....*
000A40 0360C523 06F0F0F2 F8C2F0F8 60C4F1F2 F3F0F6F0 F2F8C2F0 F84060C1 D9C5C1F6 *.-E..0028B08-D12306028B08 -AREA6*
000A60 40C9D5C9 E3C9C1D3 40D3D6C1 C46040C4 C4F14040 40404040 40404040 40404040 * INITIAL LOAD- DD1 *
000A80 40404040 40404040 40404040 40404040 40404040 40404040 40404040 40404040 *
      LINES 000AA0-000D80 SAME AS ABOVE
    
```

Figure 36. Recovered CI dump list in the MVS SNAP macro format

## Chapter 7. Reference

The topics in this section provide reference information for IMS DEDB Fast Recovery.

### Topics:

- [“RCIDUMP data set format” on page 97](#)
- [“DFRXDYN0 user exit” on page 98](#)
- [“How to read syntax diagrams” on page 102](#)

## RCIDUMP data set format

This reference topic provides information about the header record format and the dump record format of the RCIDUMP data set.

The information provided in this topic is product-sensitive programming interface. Customers can choose to install this IBM software product and tailor it to their preferences. The use of such interfaces creates dependencies on the detailed design or implementation of the IBM software product. Product-sensitive programming interface must be used only for these specialized purposes. Because of their dependencies on detailed design and implementation, it is to be expected that programs written to such interfaces might need to be changed in order to run with new product releases or versions, or as a result of service.

Subsections:

- [“Header record format of RCIDUMP” on page 97](#)
- [“Dump record format of RCIDUMP” on page 98](#)

### Header record format of RCIDUMP

The following table shows the format of the header record of the RCIDUMP data set.

Table 4. Header record format of RCIDUMP

Offset		Field length	Content
Decimal	Hexadecimal		
0	X'00'	2	Record length
2	X'02'	2	None
4	X'04'	36	Filled with binary zeros (X'00')
40	X'28'	36	**** RECOVERED CI DUMP DATA SET ***
76	X'4C'	8	Filled with blanks (X'40')
84	X'54'	10	IMSID = or RSENAME =
94	X'5E'	8	IMS system ID or XRF system ID
102	X'66'	8	Filled with blanks (X'40')
110	X'6E'	17	DATE = mm/dd/yyyy IMS DEDB Fast Recovery execution date (mm: month, dd: day, yyyy: year)
127	X'7F'	8	Filled with blanks (X'40')

Table 4. Header record format of RCIDUMP (continued)

Offset		Field length	Content
Decimal	Hexadecimal		
135	X'87'	15	TIME = <i>hh:mm:ss</i> IMS DEDB Fast Recovery execution time ( <i>hh</i> : hour, <i>mm</i> : minute, <i>ss</i> : second)
150	X'96'	28	(UTC <i>mm/dd/yyyy hh:mm:ss</i> ) IMS DEDB Fast Recovery execution UTC (UTC is shown if T=U EXEC parameter is specified at IMS DEDB Fast Recovery execution.)

## Dump record format of RCIDUMP

The following table shows the format of the dump record.

Table 5. Dump record format of RCIDUMP

Offset		Field length	Content
Decimal	Hexadecimal		
0	X'00'	2	Record length
2	X'02'	2	None
4	X'04'	1	Flag field. X'80' indicates Cast out CI. Redone CI, this flag is X'00'
5	X'05'	3	Filled with binary zeros (X'00')
8	X'08'	8	Database name
16	X'10'	8	Area name
24	X'18'	8	In a control CI dump, this is the DD name for the area data set. In a data CI dump, this is filled with binary zeros (X'00')
32	X'20'	4	RBA (Relative Byte Address) of VSAM CI
36	X'24'	4	CI length
40	X'28'	CI length	An entire CI image

## DFRXDYN0 user exit

When the log data sets are allocated dynamically, you can use the DFRXDYN0 user exit to provide data set names.

IMS DEDB Fast Recovery calls this exit routine, and the routine assigns a fully qualified name for the dynamic allocation of WADS, OLDS, or SLDS. If the user exit routine is contained in the load module data set specified in the STEPLIB DD statement, the routine is used.



## Attributes of the routine

When you code your own routine using the DFRXDYN0 user exit, you must consider the addressing mode, routine names, and link-editing.

### Addressing mode

The user exit routine is written as reusable. It receives control running in AMODE=31 and returns control in that mode.

### Routine name

You must name the user exit routine DFRXDYN0.

### Link-editing

You must link edit the exit routine into one of the data sets specified in the STEPLIB DD statement as a separate reusable load module. The following figure shows the sample JCL to link-edit the exit routine into the data set.

```
//LINKIT JOB (ACCT#),PGMRNAME
//LINK EXEC PGM=IEWL
//SYSUT1 DD UNIT=SYSDA,SPACE=(TRK,(20,20))
//SYSMOD DD DSN=DFR.SDFRLMD0,DISP=SHR
//OBJIN DD DSN=DFR.USERLIB,DISP=SHR
//SYSIN DD *
INCLUDE OBJIN(DFRXDYN0)
MODE AMODE(31),RMODE(ANY)
NAME DFRXDYN0(R)
/*
```

Figure 37. Sample JCL to link edit DFRXDYN0 into DFR.SDFRLMD0

## How the routine communicates with IMS DEDB Fast Recovery

IMS DEDB Fast Recovery communicates with the routine through the entry registers, a parameter list, and the exit registers.

Subsections:

- [“Conditions of calling the user exit routine” on page 99](#)
- [“Contents of the registers on entry” on page 100](#)
- [“Exit parameter list on entry” on page 100](#)
- [“Contents of the registers on exit” on page 102](#)

### Conditions of calling the user exit routine

The following table shows when IMS DEDB Fast Recovery calls this user exit routine. IMS DEDB Fast Recovery does not call this exit routine for OLDS and SLDS on DBRC=Y execution. IMS DEDB Fast Recovery uses the information about the log data set names in the DBRC RECON data set.

DBRC=Y	DBRC=N
WADS allocation (see <a href="#">note</a> )	OLDS WADS SLDS allocation

**Note:** IMS DEDB Fast Recovery calls the user exit routine for WADS, because the DBRC RECON data set does not have the data set name information.

## Contents of the registers on entry

Upon entry, the exit routine must save all registers using the provided save area. The following table shows the contents of the registers.

Table 7. Contents of the registers on entry

Register	Content
1	Address of the exit parameter list.
13	Address of the save area. Your exit routine must not change the first three words of this save area.
14	Return address to IMS DEDB Fast Recovery.
15	Entry point of the exit routine.

## Exit parameter list on entry

The following table shows the content of the exit parameter list.

Table 8. Exit parameter list

Offset (hexadecimal)	Length (decimal)	Constant type	Content
0	8	CL8	DD name for the OLDS, SLDS, or WADS
8	2	H	Length of the data set name
A	44	CL44	Data set name for the OLDS, SLDS, or WADS
36	1	CL1	Parameter of DBRC= for IMS DEDB Fast Recovery execution <b>C'Y'</b> DBRC=Y <b>C'N'</b> DBRC=N
37	1	XL1	Log data set indicator <b>X'80'</b> OLDS <b>X'40'</b> SLDS <b>X'20'</b> WADS <b>X'08'</b> PRIMARY <b>X'04'</b> SECONDARY
38	1	XL1	Flag for IMSID or RSENAME <b>X'80'</b> RSENAME <b>X'40'</b> IMSID
39	3	XL3	Reserved

Table 8. Exit parameter list (continued)

Offset (hexadecimal)	Length (decimal)	Constant type	Content
3C	8	CL8	IMSID or RSENAME
44	2	XL2	Descriptor code for MSG (see <a href="#">note 1</a> )
46	2	XL2	Routing code for MSG (see <a href="#">note 1</a> )
48	1	CL1	Parameter of SUF= for IMS DEDB Fast Recovery execution
Hereafter, use only for SLDS when DBRC=N			
49	1	XL1	Volume Count Specification <b>Text Unit Key</b> X'0013' (see <a href="#">note 2</a> )
4A	2	H	Data Set Sequence Number Specification <b>Text Unit Key</b> X'001F' (see <a href="#">note 2</a> )
4C	2	H	Volume Serial Specification (The number of volume serials being specified) <b>Text Unit Key</b> X'0010' (see <a href="#">note 2</a> )
4E	2040	255CL8	Volume Serial Specification 255 8-byte field. Each 8-byte field contains the following information: <b>Off Len</b> <b>Content</b> <b>+0 2</b> The length of the immediately following volume serial <b>+2 6</b> Volume serial <b>Text Unit Key</b> X'0010' (see <a href="#">note 2</a> )

**Notes:**

1. The routing code and descriptor code that were used by the IMS system for WTO to IMS master console are provided. They are obtained from IMS Secondary SCD in the DFSSVC00 module in IMS RESLIB and used by IMS DEDB Fast Recovery. Use them when issuing messages if necessary.
2. These fields are copied to text units for the dsname allocation. The key of the related text unit is shown for each field. If necessary, see the *Authorized Assembler Services Reference (ALESERV-DYNALLOC)*.

When the user exit is activated, IMS DEDB Fast Recovery passes it the address of this list in register 1. You must not modify data in the list except for the following fields:

For OLDS and WADS

- Data set name length field (offset +8)
- Data set name field (offset +A)

For SLDS only when DBRC=N

- Number of volume field (offset +49)
- Data set sequence field (offset +4A)
- Number of volume serial field (offset +4C)
- Length and volume serial field (offset +4E)

## Contents of the registers on exit

Before returning to IMS DEDB Fast Recovery, the exit routine must restore all registers except for register 15, which must contain the value that is listed in the following table.

Table 9. Content of the register on exit

Register	Content
15	0

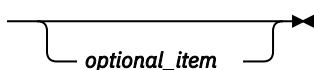
## How to read syntax diagrams

The following rules apply to the syntax diagrams that are used in this information:

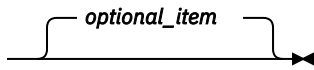
- Read the syntax diagrams from left to right, from top to bottom, following the path of the line. The following conventions are used:
  - The >>--- symbol indicates the beginning of a syntax diagram.
  - The ---> symbol indicates that the syntax diagram is continued on the next line.
  - The >--- symbol indicates that a syntax diagram is continued from the previous line.
  - The --->< symbol indicates the end of a syntax diagram.
- Required items appear on the horizontal line (the main path).

▶▶ *required\_item* ▶▶

- Optional items appear below the main path.

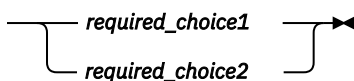
▶▶ *required\_item* ▶▶

If an optional item appears above the main path, that item has no effect on the execution of the syntax element and is used only for readability.

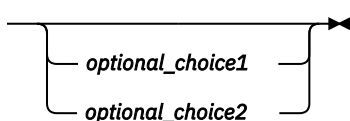
▶▶ *required\_item* ▶▶

- If you can choose from two or more items, they appear vertically, in a stack.

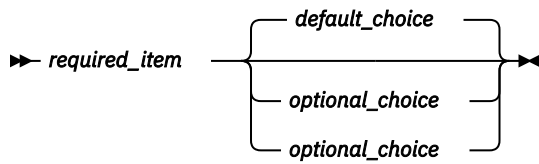
If you must choose one of the items, one item of the stack appears on the main path.

▶▶ *required\_item* ▶▶

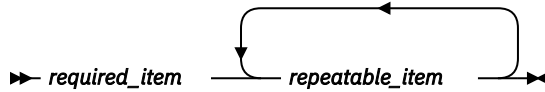
If choosing one of the items is optional, the entire stack appears below the main path.

▶▶ *required\_item* ▶▶

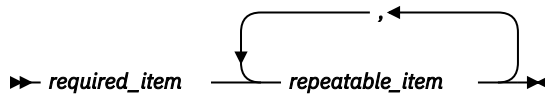
If one of the items is the default, it appears above the main path, and the remaining choices are shown below.



- An arrow returning to the left, above the main line, indicates an item that can be repeated.

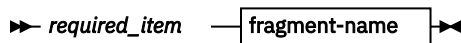


If the repeat arrow contains a comma, you must separate repeated items with a comma.

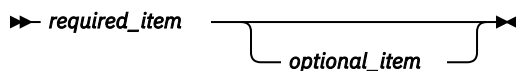


A repeat arrow above a stack indicates that you can repeat the items in the stack.

- Sometimes a diagram must be split into fragments. The syntax fragment is shown separately from the main syntax diagram, but the contents of the fragment should be read as if they are on the main path of the diagram.



**fragment-name**



- A b symbol indicates one blank position.
- Keywords, and their minimum abbreviations if applicable, appear in uppercase. They must be spelled exactly as shown. Variables appear in all lowercase italic letters (for example, *column-name*). They represent user-supplied names or values.
- Separate keywords and parameters by at least one space if no intervening punctuation is shown in the diagram.
- Enter punctuation marks, parentheses, arithmetic operators, and other symbols exactly as shown in the diagram.
- Footnotes are shown by a number in parentheses; for example, (1).



---

## Chapter 8. Troubleshooting

The topics in this section provide you with technical references to help you troubleshoot and diagnose IMS DEDB Fast Recovery problems.

For general information about problem diagnosis and reporting in an IMS environment, see *IMS Diagnosis*.

### Topics:

- [“Gathering diagnostic information” on page 105](#)
- [“Return codes” on page 105](#)
- [“Abend codes” on page 106](#)
- [“Messages” on page 107](#)

---

### Gathering diagnostic information

Before you report a problem with IMS DEDB Fast Recovery to IBM Software Support, you need to gather the appropriate diagnostic information.

Provide the following information for every IMS DEDB Fast Recovery problem:

- A clear description of the problem and the steps that are required to recreate the problem
- All messages that were issued preceding and following the problem
- The timestamps of the messages
- Product release number and the number of the last program temporary fix (PTF) that was installed
- The version of IMS that you are using and the type and version of the operating system that you are using

---

### Return codes

IMS DEDB Fast Recovery issues a return code at the end of a job step. You can use the return codes to determine the recovery step, or diagnose, troubleshoot, and solve IMS DEDB Fast Recovery problems.

The following table lists the return codes that might be issued by IMS DEDB Fast Recovery.

---

*Table 10. Return codes of IMS DEDB Fast Recovery*

---

Code	Meaning
0	The program has ended normally.  If DBRC=Y, do a cold start of the failed IMS system with the /ERE COLDSYS command or an IMS emergency restart with the /ERE COLDBASE command.  If DBRC=N, recover the DBRC RECON data set, then perform a cold start of the failed IMS system.
4	The program has completed.  See the program message and take the necessary action.

---

---

Table 10. Return codes of IMS DEDB Fast Recovery (continued)

---

Code	Meaning
8	<p>The program has completed.</p> <p>Before the IMS cold start, check the following to preserve the data integrity of the database:</p> <ul style="list-style-type: none"><li>• There are DEDB areas that are not yet recovered.</li><li>• There are DL/I databases that must be recovered.</li><li>• There are DL/I databases that must be backed out.</li><li>• There are databases or DEDB areas that must be stopped before starting an application program after cold start.</li></ul> <p>See the recovery status lists and take the necessary actions. Then, if DBRC=Y, perform an IMS cold start with the /ERE COLDSYS command or an IMS emergency restart with the /ERE COLDBASE command. If DBRC=N, recover the DBRC RECON data set, then perform an IMS cold start with the /ERE COLDSYS command.</p>
16	<p>The program detected a user operation error. Or, the process was terminated by a reply, made by the user, to a message requiring a response.</p> <p>See the program message and correct the error in the JCL statements or control statements, and then run the job again.</p>

---

## Abend codes

---

The explanations and user responses provided in this abend code reference can help you diagnose, troubleshoot, and solve IMS DEDB Fast Recovery problems.

Except for the following abend codes, each abend code is accompanied by a DFRxxxxE message. See the appropriate message for problem determination.

---

### 3404

#### Explanation

The FP log record processing module is receiving a record other than FP log records. This error is an internal program error.

#### User response

Contact IBM Software Support.

---

### 3405

#### Explanation

The spanned log record processing module detected one of the following errors: Either storage could not be obtained to process the log record, or a subsequent segment of a spanned log record was received before the first segment. This error is an internal program error.

#### User response

Contact IBM Software Support.

---

### 3406

#### Explanation

An internal program error has occurred while executing the GENCB or MODCB macro for the VSAM ACB or RPL. Register 15 at the time of abnormal termination contains the VSAM return code.

#### User response

Look up the VSAM return code in *DFSMS Macro Instructions for Data Sets* and correct the error. Then rerun the job.

---

### 3513

#### Explanation

There is an error in the DEDB area data set and a DBRC call error has occurred while attempting to register an unavailable status in the DBRC RECON data set. Register 15 at the time of abnormal termination contains one of the following return codes from DBRC.



**2C**

A DBRC internal program error has occurred while processing this DBRC Call. See the message issued by DBRC before abnormal termination.

**30**

There is an error in a parameter specified during the DBRC call.

**User response**

**2C**

Check that the IMS system library is correctly specified on the STEPLIB DD statement and the DBRC RECON data set is correctly specified in the JCL. Correct the DBRC-related errors and then rerun the job. If it is certain that there is an error in the DBRC function or the RECON data set, rerun the job with DBRC=N.

**30**

Contact IBM Software Support.

---

**3514**

**Explanation**

An internal error has occurred while creating a snap dump of the DEDB area CI. Register 15 contains the return code from the SNAP macro.

**User response**

Check and correct the DEDBSNAP DD statement and rerun the job. For a description of SNAP macro return codes, see the *Assembler Services Reference*.

---

**3519**

**Explanation**

The module that processes DL/I log records is receiving an FP log record. This error is an internal program error.

**User response**

Contact IBM Software Support.

---

**3520**

**Explanation**

The recovering system is the IMS XRF complex. In the processing of the I/O toleration buffer checkpoint log record (X'4026' Log), the I/O toleration EEQE for the corresponding DEDB area CI does not exist in the EEQE chain of DMAC. This error is an internal program error.

**User response**

Contact IBM Software Support.

---

**3999**

**Explanation**

This error is an internal program error. Register 15 contains a code that identifies the module in error. Register 14 contains a code that locates the error in the module.

**User response**

Contact IBM Software Support.

---

## Messages

The explanations and user responses provided in this message reference can help you diagnose, troubleshoot, and solve IMS DEDB Fast Recovery problems.

IMS DEDB Fast Recovery messages have the following format:

```
DFRxyyz text
```

Where:

**DFR**

Indicates that the message was issued by IMS DEDB Fast Recovery.

**x**

Indicates which program has issued this message:

**1**

If yyy is between 000 and 050, indicates that the Recovered CI Print program generated the message.

If yyy is over 051, indicates that IMS DEDB Fast Recovery generated the message.

**3**

Indicates that IMS DEDB Fast Recovery generated the message.

**yyy**

Is a three-digit number associated with the message being issued.

**z**

Indicates the severity of the message:

**A**

Indicates that operator intervention is required before processing can continue.

**E**

Indicates that an error occurred, which might or might not require operator intervention.

**I**

Indicates that the message is informational only.

**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.

**System action:**

The System action section explains what the system will do in response to the event that triggered this message.

**User response:****Operator response:**

The User response section or the Operator response section describes whether a response is necessary, what the appropriate response is, and how the response will affect the system or program.

---

**DFR1000I DFRCIDM0 ENDED NORMALLY**
**Explanation**

The Recovered CI Print program has ended normally.

**System action**

The job ends with a return code of 0.

**User response**

None. This message is informational.

---

**DFR1001W DFRCIDM0 ENDED WITH WARNINGS**
**Explanation**

Because the Recovered CI Print program detected an error that was not serious, it continued and ended.

**System action**

The job ends with a return code of 4.

**User response**

See the preceding output message, and analyze the cause of the error that is detected. Correct the error, if necessary, rerun the job.

---

**DFR1002E DFRCIDM0 ENDED WITH ERRORS**
**Explanation**

The Recovered CI Print program ended because it detected a serious error.

**System action**

The job ends with a return code of 16.

**User response**

See the preceding output message, and analyze the cause of the error that is detected. Correct the error and, if necessary, rerun the job.

---

**DFR1005I AREA = area\_name DB = dbname  
nnnnnn CI'S PRINTED**
**Explanation**

*nnnnnn* dumps of the CIs in the area of *area\_name* were written in the recovered CI dump list.

**System action**

The job continues.

## User response

None. This message is informational.

---

**DFR1006W NO RECORD FOUND IN RCIDUMP  
DATA SET FOR AREA = *area\_name***

## Explanation

Although the area of *area\_name* was specified on the control statement, there were no CI records of the area in an RCIDUMP data set.

## System action

The job continues and ends with a return code of 4.

## User response

See the recovered CI summary list IMS DEDB Fast Recovery wrote, and verify which area contains the CIs that IMS DEDB Fast Recovery recovered. Or, verify whether the correct data set is specified on the RCIDUMP DD statement. Correct the error, and then run the job again if necessary.

---

**DFR1007W NO RECORD FOUND IN RCIDUMP  
DATA SET FOR DB = *dbname***

## Explanation

Although the database of *dbname* was specified on the control statement, there were no CI records of the database in the RCIDUMP data set.

## System action

The job continues and ends with a return code of 4.

## User response

See the recovered CI summary list IMS DEDB Fast Recovery wrote, and verify which database contains the CIs IMS DEDB Fast Recovery recovered. Or, verify whether the correct data set is specified on the RCIDUMP DD statement. Correct the error and then run the job again if necessary.

---

**DFR1008W INVALID OFFSET FROM UTC IS  
STORED IN CVT. UTC DATE/TIME  
NOT REPORTED.**

## Explanation

It is specified that Universal Coordinated Time (UTC) is to be printed in the report header. The T=U EXEC parameter was specified when running IMS DEDB Fast Recovery, but the UTC offset that the system captured was not correct. The UTC offset must be

within the range of -11:00 to +14:00 hours. The operator probably made an error in the SET CLOCK command.

## System action

The Recovered CI Print program (DFRCIDM0) does not print UTC in the report header. The job continues and ends with a return code of 4.

## User response

If you can correct the error by the SET CLOCK command, enter the SET CLOCK command before running the Recovered CI Print program.

---

**DFR1010E INVALID KEYWORD PARAMETER  
DETECTED IN EXEC PARM FIELD**

## Explanation

An incorrect PARM= parameter is specified in an EXEC statement.

## System action

The job ends with a return code of 16.

## User response

Correct the error and then run the job again if necessary.

---

**DFR1020E NO CONTROL STATEMENT FOUND  
IN SYSIN DATA SET**

## Explanation

There is no control statement other than a comment in a SYSIN data set.

## System action

The job ends with a return code of 16.

## User response

Specify at least one control statement with a DB= or AREA= keyword in the SYSIN data set, and then run the job again.

---

**DFR1021E CONTROL STATEMENT FORMAT  
ERROR DETECTED**

## Explanation

A format error was detected in the control statement.

### System action

The job ends with a return code of 16.

### User response

Correct the error in the control statement, and then run the job again.

---

**DFR1022E      DUPLICATE KEYWORD DETECTED  
ON THE CONTROL STATEMENT**

### Explanation

Duplicate keywords are specified in the control statement.

### System action

The job ends with a return code of 16.

### User response

You cannot specify duplicate keywords in a control statement. Correct the error in the control statement, and then run the job again.

---

**DFR1023E      DB/AREA NAME SPECIFIED ON  
THE CONTROL STATEMENT IS  
INVALID**

### Explanation

An incorrect database or area is specified.

### System action

The job ends with a return code of 16.

### User response

Specify a correct database or area, and then run the job again.

---

**DFR1024E      INVALID RBA VALUE DETECTED  
ON THE CONTROL STATEMENT**

### Explanation

The RBA value specified in the control statement is not an eight-digit hexadecimal number.

### System action

The job ends with a return code of 16.

### User response

Correct the error in the control statement, and then run the job again.

---

**DFR1025E      BEGIN RBA IS GREATER THAN  
END RBA ON THE CONTROL  
STATEMENT**

### Explanation

When the range of RBAs was specified in the control statement, the begin value of RBA was greater than its end value.

### System action

The job ends with a return code of 16.

### User response

When specifying the range of RBAs, the begin value of RBA must be less than or equal to its end value. Correct the error in the control statement, and then run the job again.

---

**DFR1026E      THE NO. OF DB/AREA NAME  
SPECIFIED ON CONTROL  
STATEMENT IS BEYOND THE MAX  
VALUE**

### Explanation

The number of DB/AREA names that are specified in the DB=/AREA= statement exceeds the allowable maximum of 1000.

### System action

The job ends with a return code of 16.

### User response

Correct the DB/AREA names to be less than or equal to the maximum, and rerun the job.

---

**DFR1027E      NO RECORD FOUND IN RCIDUMP  
DATA SET**

### Explanation

There was no CI dump recovered in the data set specified in the RCIDUMP DD statement.

### System action

The job ends with a return code of 16.

### User response

Verify whether the correct data set is specified in the RCIDUMP DD statement. Correct the error and then run the job again if necessary.

---

**DFR1030E**      **OPEN FAILED FOR DDNAME =**  
*ddname*

### Explanation

The data set specified in the *ddname* DD statement could not be opened.

### System action

The job ends with an abend code of U1030.

### User response

Verify whether the correct data set is specified on the *ddname* DD statement in the execution JCL. Correct the error and then run the job again if necessary.

---

**DFR1031E**      **READ ERROR FOR DDNAME =**  
*ddname*

### Explanation

An I/O error occurred while reading the data set specified in *ddname* DD statement.

### System action

The job ends with an abend code of U1031.

### User response

Analyze the cause of the I/O error. Correct the error and then run the job again if necessary.

---

**DFR1032E**      **WRITE ERROR FOR DDNAME =**  
*ddname*

### Explanation

An I/O error occurred while writing the data set specified in *ddname* DD statement.

### System action

The job ends with an abend code of U1032.

### User response

Analyze the cause of the I/O error. Correct the error and then run the job again if necessary.

---

**DFR1041E**      **FIRST RECORD IN RCIDUMP**  
**DATA SET NOT A VALID HEADER**  
**RECORD**

### Explanation

The first record in the data set specified in the RCIDUMP DD statement does not have the correct header record format.

### System action

The job ends with an abend code of U1041.

### User response

Verify whether the correct data set is specified in the RCIDUMP DD statement. Correct the error and then run the job again if necessary.

---

**DFR1050E**      **GETMAIN FAIL FOR RBA**  
**INFORMATION TABLE**

### Explanation

The Recovered CI Print program could not allocate the required storage for the internal table to store the RBA information.

### System action

The job ends with an abend code of U1050.

### User response

Extend the storage area allocated for the job, and then run the job again.

---

**DFR1051E**      **DYNAMIC ALLOCATION ERROR**  
**FOR OLCSTAT RC=*ret\_code*/**  
***rsn\_code*,DSNAME=*dsname***

### Explanation

IMS DEDB Fast Recovery is unable to dynamically allocate the OLCSTAT data set. In the message text:

#### ***ret\_code*:**

The return code from the dynamic allocation service (DYNALLOC macro).

#### ***rsn\_code*:**

The reason code from the dynamic allocation service (DYNALLOC macro).

#### ***dsname*:**

The data set name of the OLCSTAT that is specified in the IMS.PROCLIB member. For the details on return/reason codes from the dynamic allocation service (DYNALLOC macro), see the *Authorized Assembler Services Reference (ALESERV-DYNALLOC)*.

## System action

The job ends with an abend code U1051.

## User response

Correct the dynamic allocation problem and rerun the job.

---

**DFR1052W            DYNAMIC UNALLOCATION ERROR  
                         FOR OLCSTAT**

## Explanation

IMS DEDB Fast Recovery is unable to dynamically unallocate the OLCSTAT data set.

## System action

The job continues and finally ends with return code 4 or higher.

## User response

None.

---

**DFR1053E            DATASET *service* FAILED FOR  
                         OLCSTAT RC=rrrrrrrr/ssssssss**

## Explanation

The OLCSTAT data set that is specified in the IMS.PROCLIB member or in the OLCSTAT DD statement failed for *service*. In the message text:

### **service:**

The service that failed. The service can be OPEN, READ, or CLOSE.

### **rrrrrrrr:**

The return code from the DFSMS service.

### **ssssssss:**

The reason code from the DFSMS service.

For the details on return/reason codes, see *DFSMS Macro Instructions for Data Sets*.

## System action

The job ends with an abend code U1053.

## User response

Correct the data set problem and rerun the job.

---

**DFR1053W            DATASET *service* FAILED FOR  
                         OLCSTAT RC=rrrrrrrr/ssssssss**

## Explanation

The OLCSTAT data set that is specified in the IMS.PROCLIB member or in the OLCSTAT DD statement failed for *service*. In the message text:

### **service:**

The service that failed. The service can be OPEN, READ, or CLOSE.

### **rrrrrrrr:**

The return code from the DFSMS service.

### **ssssssss:**

The reason code from the DFSMS service.

For the details on return/reason codes, see *DFSMS Macro Instructions for Data Sets*.

## System action

The job continues, and when it ends, issues return code 4 or higher.

## User response

None.

---

**DFR1054E            THE CONTENTS OF DATASET  
                         OLCSTAT IS NOT CORRECT.  
                         REASON CODE=*nn***

## Explanation

The contents of the OLCSTAT data set, which is specified in the IMS.PROCLIB member or in the OLCSTAT DD statement, is incorrect. The type of error is shown by reason code *nn*.

### **Code**

#### **Meaning**

#### **01**

The OLCSTAT data set is not initialized.

#### **02**

The record header length is incorrect. The length must be a non-zero value and not longer than the maximum possible OLCSTAT data set size.

#### **03**

The OLCSTAT data set lock word is incorrect.

#### **04**

The MODBLKS suffix is incorrect. The suffix must be A or B.

#### **05**

The ACBLIB suffix is incorrect. The suffix must be A or B.

#### **06**

The FORMAT suffix is incorrect. The suffix must be A or B.

## System action

The job ends with an abend code U1054.

## User response

Check that the OLCSTAT data set name in the IMS.PROCLIB member or in the OLCSTAT DD statement is correct. If the data set name is incorrect, specify the correct OLCSTAT data set name, and rerun the job. If the data set name is correct, analyze and correct the cause of the error and rerun the job.

---

**DFR1055E GLOBAL ONLINE CHANGE IS IN PROGRESS. DFR CANNOT GET ACCESS TO THE OLCSTAT DATASET**

## Explanation

Because a global online change is in progress with the OLCSTAT data set, IMS DEDB Fast Recovery cannot get access to the data set.

## System action

The job ends with a return code of 16.

## User response

There are the following two responses depending on the status of other IMS systems that belong to the same IMSplex system:

- If there is any IMS system that is active, wait until the global online change is finished and then rerun the job.
- If there is no active IMS system and no online change in progress, run the following steps:
  1. Check the status of ACBLIB, MODBLKS, and FMTLIB libraries.
  2. Run the ULK function of the Global Online Change Utility (DFSUOLC0) to unlock the OLCSTAT data set.
  3. Run the INI function of the Global Online Change Utility (DFSUOLC0) to construct the contents of the OLCSTAT data set with the correct values for the online change identifier and the online change library ddnames.
  4. Rerun the job.

If you cannot construct the contents of the OLCSTAT data set, use the Database Recovery Utility instead of IMS DEDB Fast Recovery to recover DEDB databases.

---

**DFR1056E THE ONLINE CHANGE TYPE OF EXEC PARAMETER AND OLC=olctype DO NOT MATCH**

## Explanation

IMS DEDB Fast Recovery found that the online change type (local or global) in the checkpoint log record (X'4001') is used by IMS DEDB Fast Recovery for recovery, and the online change type specified in OLC= EXEC parameter did not match. The *olctype* is the online change type in the checkpoint log record (X'4001') and means as follows:

### LOCAL

Local online change is enabled.

### GLOBAL

Global online change is enabled.

## System action

The job ends with an abend code U1056.

## User response

The mismatch should not occur. Check the cause of the error and correct the mismatch of the online change type, and rerun the job.

---

**DFR1057E SPECIFIED PARAMETER CONFLICTS BETWEEN EXEC AND IMS.PROCLIB MEMBER FOR CSL. REASON CODE=nn**

## Explanation

The specified value in the EXEC statement does not match the Common Services Layer (CSL) definition that is defined by the IMS.PROCLIB member. The type of error is shown by reason code *nn*.

### Code

#### Meaning

#### 01

Although OLC=G is specified in the EXEC statement, OLC=LOCAL is specified (or defaulted) in the IMS.PROCLIB member.

## System action

The job ends with a return code of 16.

## User response

Check the cause of the error and correct the inconsistency, and rerun the job.

---

**DFR1058E SYSTEM DATASETS ARE INCONSISTENT - OLCSTAT. REASON CODE=nn LOG.MODID=aaaaaaaa, OLCSTAT.MODID=bbbbbbbb**

## Explanation

The scope of the online change of the IMS system to be recovered is global. IMS DEDB Fast Recovery found a mismatch in the level of the MODBLKS data set, the ACBLIB data set, or both. In the message text:

### **aaaaaaaa:**

The latest modify ID from the processed log records in the IMS log.

### **bbbbbbbb:**

The modify ID that IMS DEDB Fast Recovery found in the OLCSTAT data set during the control block initialization.

### **nn:**

The reason code.

### **Code**

#### **Meaning**

#### **01**

The modify ID does not match between the one in the header in the OLCSTAT data set and in the one in the log record (X'4001': Begin Checkpoint log record and/or X'7000': Online Change log record) in the log. This means that the log is not synchronized with the OLCSTAT data set.

#### **02**

Although the modify ID in the log is consistent with the modify ID in the header of the OLCSTAT data set, there is no record for the IMS system in the OLCSTAT data set and the IMS system is not the same level as the online change libraries.

#### **03**

The modify ID in the header in the OLCSTAT data set shows that one global online change, which included ACBLIB, was made before the failed IMS system was recovered. In this situation, IMS DEDB Fast Recovery cannot assure the consistency of the loaded control blocks: DMBs and the logged data in the log.

#### **04**

The modify ID in the header of the OLCSTAT data set shows that two or more global online changes were made after the failure of the IMS system that IMS DEDB Fast Recovery tried to recover. In this situation, IMS DEDB Fast Recovery cannot assure the consistency of the loaded control blocks: DMBs and the logged data in the log.

## System action

The job ends with an abend code U1058.

## User response

If the reason code is 01 or 02, check the cause of the error, and if necessary, run the Global Online Change Utility (DFSUOLCO) to correct the OLCSTAT data set. Then rerun the job. If the reason code is 03 or 04, use the Database Recovery Utility to recover DEDBs.

---

### **DFR1059E**

**NO ALLOCATION FOR  
DDNAME=PROCLIB**

## Explanation

Though OLC=G is specified in the EXEC parameter, the execution JCL does not contain a PROCLIB DD statement or DUMMY is specified in the PROCLIB DD statement.

## System action

The job ends with a return code of 16.

## User response

Add the correct DD statement and rerun the job.

---

### **DFR1060E**

**CANNOT OPEN THE IMS.PROCLIB  
DATASET**

## Explanation

The IMS.PROCLIB data set cannot be opened.

## System action

The job ends with an abend code U1060.

## User response

Check the cause of the error and correct the data set error, and rerun the job.

---

### **DFR1061E**

**BLDL FAILED FOR IMS.PROCLIB  
MEMBER *mmmmmmxxx***

## Explanation

IMS.PROCLIB member *mmmmmmxxx* cannot be found in the data set that is specified on the PROCLIB DD statement. In the message text:

### **mmmmmm:**

#### **DFSCG**

The prefix part of the member name where the parameter for the Common Service Layer (CSL) is specified.



## DFSDF

The prefix part of the member name where the parameter for the Common Service Layer (CSL) is specified as a section.

### xxx:

The suffix part of the member name. If *mmmm* is DFSCG, the value is what is specified in the CSLG= EXEC parameter. If *mmmm* is DFSDF, the value is what is specified in the DFSDF= EXEC parameter.

## System action

The job ends with a return code of 16.

## User response

There is an error in the CSLG= EXEC parameter or the DFSDF= EXEC parameter, or the data set that is specified in the PROCLIB DD statement is incorrect. Correct the error and rerun the job.

---

**DFR1062E            UNABLE TO READ THE PROCLIB RECORD. REASON CODE=*nn***

## Explanation

There is an error in the record in the member of the IMS.PROCLIB data set that is specified in the PROCLIB DD statement. The type of error is shown by reason code *nn*.

### Code

#### Meaning

#### 01

The record in the DFSCGxxx member cannot be read due to an I/O error.

#### 02

The record format error in DFSCGxxx is found.

#### 03

The OLCSTAT= parameter is not found in the records. This code indicates that the parameter was not specified in either member DFSCGxxx or DFSDFyyy.

#### 11

Record in DFSDFyyy member cannot be read due to an I/O error.

#### 12

Record format error in DFSDFyyy is found.

The suffix part of members DFSCGxxx is specified by the CSLG=xxx parameter, and DFSDFyyy by the DFSDF=yyy parameter.

## System action

The job ends with an abend code U1062.

## User response

Check the cause of the error and correct the error or specifying the correct data set name in the PROCLIB DD statement, and rerun the job.

---

**DFR1064I            THE ACTIVATED PARAMETERS IN IMS.PROCLIB ARE OLC=*olctype* AND OLCSTAT=*dsname***

## Explanation

When OLC=G EXEC parameter is specified, online information is obtained from IMS.PROCLIB. The value of the OLC= and the OLCSTAT= parameter that IMS DEDB Fast Recovery obtained from IMS.PROCLIB is shown. You can specify online information either in DFSCGxxx or DFSDFyyy in the IMS.PROCLIB member. IMS DEDB Fast Recovery uses the value that is specified in the IMS.PROCLIB member. (If value is specified in both DFSCGxxx and DFSDFyyy, one in DFSCGxxx is used.) The suffix part of members DFSCGxxx is specified by the CSLG=xxx parameter, and DFSDFyyy by the DFSDF=yyy parameter.

The *olctype* is the online change type in the activated parameter:

### *olctype*

#### LOCAL

Local online change is enabled in IMS systems that IMS DEDB Fast Recovery processes. (If the OLC= parameter in member IMS.PROCLIB is omitted, it is assumed that LOCAL was specified.)

#### GLOBAL

Global online change is enabled in IMS systems that IMS DEDB Fast Recovery processes.

### *dsname*

The name of the OLCSTAT data set. However, if the OLCSTAT DD statement is specified in the JCL statement of IMS DEDB Fast Recovery, the data set specified in the DD statement will be used.

## System action

The job continues.

## User response

None. This message is informational.

---

**DFR1065E            SYSTEM DATASETS ARE INCONSISTENT - OLCSTAT. LOG.MOLCID=*aaaaaaaaaaaaa*, OLCSTAT.MOLCID=*bbbbbbbbbbbbbb***

## Explanation

The scope of the online change of the IMS system to be recovered is global. IMS DEDB Fast Recovery found a mismatched member online change ID for ACBLIB. In the message text:

**aaaaaaaaaaaaaa**

The latest member online change ID from the processing of the log records in the IMS log.

**bbbbbbbbbbbbbb**

The member online change ID that IMS DEDB Fast Recovery found in the OLCSTAT data set.

A member online change ID, which is the 13-byte UTC timestamp (*yyydddhhmmss*) of the last committed member online change process.

## System action

The job ends with an abend code U1065.

## User response

Check that IMS DEDB Fast Recovery is using the correct OLCSTAT data set and the log data sets. If it is not, correct the error, and rerun the job. If it is, IMS DEDB Fast Recovery cannot recover the areas because the database information needed to recover the areas cannot be determined. Use Database Recovery Utility to recover.

---

**DFR1066E NO CONNECTION DETECTED.**  
**AREA=area\_name, STR=str\_name.**

## Explanation

A connection loss is detected for the area specified by *area\_name* and the structure specified by *str\_name*. The structure is a multi-area structure and this message or message DFR3619E is issued for all areas that share the structure.

## System action

The action depends on the CFRET= parameter.

### CFRET=Y

IMS DEDB Fast Recovery disconnects the structure and keeps the failed-persistent connection to the structure. Even if there is no other active connector, the structure remains.

### CFRET=N

IMS DEDB Fast Recovery disconnects the structure normally. If there is no other active connector, the structure is deleted. The area is registered as unavailable.

## User response

After the job ends normally, check the DEDB Area Status list. If RCVNEED is shown for the area, run the Database Recovery utility to recover the area. If RETRY is shown for the area, analyze the cause of the problem and remove it. Prepare the Area Recovery Retry Statement and rerun IMS DEDB Fast Recovery.

---

**DFR1067W OLCSTAT DATA SET DYNAMIC ALLOCATION ENCOUNTERED AN ERROR; RETRYING THE ALLOCATION**

## Explanation

IMS DEDB Fast Recovery is in a wait state during dynamic allocation of the OLCSTAT data set. This wait occurs because the OLCSTAT data set is being held by another user. IMS DEDB Fast Recovery will reattempt to dynamically allocate the data set and will continue attempting to do so until one of the following conditions are met:

- The OLCSTAT data set is no longer in use by the other user
- The maximum number of retry attempts has been reached

## System action

If the OLCSTAT data set is freed by the user who is holding it, IMS DEDB Fast Recovery continues processing. If the maximum number of retry attempts has been reached, the job ends with an abend code U1051, accompanied by message DFR1051E.

## User response

If the job ends with an abend code U1051, follow the instructions in the User response section of message DFR1051E.

---

**DFR3001E DEDB FAST RECOVERY TERMINATED DUE TO EXEC PARAMETER ERRORS. REASON CODE=nn**

## Explanation

There is an error in one or more of the EXEC parameters. The type of error is indicated by the reason code *nn*.

### Code

#### Meaning

#### 01

A character other than Y or N is specified for the DBRC= operand.

- 02** The IMSID= operand is not 1 to 4 characters long.
- 03** A log record in the input log data set contains either (1) a time stamp older than the program start time or (2) an IMSID or RSENAME different from the value specified in the IMSID= or RSENAME= operand. The IMSID= or RSENAME= operand might be incorrect, or a wrong log data set might be specified.
- 04** The SUF parameter is not specified, or the operand exceeds one character.
- 05** The RSENAME= operand is not 1 to 8 characters long.
- 06** Neither the IMSID nor the RSENAME parameter is specified.
- 07** Incorrect MSDB= operand specification. MSDB=Y or MSDB=O can be specified when:
- DBRC=Y or DBRC=N,AUTO=Y is also specified.
  - the IMS to recover is not a DBCTL configuration.
- 08** Both the IMSID and the RSENAME parameters are specified.
- 09** An incorrect parameter is specified.
- 10** A character other than Y or N is specified for the AUTO= operand.
- 11** A character other than Y or N is specified for the LCHKPT= operand.
- 12** A character other than Y, A, or N is specified for the CIDUMP= operand.
- 13** A character other than Y or N is specified for the CFCONF= operand.
- 14** A character other than Y or N is specified for the CFRET= operand.
- 15** A character other than L or U is specified for the T= operand.
- 16** A character other than Y, O, or N is specified for the MSDB= operand.

- 17** The IMSPLEX= operand is not 1 to 5 characters long.
- 18** A character other than L or G is specified for the OLC= operand.
- 1A** The DBRCGRP= operand is not 1 to 3 characters long.
- 1B** Although the DBRCGRP parameter is specified and the DBRC=Y parameter is specified or defaulted, the IMSPLEX parameter is not specified.
- 1C** The DFSDF= operand is not 1 to 3 characters long.
- 1D** Although the OLC=G parameter is specified, neither the CSLG parameter nor the DFSDF parameter is specified.
- 1E** A character other than C or F is specified for the ACBLIB= operand.
- 1F** The ACBLIB parameter cannot be used in an IMS XRF complex.
- 20** A parameter is specified more than once.
- 21** ACBLIB=F operand is not allowed. ACBLIB=F cannot be used when the IMSBSDS DD statement is specified.

### System action

The job ends with a return code of 16.

### User response

Correct the EXEC parameter and rerun the job.

---

**DFR3002E            OPEN FAILED FOR  
                         DDNAME=ddname**

### Explanation

The specified data set cannot be opened.

### System action

The job ends with an abend code of U3002 or a return code of 16.

### User response

Correct the cause of the open error and rerun the job.

---

**DFR3003E**      **BLDL FAILED FOR LOAD MODULE**  
*module\_name*

### Explanation

Module *module\_name* cannot be found in the data set specified on the STEPLIB DD statement.

### System action

The job ends with a return code of 16.

### User response

Specify the name of the IMS RESLIB on the STEPLIB DD statement and rerun the job.

---

**DFR3004E**      **GETMAIN FAILED. INSUFFICIENT**  
**STORAGE FOR CONTROL BLOCK**  
*ctrl\_blk*

### Explanation

The program cannot obtain storage for the control block *ctrl\_blk*.

### System action

The job ends with an abend code of U3004.

### User response

Increase the storage size and rerun the job.

---

**DFR3005E**      **NO ALLOCATION FOR**  
**DDNAME=*ddname***

### Explanation

The DD statement *ddname* is missing from the execution JCL.

### System action

The job ends with a return code of 16.

### User response

Specify the DD statement correctly and rerun the job.

---

**DFR3007I**      **NO ALLOCATION FOR**  
**DDNAME=*ddname.comment***

### Explanation

The list is not generated because the *ddname* DD statement is missing from the execution JCL. The *comment* is one of the following texts:

**NO DEDB SNAP DUMP WILL BE TAKEN**

DEDB Snap Dump list

**NO RECOVERED CI BITMAP WILL BE TAKEN**

Recovered CI Bitmap

**NO CI SUMMARY REPORT WILL BE TAKEN**

Recovered CI Summary list

**NO COMPLETE DBRC CMD LIST TAKEN**

Complete DBRC command list

**NO INCOMPLETE DBRC CMD LIST TAKEN**

Incomplete DBRC command list

### System action

The job continues without producing the list shown in *comment*.

### User response

If the list is necessary, add the DD statement and then run the job again. Otherwise, no action is required.

---

**DFR3008I**      **UNABLE TO ESTABLISH ESTAE**

### Explanation

The initialization of ESTAE routine failed.

### System action

The job ends with an abend code of U3008.

### User response

Contact IBM Software Support.

---

**DFR3009E**      **INVALID OFFSET FROM UTC**  
**FOUND**

### Explanation

The Universal Coordinated Time (UTC) offset must be within the range of -11:00 to +14:00 hours. The value is outside this range. The operator probably made an error in the SET CLOCK command.

### System action

The job ends with a return code of 16.

### User response

If you can correct the error by a SET CLOCK command, enter the SET CLOCK command and rerun the job.

---

**DFR3010E**      **UNABLE TO CONVERT TO LOCAL**  
**TIME. OFFSET FROM MVS IS**  
**INVALID.**

## Explanation

The Universal Coordinated Time (UTC) cannot be converted to a valid local time.

## System action

In the report header, IMS DEDB Fast Recovery sets MM/DD/YYYY for the date and HH:MM:SS for the time. The job continues.

## User response

If you cannot determine the problem, contact IBM Software Support.

---

**DFR3011E      INVALID TIME-OF-DAY(TOD)  
                  CLOCK FOUND**

## Explanation

IMS DEDB Fast Recovery was attempting to obtain a time value by using the STORE CLOCK instruction (STCK) and returned an unacceptable return code.

## System action

The job ends with a return code of 16 or an abend code of U3011.

## User response

Make sure that the time-of-day clock is in a valid state. If you cannot determine the problem, contact the IBM Software Support.

---

**DFR3100E      *error\_type* ERROR IN WADS  
                  DDNAME=*ddname***

## Explanation

An attempt to use WADS to close the OLDS that was in use when IMS failed has resulted in error indicated by the error type of *error\_type*.

**Type**  
**Meaning**

**OPEN**  
OPEN error.

**READ**  
WADS read error.

**SEQUENCE #**  
The WADS was read, but there were no required log blocks to close the OLDS.

**CLOSE**  
WADS close error.

## VERIFY

An error occurred while verifying the format of WADS.

## TRKCALC

MVS TRKCALC macro has returned an error code.

## MISSING RCD

A sequence of WADS records has fewer records than it should.

## System action

If the error occurred on a dual WADS, the job continues by using the alternate data set. If errors occurred in both WADSs, or the mode is a single WADS, the job ends with an abend code of U3100.

## User response

If the job ended abnormally, make sure that the DD statement for WADS is specified correctly. If there is any error, correct it and rerun the job. If there is no error in the DD statement, contact IBM Software Support.

---

**DFR3100E      *error\_type* ERROR IN WADS  
                  PROCESSING**

## Explanation

An attempt to use WADS to close the OLDS that was in use when IMS failed has resulted in error indicated by the error type of *error\_type*.

**Type**  
**Meaning**

**OPEN**  
OPEN error.

**READ**  
WADS read error.

**SEQUENCE #**  
The WADS was read, but there were no required log blocks to close the OLDS.

**CLOSE**  
WADS close error.

**VERIFY**  
An error occurred while verifying the format of WADS.

**TRKCALC**  
MVS TRKCALC macro has returned an error code.

**MISSING RCD**  
A sequence of WADS records has fewer records than it should.

## System action

If the error occurred on a dual WADS, the job continues by using the alternate data set. If errors occurred in both WADSs, or the mode is a single WADS, the job ends with an abend code of U3100.

## User response

If the job ended abnormally, make sure that the DD statement for WADS is specified correctly. If there is any error, correct it and rerun the job. If there is no error in the DD statement, contact IBM Software Support.

---

### DFR3101E WADS ALLOCATION ERROR

## Explanation

The WADSs cannot be allocated because there are no DD statements or no dynamic allocation parameter lists with the DFSMDA macro, for the WADSs that were in use when IMS failed.

## System action

The job ends with a return code of 16.

## User response

Specify the WADSs that were in use when IMS failed in the DD statements or the dynamic allocation parameter lists with the DFSMDA macro. Then rerun the job.

---

### DFR3102E DBRC *dbrc\_interface dbrc\_call* EXIT FAILED (*rr*)

## Explanation

An error code *rr* (decimal) was returned when DBRC was called. *dbrc\_interface* indicates one of the following DBRC interfaces:

### DASD LOG

DASD logging online interface

### LOG RECV

Log Recovery utility interface

### SIGN-OFF

Log Recovery utility interface

See the topic "DBRC request return codes" in *IMS Messages and Codes*.

*dbrc\_call* is one of the following DBRC CALL types:

### Type

#### Meaning

### INITO

Initialize the DBRC environment

### INIT1

Open a RECON data set

### INIT

INIT exit

### BLDPARM

Initialize the parameter area

### OPEN(P)

OPEN exit (primary OLDS)

### OPEN(S)

OPEN exit (secondary OLDS)

### CLOSE(P)

CLOSE exit (primary OLDS)

### CLOSE(S)

CLOSE exit (secondary OLDS)

### LOCREC

LOCREC exit

### LAST

LAST exit

### EOJ

EOJ exit

### TERM

Terminate the DBRC environment

### ABNORMAL

Termination type

## System action

The job ends with an abend code of U3102.

## User response

Correct the cause of the DBRC CALL error and rerun the job. If DBRC does not operate correctly, specify DBRC=N in the EXEC parameter and rerun the job. If the IMSplex name is given by the DBRC SCI Registration Exit (DSPSCIX0) while the IMSPLEX= EXEC parameter is not specified, specify the IMSPLEX= EXEC parameter and rerun the job. For details of DSPSCIX0, see *IMS Exit Routines*. If the IMSPLEX= EXEC parameter is specified, the name given in the DSPSCIX0 exit overrides it.

---

### DFR3103I OLDS DDNAME=*ddname* CLOSED SUCCESSFULLY

## Explanation

The indicated OLDS has been recovered and closed by IMS DEDB Fast Recovery. The value *ddname* indicates the OLDS ddname.

## System action

IMS DEDB Fast Recovery continues.

## User response

None. This message is informational.

---

**DFR3104I**      **OLDS DDNAME=*ddname* ALREADY CLOSED**

## Explanation

An attempt was made to close the indicated OLDS but it was already closed by the emergency restart, the Log Recovery utility, or the IMS DEDB Fast Recovery execution.

## System action

IMS DEDB Fast Recovery continues.

## User response

None. This message is informational.

---

**DFR3105E**      **REQUIRED LOG DATA NOT FOUND. OLDS CANNOT BE CLOSED**

## Explanation

An error was found in OLDS before the log block used when IMS failed.

## System action

The job ends with an abend code of U3105.

## User response

Correct the OLDS error by executing the Log Recovery utility in DUP mode and then in REP mode. After the OLDS is recovered, rerun the job.

---

**DFR3106A**      **ACTIVE IMS OLDS CAN NOT BE CLOSED. ANSWER 'YES' TO CHANGE SUBSYS STATUS ABNORMAL IN DBRC. 'NO' TO TERMINATE.**

## Explanation

An attempt was made to close active OLDS in an active subsystem. This message requires an operator response.

## System action

IMS DEDB Fast Recovery waits for an operator response.

## Operator response

Reply with one of the following character strings. If none of them is entered, another DFR3106A message is displayed.

### Response Explanation

#### YES

IMS DEDB Fast Recovery changes IMS subsystem status from normal to abnormal. Recovery process continues.

#### NO

IMS DEDB Fast Recovery ends execution. Recovery process is not done.

---

**DFR3107E**      **END OF PRIMARY EXTENT DURING OLDS WRITE OPERATION**

## Explanation

An attempt was made to add log blocks remaining in WADS at the end of OLDS to close the OLDS that was in use when IMS failed, but log blocks or an accounting log record (X'06') could not be written because the OLDS primary extent was already full.

## System action

The job ends with an abend code of U3107.

## User response

Execute the Log Recovery utility in DUP mode to reserve sufficient space for writing WADS log blocks and the log record X'06'. Then rerun the job.

---

**DFR3108W**      **NO WADS AVAILABLE AT LAST OLDS WRITE**

## Explanation

This is a warning message indicating that no WADSs were being used when IMS failed.

## System action

IMS DEDB Fast Recovery closes the OLDS without using WADSs.

## User response

None.

---

**DFR3109E**      ***error\_type* ERROR IN OLDS DDNAME=*ddname***

## Explanation

An attempt to calculate the amount of space for the OLDS of the indicated DD name (*ddname*), which was in use when IMS failed, has resulted in error. *error\_type* shows the type of the error.

### Type Meaning

#### DEVTYPE

MVS DEVTYPE macro returned an error code.

#### ISITMGD

MVS ISITMGD macro returned an error code.

#### TRKCALC

MVS TRKCALC macro returned an error code.

#### OBTAIN

MVS OBTAIN macro returned an error code.

#### ZERO BLOCKS

MVS TRKCALC macro returned zero for the number of blocks per track.

#### ZERO TRACKS

The number of calculated tracks is zero.

## System action

The job ends with an abend code of U3109.

## User response

Ensure that the DD statement for OLDS is specified correctly. If there is any error, correct it and rerun the job. If there is no error in the DD statement, contact IBM Software Support.

---

**DFR3110A**      **ENTER *log\_dataset\_type* *llll*  
DDNAME OR 'NO'**

## Explanation

Since DBRC cannot be used (DBRC=N), IMS DEDB Fast Recovery is requesting the ddname of the specified log data set. *llll* is either OLDS or SLDS. *log\_dataset\_type* indicates one of the following log data set types:

### Type Meaning

#### LAST USED

The OLDS that was in use when IMS failed. If the OLDS that was in use when IMS failed is already closed by an emergency restart, then the last OLDS that was used during the emergency restart is assumed.

#### PREVIOUS

The OLDS that was used immediately before the log data set indicated in message DFR3112I or the SLDS containing that OLDS.

## NEXT USED

The OLDS that was used immediately after the log data set indicated in message DFR3112I or the SLDS containing that OLDS.

## CHKPT

The OLDS or SLDS containing the checkpoint log indicated in message DFR3301I.

## System action

IMS DEDB Fast Recovery waits for an operator response. If NO is returned for the OLDS request, a new request for the same type of SLDS is issued. If NO is returned for the SLDS request or for the LAST USED OLDS request, the job ends with a return code of 16. If NO is returned for the first PREVIOUS OLDS request, then an SLDS request is not issued and the job continues. In this case, the data validation check of log records in the LAST OLDS by using the PREVIOUS OLDS is not performed.

The job continues if a correct ddname is entered.

## Operator response

Enter the ddname of the indicated log data set as follows:

- If there is only one OLDS log data set, enter

```
R xx, DFSOLPnn
```

- If there are dual OLDS log data sets, enter

```
R xx, DFSOLPnn, DFSOLSnn
```

If NO is returned for the OLDS request, the request is switched to an SLDS request. Enter the ddname specified in the DD statement of the SLDS within 8 bytes.

- If there is only one SLDS log data set, enter

```
R xx, pppppppp
```

- If there are dual SLDS log data sets, enter

```
R xx, pppppppp, ssssssss
```

If you want to end the job, enter N0 to both OLDS and SLDS requests.

---

**DFR3111A**      **DDNAME SPECIFICATION ERROR.  
REENTER DDNAME OR 'NO'**

## Explanation

There was an error in the operator's reply to the message DFR3110A. Data reentry is requested.



## System action

IMS DEDB Fast Recovery waits for an operator response. If there is an error, the message DFR3111A is repeated. The system action when NO is entered is the same as with the message DFR3110A.

## Operator response

Enter the correct ddname of the log data set. If you want to end the job, enter NO to both OLDS and SLDS requests.

**Note:** The ddname of the primary OLDS is DFSOLPnn and the secondary OLDS is DFSOLSnn, where nn is 00 - 99.

---

**DFR3112I**      **CURRENT OLDS=ddname, ddname**

## Explanation

This message indicates the ddnames of the log data sets that are currently being used by IMS DEDB Fast Recovery. The ddnames are listed in the order of primary log data set and secondary log data set. This message appears immediately before messages DFR3110A, DFR3111A, and DFR3122E.

## System action

This message supplements messages DFR3110A, DFR3111A, and DFR3122E. The job continues.

## User response

None. This message is informational.

---

**DFR3112I**      **CURRENT SLDS=ddname, ddname**

## Explanation

This message indicates the ddnames of the log data sets that are currently being used by IMS DEDB Fast Recovery. The ddnames are listed in the order of primary log data set and secondary log data set. This message appears immediately before messages DFR3110A, DFR3111A, and DFR3122E.

## System action

This message supplements messages DFR3110A, DFR3111A, and DFR3122E. The job continues.

## User response

None. This message is informational.

---

**DFR3113E**      **NO DDCARD FOR SLDS  
DDNAME=ddname**

## Explanation

Even though the SLDS cannot be allocated dynamically because DBRC=N is specified in the EXEC statement, there is no DD statement for the SLDS that is required by IMS DEDB Fast Recovery. A DD statement for the SLDS is required when DBRC=N is specified.

## System action

The job ends with a return code of 16.

## User response

Specify the indicated SLDS in the JCL and rerun the job.

---

**DFR3114E**      **DYNAMIC ALLOCATION ERROR  
WADS DDNAME=ddname  
DSN=dsname  
(DFR3114E) ERROR REASON  
CODE=nnnn**

## Explanation

The indicated WADS, OLDS, or SLDS could not be dynamically allocated. Either the loading of the dynamic allocation request block has failed or a nonzero return code was returned for the DYNALLOC macro. If the return code from the DYNALLOC macro is not zero, (DFR3114E) message is displayed with the return code nnnn. For details on return codes from the DYNALLOC macro, see the *Authorized Assembler Services Reference (ALESERV-DYNALLOC)*.

If an SLDS is indicated with 'DSNAME=\*\*\*\* COMPRESSED DATA SET\*\*\*\*', the information about SLDSs that is required for recovery might have been compressed by a CLEANUP.RECON command. Because IMS DEDB Fast Recovery retrieves incorrect data set names from DBRC when IMS DEDB Fast Recovery needs SLDSs that are contained in the compressed SLDS information, IMS DEDB Fast Recovery could not dynamically allocate the SLDSs.

## System action

The job continues if the error occurred during the automatic determination of the last OLDS (when DBRC=N and AUTO=Y). Otherwise, if the error occurred in only one of the dual logs, the execution continues using the log data set without an error. If errors have occurred in both logs, or the mode is a single log, the job ends with an abend code of U3114.

## User response

If the job has abnormally ended, correct the error (check that the data set containing the request block

created by the DFSMDA macro is specified by the STEPLIB DD statement) and rerun the job. Or, add a DD statement for the data set causing the error and rerun the job. (For the use of DFSMDA macro, see *IMS System Definition*.)

If the information about SLDSs that is required for recovery has been compressed by a CLEANUP.RECON command, add a DD statement for SLDSs and rerun the job with DBRC=N.

---

**DFR3114E**      **DYNAMIC ALLOCATION ERROR**  
**OLDS DDNAME=ddname**  
**DSN=dsname**  
**(DFR3114E) ERROR REASON**  
**CODE=nnnn**

### Explanation

The indicated WADS, OLDS, or SLDS could not be dynamically allocated. Either the loading of the dynamic allocation request block has failed or a nonzero return code was returned for the DYNALLOC macro. If the return code from the DYNALLOC macro is not zero, (DFR3114E) message is displayed with the return code *nnnn*. For details on return codes from the DYNALLOC macro, see the *Authorized Assembler Services Reference (ALESERV-DYNALLOC)*.

If an SLDS is indicated with 'DSNAME=\*\*\*\* COMPRESSED DATA SET\*\*\*\*', the information about SLDSs that is required for recovery might have been compressed by a CLEANUP.RECON command. Because IMS DEDB Fast Recovery retrieves incorrect data set names from DBRC when IMS DEDB Fast Recovery needs SLDSs that are contained in the compressed SLDS information, IMS DEDB Fast Recovery could not dynamically allocate the SLDSs.

### System action

The job continues if the error occurred during the automatic determination of the last OLDS (when DBRC=N and AUTO=Y). Otherwise, if the error occurred in only one of the dual logs, the execution continues using the log data set without an error. If errors have occurred in both logs, or the mode is a single log, the job ends with an abend code of U3114.

### User response

If the job has abnormally ended, correct the error (check that the data set containing the request block created by the DFSMDA macro is specified by the STEPLIB DD statement) and rerun the job. Or, add a DD statement for the data set causing the error and rerun the job. (For the use of DFSMDA macro, see *IMS System Definition*.)

If the information about SLDSs that is required for recovery has been compressed by a CLEANUP.RECON command, add a DD statement for SLDSs and rerun the job with DBRC=N.

---

**DFR3114E**      **DYNAMIC ALLOCATION ERROR**  
**SLDS DSNAME=dsname**  
**(DFR3114E) ERROR REASON**  
**CODE=nnnn**

### Explanation

The indicated WADS, OLDS, or SLDS could not be dynamically allocated. Either the loading of the dynamic allocation request block has failed or a nonzero return code was returned for the DYNALLOC macro. If the return code from the DYNALLOC macro is not zero, (DFR3114E) message is displayed with the return code *nnnn*. For details on return codes from the DYNALLOC macro, see the *Authorized Assembler Services Reference (ALESERV-DYNALLOC)*.

If an SLDS is indicated with 'DSNAME=\*\*\*\* COMPRESSED DATA SET\*\*\*\*', the information about SLDSs that is required for recovery might have been compressed by a CLEANUP.RECON command. Because IMS DEDB Fast Recovery retrieves incorrect data set names from DBRC when IMS DEDB Fast Recovery needs SLDSs that are contained in the compressed SLDS information, IMS DEDB Fast Recovery could not dynamically allocate the SLDSs.

### System action

The job continues if the error occurred during the automatic determination of the last OLDS (when DBRC=N and AUTO=Y). Otherwise, if the error occurred in only one of the dual logs, the execution continues using the log data set without an error. If errors have occurred in both logs, or the mode is a single log, the job ends with an abend code of U3114.

### User response

If the job has abnormally ended, correct the error (check that the data set containing the request block created by the DFSMDA macro is specified by the STEPLIB DD statement) and rerun the job. Or, add a DD statement for the data set causing the error and rerun the job. (For the use of DFSMDA macro, see *IMS System Definition*.)

If the information about SLDSs that is required for recovery has been compressed by a CLEANUP.RECON command, add a DD statement for SLDSs and rerun the job with DBRC=N.

---

**DFR3114E**      **DYNALLOC REQUEST BLOCK  
LOAD FAIL. MEMBER  
NAME=mmmmmmmm**

### Explanation

The indicated WADS, OLDS, or SLDS could not be dynamically allocated. Either the loading of the dynamic allocation request block has failed or a nonzero return code was returned for the DYNALLOC macro. If the return code from the DYNALLOC macro is not zero, (DFR3114E) message is displayed with the return code *nnnn*. For details on return codes from the DYNALLOC macro, see the *Authorized Assembler Services Reference (ALESERV-DYNALLOC)*.

If an SLDS is indicated with 'DSNAME=\*\*\*\* COMPRESSED DATA SET\*\*\*\*', the information about SLDSs that is required for recovery might have been compressed by a CLEANUP.RECON command. Because IMS DEDB Fast Recovery retrieves incorrect data set names from DBRC when IMS DEDB Fast Recovery needs SLDSs that are contained in the compressed SLDS information, IMS DEDB Fast Recovery could not dynamically allocate the SLDSs.

### System action

The job continues if the error occurred during the automatic determination of the last OLDS (when DBRC=N and AUTO=Y). Otherwise, if the error occurred in only one of the dual logs, the execution continues using the log data set without an error. If errors have occurred in both logs, or the mode is a single log, the job ends with an abend code of U3114.

### User response

If the job has abnormally ended, correct the error (check that the data set containing the request block created by the DFSMDA macro is specified by the STEPLIB DD statement) and rerun the job. Or, add a DD statement for the data set causing the error and rerun the job. (For the use of DFSMDA macro, see *IMS System Definition*.)

If the information about SLDSs that is required for recovery has been compressed by a CLEANUP.RECON command, add a DD statement for SLDSs and rerun the job with DBRC=N.

---

**DFR3115W**      **DYNAMIC UNALLOCATION ERROR  
WADS DDNAME=ddname  
(DFR3115W) ERROR REASON  
CODE=nnnn**

### Explanation

The dynamic deallocation of the indicated WADS, OLDS, or SLDS failed. *nnnn* in the (DFR3115W) message indicates the return code from the DYNALLOC macro. For details on return codes from the DYNALLOC macro, see the *Authorized Assembler Services Reference (ALESERV-DYNALLOC)*.

### System action

The job continues.

### User response

None.

---

**DFR3115W**      **DYNAMIC UNALLOCATION ERROR  
OLDS DDNAME=ddname  
(DFR3115W) ERROR REASON  
CODE=nnnn**

### Explanation

The dynamic deallocation of the indicated WADS, OLDS, or SLDS failed. *nnnn* in the (DFR3115W) message indicates the return code from the DYNALLOC macro. For details on return codes from the DYNALLOC macro, see the *Authorized Assembler Services Reference (ALESERV-DYNALLOC)*.

### System action

The job continues.

### User response

None.

---

**DFR3115W**      **DYNAMIC UNALLOCATION ERROR  
SLDS DSNAME=dsname  
(DFR3115W) ERROR REASON  
CODE=nnnn**

### Explanation

The dynamic deallocation of the indicated WADS, OLDS, or SLDS failed. *nnnn* in the (DFR3115W) message indicates the return code from the DYNALLOC macro. For details on return codes from the DYNALLOC macro, see the *Authorized Assembler Services Reference (ALESERV-DYNALLOC)*.

### System action

The job continues.

## User response

None.

---

**DFR3116I**      **SUCCESSFUL ALLOCATION WADS**  
**DDNAME=ddname DSN=dsname**

## Explanation

The indicated WADS, OLDS, or SLDS has been dynamically allocated.

## System action

The job continues.

## User response

None. This message is informational.

---

**DFR3116I**      **SUCCESSFUL ALLOCATION OLDS**  
**DDNAME=ddname DSN=dsname**

## Explanation

The indicated WADS, OLDS, or SLDS has been dynamically allocated.

## System action

The job continues.

## User response

None. This message is informational.

---

**DFR3116I**      **SUCCESSFUL ALLOCATION SLDS**  
**DSNAME=dsname**

## Explanation

The indicated WADS, OLDS, or SLDS has been dynamically allocated.

## System action

The job continues.

## User response

None. This message is informational.

---

**DFR3117I**      **SUCCESSFUL UNALLOCATION**  
**WADS DDNAME=ddname**

## Explanation

The indicated WADS, OLDS, or SLDS has been dynamically deallocated.

## System action

The job continues.

## User response

None. This message is informational.

---

**DFR3117I**      **SUCCESSFUL UNALLOCATION**  
**OLDS DDNAME=ddname**

## Explanation

The indicated WADS, OLDS, or SLDS has been dynamically deallocated.

## System action

The job continues.

## User response

None. This message is informational.

---

**DFR3117I**      **SUCCESSFUL UNALLOCATION**  
**SLDS DSNAME=dsname**

## Explanation

The indicated WADS, OLDS, or SLDS has been dynamically deallocated.

## System action

The job continues.

## User response

None. This message is informational.

---

**DFR3120E**      **OPEN ERROR IN OLDS**  
**DDNAME=ddname**

## Explanation

Opening the data set has failed for the indicated OLDS or SLDS.

## System action

If the error occurred during the automatic determination of the last OLDS (when DBRC=N and AUTO=Y), the job continues. If the error occurred in only one of the dual logs, the execution continues using the log data set without an error. If errors occurred in both logs, or the mode is a single log, the job ends with an abend code of U3120.

## User response

Correct the error in the log data set if the job abnormally ended. Then rerun the job.

---

**DFR3120E**      **OPEN ERROR IN SLDS  
DSNAME=*dsname***

## Explanation

Opening the data set has failed for the indicated OLDS or SLDS.

## System action

If the error occurred during the automatic determination of the last OLDS (when DBRC=N and AUTO=Y), the job continues. If the error occurred in only one of the dual logs, the execution continues using the log data set without an error. If errors occurred in both logs, or the mode is a single log, the job ends with an abend code of U3120.

## User response

Correct the error in the log data set if the job abnormally ended. Then rerun the job.

---

**DFR3121I**      **ANSWER IS 'NO'. DEDB FAST  
RECOVERY IS TERMINATED.**

## Explanation

The reply to message DFR3110A or DFR3111A was NO.

## System action

The job ends with a return code of 16.

## User response

Use the console log or the output of the DBRC LIST.RECON command to determine the log data set indicated by message DFR3110A and then rerun the job.

---

**DFR3122E**      ***dataset\_type* LOG NOT FOUND IN  
RECON.**

## Explanation

The indicated log data set could not be found in the RECON data set. The type of data set required by IMS DEDB Fast Recovery is indicated by *dataset\_type*:

**Type**  
**Meaning**

### LAST USED

The OLDS that was in use when IMS failed.

## PREVIOUS

The OLDS that was used immediately before the log data set indicated in message DFR3112I or the SLDS containing that OLDS.

## NEXT USED

The OLDS that was used immediately after the log data set indicated in message DFR3112I or the SLDS containing that OLDS.

## CHKPT

The OLDS or SLDS containing the checkpoint log indicated in message DFR3301I.

## System action

The job ends with an abend code of U3122.

## User response

Check whether there is an incorrect specification of IMSID on the EXEC parameter, or whether there is a mismatch between the specification of IMS RESLIB in the STEPLIB and RECON in DD statement. If there is, correct it and rerun the job. If there is no such error, the RECON data set might be in error. Specify DBRC=N on the EXEC parameter, check the OLDS that was in use when IMS failed and the previous OLDS, and then rerun the job.

---

**DFR3130E**      ***error\_type* ERROR IN *xxxx*  
DDNAME=*ddname* BLK=*blk\_num*  
*nnnnnnnn* TO *nnnnnnnn***

## Explanation

An error was found in the indicated log data set. The error type is indicated by *error\_type* as follows:

**Type**  
**Meaning**

### READ

Read error.

### BLEN

Log block length is less than 3 bytes.

### RLEN

Log record length is less than 3 bytes.

### BSEQ

The log block sequence number of a log block in OLDS is not one greater than that of the preceding block.

### LSEQ

The log record sequence number of a log record in OLDS is not one greater than that of the preceding record.

### TSEQ

The time stamps in the suffixes of OLDS blocks are not in ascending sequence.

## WRITE

A write error has occurred when attempting to write (1) a log block that remained in WADS, (2) a sync point log record (X'38' or X'5938') that is used to invalidate the transaction that did not reach a sync point, or (3) a log record (X'06' or X'48') for closing OLDS.

*blk\_num* indicates the block number within the log data set. *nnnnnnnn* TO *nnnnnnnn* is displayed for BSEQ, LSEQ, and TSEQ, indicating the sequence error detail.

If the log mode is dual, this message is not displayed and processing continues if the corresponding log record of the other log data set is not in error (except for WRITE).

## System action

If any of the above errors except WRITE was found for OLDS when IMS failed, IMS DEDB Fast Recovery assumes that the block immediately preceding the error block is the last-written block, and closes the OLDS after writing log blocks that remain in WADS. Otherwise, the job ends with an abend code of U3130.

The WRITE error occurs only for the OLDS that was in use when IMS failed. For dual log data sets, the job ends with an abend code of U3130 if errors were found in both data sets.

## User response

No action is needed if the job ended normally and the error was not a WRITE error.

For a WRITE error, recover the OLDS in error from a correct OLDS or register the OLDS error condition to the DBRC RECON data set by using the DBRC CHANGE.PRILOG or CHANGE.SECLOG command.

If DBRC=N was specified in the EXEC statement and the job ended abnormally with a sequence error (BSEQ, LSEQ, TSEQ), check if a correct ddname was specified for message DFR3110A. If not, rerun the job and specify the correct ddname. In any other case, use the Log Recovery utility to recover the error block and rerun the job.

---

<b>DFR3131E</b>	<b>CHKPT yyddd/hhmmssst NOT FOUND IN OLDS DDNAME=ddname,ddname (CHKID=chkid BSEQ=nnnnnnnn)</b>
-----------------	--

## Explanation

The recovery start checkpoint determined by IMS DEDB Fast Recovery was not found in the indicated data set. DDNAME= indicates the ddname of the primary log data set and secondary log data set. *chkid*

and *nnnnnnnn* show the type of the checkpoint type and the relative block number that IMS DEDB Fast Recovery searched by the X'42' log information in the log data set.

## System action

The job ends with an abend code of U3131.

## User response

If DBRC=N is specified, check if a correct ddname was specified for message DFR3110A. If not, rerun the job and specify the correct ddname. In any other case, contact IBM Software Support.

---

<b>DFR3131E</b>	<b>CHKPT yyddd/hhmmssst NOT FOUND IN SLDS DDNAME=ddname,ddname</b>
-----------------	--

## Explanation

The recovery start checkpoint determined by IMS DEDB Fast Recovery was not found in the indicated data set. DDNAME= indicates the ddname of the primary log data set and secondary log data set. *chkid* and *nnnnnnnn* show the checkpoint type and the relative block number that IMS DEDB Fast Recovery searched by the X'42' log information in the log data set.

## System action

The job ends with an abend code of U3131.

## User response

If DBRC=N is specified, check if a correct ddname was specified for message DFR3110A. If not, rerun the job and specify the correct ddname. In any other case, contact IBM Software Support.

---

<b>DFR3132E</b>	<b>SLDS SWAP ERROR. FROM DDNAME=ddname1 TO DDNAME=ddname2</b>
-----------------	---

## Explanation

An error was found in the SLDS indicated by *ddname1* so it was switched to another SLDS indicated by *ddname2*. The new SLDS was searched for the corresponding log record, but it could not be found.

## System action

Error message DFR3130E precedes this message. The job ends with an abend code of U3130 after displaying this message.

## User response

If DBRC=N is specified, check if correct primary and secondary logs were specified for message DFR3110A. If not, rerun the job and specify the correct ddnames. In any other case, recover the primary and secondary log data sets with the Log Recovery utility and then rerun the job.

---

**DFR3133E**      **INVALID LOG BLOCK IS CREATED FROM WADS**

## Explanation

An attempt was made to read log blocks that remain in WADS in order to close OLDS that was in use when IMS failed, but a log block was in error.

## System action

The job ends with an abend code of U3133.

## User response

Contact IBM Software Support.

---

**DFR3134I**      **EOF FOUND IN LAST OLDS DDNAME=ddname**

## Explanation

An EOF (end-of-file) was found in the indicated OLDS used when IMS failed.

## System action

The log block preceding the EOF is assumed to be the log block last written by IMS. The OLDS is closed after writing the log blocks that remain in WADS.

## User response

None. This message is informational.

---

**DFR3201E**      **NO ALLOCATION FOR DDNAME=ddname**

## Explanation

The execution JCL does not contain a MODSTAT DD statement or a MODSTAT2 DD statement.

## System action

The job ends with a return code of 16.

## User response

Add the correct DD statement and rerun the job.

---

**DFR3202E**      **UNABLE TO SUCCESSFULLY OPEN MODSTAT DATASET**

## Explanation

The MODSTAT data set cannot be opened.

## System action

The job ends with an abend code of U3202.

## User response

Correct the error and rerun the job.

---

**DFR3203E**      **UNABLE TO READ MODSTAT RECORD. REASON CODE=nn**

## Explanation

There is an error in the MODSTAT data set record. *nn* indicates the reason code.

### Code

#### Meaning

#### 01

Record format error was found in the MODSTAT data set.

#### 02

Record cannot be read due to an I/O error.

#### 03

There is no record in the MODSTAT data set.

## System action

The job ends with an abend code of U3203.

## User response

Specify the correct data set name in the MODSTAT DD statement and rerun the job.

---

**DFR3204I**      **DATA SETS USED ARE DDNAME 'acplib\_name'**

## Explanation

The ddnames indicated in the message are used as the latest ACBLIB and MODBLKS libraries among the libraries specified in the execution JCL.

## System action

The job continues.

## User response

None. This message is informational.

---

**DFR3205E**      **NO ALLOCATION FOR  
DDNAME=IMSACBx**

### Explanation

The IMSACBx DD statement (where x is A or B) is missing from the execution JCL.

### System action

The job ends with a return code of 16.

### User response

Specify the correct IMSACBx DD statement for the ACB library used by the IMS to be recovered and rerun the job.

---

**DFR3206E**      **UNABLE TO SUCCESSFULLY OPEN  
DDNAME=IMSACBx**

### Explanation

The data set IMSACBx (where x is A or B) cannot be opened.

### System action

The job ends with an abend code of U3206.

### User response

Check if the ACB library that was used by the IMS to be recovered is specified correctly in the DD statement. Correct the cause of open failure and rerun the job.

---

**DFR3207E**      **PDS DIRECTORY READ ERROR  
DDNAME=IMSACBx**

### Explanation

An I/O error has occurred while reading the partitioned data set directory of the data set IMSACBx (where x is A or B).

### System action

The job ends with an abend code of U3207.

### User response

Check the DD statement for the ACB library of the IMS to be recovered. Recover the data set if necessary, and then rerun the job.

---

**DFR3208W**      **ERROR READING ACBLIB,  
DMB=*dmbname***

### Explanation

An I/O error occurred while reading the DMB indicated by the message from the ACB library.

### System action

The processing of the indicated DMB is canceled and IMS DEDB Fast Recovery continues. Under the following conditions, IMS DEDB Fast Recovery issues message DFR3737W for this DMB:

- The indicated DMB is a DEDB.
- IMS DEDB Fast Recovery finds database update log records for areas that are defined in the DEDB.
- IMS DEDB Fast Recovery cannot validate whether these updates need recovery (REDO).

### User response

If the job ended normally, check the Database Status list and the DEDB Area Status list and take necessary actions. If IMS DEDB Fast Recovery issued message DFR3737W, follow the instructions in the User response section of message DFR3737W.

---

**DFR3209W**      **IMBEDDED EOF FOUND IN  
ACBLIB, DMB=*dmbname***

### Explanation

The indicated DMB is not complete as a member of a partitioned data set and EOF occurred while reading from the ACBLIB.

### System action

The processing of the indicated DMB is canceled and IMS DEDB Fast Recovery continues. Under the following conditions, IMS DEDB Fast Recovery issues message DFR3737W for this DMB:

- The indicated DMB is a DEDB.
- IMS DEDB Fast Recovery finds database update log records for areas that are defined in the DEDB.
- IMS DEDB Fast Recovery cannot validate whether these updates need recovery (REDO).

### User response

If the job ended normally, check the Database Status list and the DEDB Area Status list and take necessary actions. If IMS DEDB Fast Recovery issued message DFR3737W, follow the instructions in the User response section of message DFR3737W.

---

**DFR3210E**      **BLDL FAILED FOR ALL DEFINED  
DATA BASE DIRECTORIES**



## Explanation

IMS DEDB Fast Recovery is unable to initialize a DMB for any database defined during the generation of the IMS to be recovered.

## System action

The job ends with a return code of 16.

## User response

The data set specified on the IMSACBx (where x is A or B) DD statement is incorrect. Specify the correct data set and rerun the job.

---

**DFR3211W**      **BLDL FAILED FOR FOLLOWING DBD'S:**

## Explanation

IMS DEDB Fast Recovery assumes that the indicated DBD defined during generation of the IMS to be recovered is incorrect and does not initialize the DMB. The *reason* indicates its reason as follows:

### Reason

#### Meaning

### NOFND

Not registered in ACB library

### NOBUF

Registered in ACB library with size 0

### ALIAS

Alias is not allowed

### NOTDM

Defined as PSB

### NOTCP

Does not match the IMS level

## System action

The processing of the indicated DMB is canceled and IMS DEDB Fast Recovery continues. Under the following conditions, IMS DEDB Fast Recovery issues message DFR3737W for this DMB:

- The indicated DMB is a DEDB.
- IMS DEDB Fast Recovery finds database update log records for areas that are defined in the DEDB.
- IMS DEDB Fast Recovery cannot validate whether these updates need recovery (REDO).

## User response

If the job ended normally, check the Database Status list and the DEDB Area Status list and take necessary actions. If IMS DEDB Fast Recovery issued

message DFR3737W, follow the instructions in the User response section of message DFR3737W.

---

**DFR3211W**      *membername .reason*

## Explanation

IMS DEDB Fast Recovery assumes that the indicated DBD defined during generation of the IMS to be recovered is incorrect and does not initialize the DMB. The *reason* indicates its reason as follows:

### Reason

#### Meaning

### NOFND

Not registered in ACB library

### NOBUF

Registered in ACB library with size 0

### ALIAS

Alias is not allowed

### NOTDM

Defined as PSB

### NOTCP

Does not match the IMS level

## System action

The processing of the indicated DMB is canceled and IMS DEDB Fast Recovery continues. Under the following conditions, IMS DEDB Fast Recovery issues message DFR3737W for this DMB:

- The indicated DMB is a DEDB.
- IMS DEDB Fast Recovery finds database update log records for areas that are defined in the DEDB.
- IMS DEDB Fast Recovery cannot validate whether these updates need recovery (REDO).

## User response

If the job ended normally, check the Database Status list and the DEDB Area Status list and take necessary actions. If IMS DEDB Fast Recovery issued message DFR3737W, follow the instructions in the User response section of message DFR3737W.

---

**DFR3212W**      **DUPLICATE AREA NAME -  
*area\_name* FOUND IN DEDB -  
*dbname1* AND *dbname2***

## Explanation

Two areas are defined in the indicated DEDB with the same name. The same area name is specified more than once for the indicated DEDB or another DEDB by the DD1 operand of the AREA statement during DBD generation.

## System action

The processing of the indicated DMB of DEDB is canceled and IMS DEDB Fast Recovery continues. Under the following conditions, IMS DEDB Fast Recovery issues message DFR3737W for this DMB:

- IMS DEDB Fast Recovery finds database update log records for the area that is defined in the DEDB.
- IMS DEDB Fast Recovery cannot validate whether these updates need recovery (REDO).

## User response

If the job ended normally, check the Database Status list and the DEDB Area Status list and take necessary actions. If IMS DEDB Fast Recovery issued message DFR3737W, follow the instructions in the User response section of message DFR3737W.

---

### DFR3213E          UNABLE TO INITIALIZE ANY DEDB

## Explanation

IMS DEDB Fast Recovery is unable to initialize any DEDB for the IMS to be recovered. Or, no DEDB is defined for the IMS to be recovered.

## System action

The job ends with a return code of 16.

## User response

If any DEDB is defined for the IMS to be recovered, follow the directions of the DMB-related error message that precedes this message.

---

### DFR3214W          INVALID DEDB APPLICATION CONTROL BLOCKS -- *dbname* WERE FOUND IN ACBLIB

## Explanation

The DMB that corresponds to the indicated DEDB is defined with an unsupported IMS release.

## System action

The processing of the indicated DMB of DEDB is canceled and IMS DEDB Fast Recovery continues. Under the following conditions, IMS DEDB Fast Recovery issues message DFR3737W for this DMB:

- IMS DEDB Fast Recovery finds database update log records for areas that are defined in the DEDB.
- IMS DEDB Fast Recovery cannot validate whether these updates need recovery (REDO).

## User response

If the job ended normally, check the Database Status list and the DEDB Area Status list and take necessary actions. If IMS DEDB Fast Recovery issued message DFR3737W, follow the instructions in the User response section of message DFR3737W.

---

### DFR3220E          NO DATA BASE DEFINITIONS ARE FOUND

## Explanation

No database definition was found in log records.

## System action

The job ends with a return code of 16.

## User response

Determine whether the data set names specified by the DFSOLP*n*n, DFSOLS*n*n, IMSLOGR and IMSLOGR2 DD statements are correct. If the data set names are incorrect, correct the error and rerun the job. If the data set names are correct, no action is needed.

When DRD is enabled, it is possible that there is no database definition, and IMS DEDB Fast Recovery cannot process any databases under this condition.

---

### DFR3231I          IMS MANAGEMENT OF ACBS IS ENABLED. BSDSHLQ=*bsdshlq*

## Explanation

IMS DEDB Fast Recovery detected that the IMS management of ACBs is enabled. *bsdshlq* is the high-level qualifier prefix of the IMS bootstrap data set.

## System action

The job continues.

## User response

None. This message is informational.

---

### DFR3232E          IMS CATALOG API ERROR. FUNCTION=*function*, RC=*rrrrrrrr*/ *sssssss*

## Explanation

An error occurred while IMS DEDB Fast Recovery was using the IMS catalog API function.

- *function*: The function that failed. The function can be OPEN, LIST, or CLOSE.

- *rrrrrrrr*: The return code from the IMS catalog API function.
- *ssssssss*: The reason code from the IMS catalog API function.

### System action

The job ends with an abend code of U3232.

### User response

See *IMS System Programming APIs* for the return code and the reason code. Correct the cause of the IMS catalog API failure and rerun the job.

---

**DFR3233W      ERROR READING IMS CATALOG,  
DMB=*dmbname***

### Explanation

An I/O error occurred while reading the indicated DMB from the IMS catalog.

### System action

The processing of the indicated DMB is canceled and IMS DEDB Fast Recovery continues. If the following conditions are met, IMS DEDB Fast Recovery issues message DFR3737W for this DMB:

- The indicated DMB is a DEDB.
- IMS DEDB Fast Recovery finds database update log records for areas that are defined in the DEDB.
- IMS DEDB Fast Recovery cannot validate whether these updates need recovery (REDO).

### User response

If the job ended normally, check the Database Status list and the DEDB Area Status list and take necessary actions. If IMS DEDB Fast Recovery issued message DFR3737W, follow the instructions in the User response section of message DFR3737W.

---

**DFR3234I      SUCCESSFUL ALLOCATION BSDS  
DSNAME=*bsdname***

### Explanation

The indicated IMS bootstrap data set has been allocated.

### System action

The job continues.

### User response

None. This message is informational.

---

**DFR3235E      INVALID DATA SET SPECIFIED AS  
BSDS.**

### Explanation

An incorrect data set name is specified on the IMSBSDS DD statement.

### System action

The job ends with an abend code of U3235.

### User response

Review the IMSBSDS DD statement and correct the name of the IMS bootstrap data set. The IMS bootstrap data set you specify for the IMSBSDS DD statement must be the one used by the IMS that you are trying to recover.

---

**DFR3253W      WADS PROCESSING WARNING.  
FUNCTION = 04. REASON = *nn***

### Explanation

When Data Facility Storage Management Subsystem (DFSMS) opens a write-ahead data set (WADS), DFSMS issues IEC messages in the job log. This message indicates that the IEC messages in the job log do not require further action.

*nn* is the reason code in the ACBERFLG field of the ACB. For details about ACBERFLG, see *DFSMS Macro Instructions for Data Sets*.

### System action

The job continues.

### User response

None. This message is informational.

---

**DFR3301I      DEDB FAST RECOVERY IN  
PROGRESS USING CHKPT *yyddd/  
hhmmsst***

### Explanation

IMS DEDB Fast Recovery assumes the indicated checkpoint to be the recovery start checkpoint and continues.

### System action

IMS DEDB Fast Recovery continues.

## User response

None. This message is informational.

---

**DFR3302W NO VALID CHKPT LOG REC EXISTS. RECOVERY IS NOT REQUIRED**

## Explanation

The first checkpoint (checkpoint 0) after the IMS cold start is not complete and therefore there is no database that must be recovered.

## System action

The job ends with a return code of 16.

## User response

None.

---

**DFR3303E NO FPTH CHECKPOINT ID FOUND IN BCPT.**

## Explanation

No identifier is found for Fast Path checkpoint in the latest X'42' (BCPT) log record.

## System action

The job ends with an abend code of U3303.

## User response

Contact IBM Software Support.

---

**DFR3401E GETMAIN FAILED. INSUFFICIENT STORAGE FOR xxxxxx**

## Explanation

IMS DEDB Fast Recovery is unable to obtain storage area for xxxxxx.

## System action

The job ends with an abend code of U3401.

## User response

Increase the storage size and rerun the job.

---

**DFR3402E CHECKPOINTED BLOCKS DO NOT MATCH LOADED BLOCKS. REASON CODE *reason\_code***

## Explanation

The recovery start checkpoint information and the IMS environment to be recovered do not match.

*reason\_code* indicates one of the following reason codes:

### Code Meaning

#### DDIR

The length of DDIR for which a checkpoint has been logged is not equal to the length of DDIR in macro DFSDDIR.

#### NODDIR

There is no DDIR that corresponds to the EEQE of the DL/I database which has been logged.

#### NODMCB

There is no DMCB that corresponds to the DMAC/ADSC/BUFFER of a DEDB which has been logged. The database definition existed in the ACB library that was specified to IMS when a checkpoint that IMS DEDB Fast Recovery uses was logged by IMS. However, this database definition does not exist in the IMS definition or in the ACB library that is specified to IMS DEDB Fast Recovery.

#### NODMAC

There is no DMAC for the DEDB area for which a checkpoint has been logged. The definition for the database that was being opened when the checkpoint was logged by IMS does not exist in the IMS definition or in the ACB library that was specified to IMS DEDB Fast Recovery.

#### ADSC

The corresponding ADSC already exists when an ADSC was created from the log.

#### NOADSC

The corresponding ADSC does not exist when an ADSC is eliminated from the log information.

#### DBFR

There is a format error in the DEDB buffer checkpoint log (X'4080').

#### DDEPBF

There is an inconsistency among the data of DDEP DMHR checkpoint log records (X'4086').

#### NORPST

There is no corresponding RPST for the FP IEEQE checkpoint log record (X'4088'). That is, there is no RRE checkpoint log record (X'4030') for creating the RPST.

#### IEEQE

There is an inconsistency among the data of FP IEEQE checkpoint log records (X'4088').

This error is caused by one of the following reasons:

- The checkpoint log was changed

- The DMB of ACB library was changed
  - An incorrect library was specified
  - The database definition was deleted by ACB library online change
- The database definition that was created by IMS log was changed.
  - The database definition was deleted by an MODBLKS online change or the DELETE DB command.
- An error occurred while reading the DMB from the ACB library

## System action

The job abnormally ends with code U3402.

## User response

Perform one of the following operations and then rerun the job.

- If the checkpoint log has been changed, recover the log.
- If DMB of the ACB library has been changed, check the ACBLIBz (z=A or B) data set and correct if necessary.
- If a DMB read error occurred, see the DEDB DMB error message already issued and correct the DMB.

---

**DFR3402W CHECKPOINTED BLOCKS DO NOT MATCH LOADED BLOCKS. REASON CODE *reason\_code***

## Explanation

The recovery start checkpoint information and the IMS environment to be recovered do not match.

*reason\_code* indicates one of the following reason codes:

### Code Meaning

#### DDIR

The length of DDIR for which a checkpoint has been logged is not equal to the length of DDIR in macro DFSDDIR.

#### NODDIR

There is no DDIR that corresponds to the EEQE of the DL/I database which has been logged.

#### NODMCB

There is no DMCB that corresponds to the DMAC/ADSC/BUFFER of a DEDB which has been logged. The database definition existed in the ACB library that was specified to IMS when a checkpoint that IMS DEDB Fast Recovery uses was logged by IMS.

However, this database definition does not exist in the IMS definition or in the ACB library that is specified to IMS DEDB Fast Recovery.

#### NODMAC

There is no DMAC for the DEDB area for which a checkpoint has been logged. The definition for the database that was being opened when the checkpoint was logged by IMS does not exist in the IMS definition or in the ACB library that was specified to IMS DEDB Fast Recovery.

#### ADSC

The corresponding ADSC already exists when an ADSC was created from the log.

#### NOADSC

The corresponding ADSC does not exist when an ADSC is eliminated from the log information.

#### DBFR

There is a format error in the DEDB buffer checkpoint log (X'4080').

#### DDEPBF

There is an inconsistency among the data of DDEP DMHR checkpoint log records (X'4086').

#### NORPST

There is no corresponding RPST for the FP IEEQE checkpoint log record (X'4088'). That is, there is no RRE checkpoint log record (X'4030') for creating the RPST.

#### IEEQE

There is an inconsistency among the data of FP IEEQE checkpoint log records (X'4088').

This error is caused by one of the following reasons:

- The checkpoint log was changed
- DMB of ACB library was changed
  - An incorrect library was specified
  - The database definition was deleted by ACB library online change
- The database definition that was created by IMS log was changed.
  - The database definition was deleted by an MODBLKS online change or the DELETE DB command.
- An error occurred while reading the DMB from the ACB library

## System action

The job continues, and when it ends, issues return code 4 or higher.

## User response

Ensure that the set of ACBLIB is correct for the job, and that a database online change was completed before IMS failed, and also that the DELETE DB command was issued before IMS failed. If a set of ACBLIB is incorrect, specify the correct one and rerun the job.

---

**DFR3403E NO DEDB BUFFERS DEFINED**

## Explanation

The number of DEDB data buffers in the recovery start checkpoint log is zero. DEDB is not defined for the IMS to be recovered.

## System action

The job ends with a return code of 16.

## User response

None.

---

**DFR3407W ORPHAN SYNC LOG RECORD DETECTED. LOGTYPE=type, LOGSEQ=nnnnnnnn**

## Explanation

There was no log record for the corresponding transaction before the sync point log record indicated by the log sequence number *nnnnnnnn* of the indicated type.

## System action

IMS DEDB Fast Recovery continues.

## User response

If the job completed normally, check if any area was updated by the transaction related to this log record. If an updated area exists, verify the data integrity of the area by using the Data Base Tools (DBT) DEDB Pointer Checker utility.

---

**DFR3501I (yyy) AREA=area\_name DD=ddname OPEN ERROR**

## Explanation

IMS DEDB Fast Recovery is unable to open the VSAM ACB for the indicated data set. *yyy* is the VSAM error code set in ACBERFLG.

## System action

Message DFR3511E is issued after this message.

## User response

See the description for message DFR3511E. See the *DFSMS Macro Instructions for Data Sets* for VSAM error codes.

---

**DFR3502E (yyy) AREA=area\_name DD=ddname, READ ERROR, CI-NO=nnnnnnnn - ADS STOPPED**

## Explanation

An I/O error has occurred while reading the VSAM control interval with an RBA of *nnnnnnnn* for the indicated area data set. *yyy* is the VSAM feedback code set in RPL RPLERRCD.

## System action

If an I/O error is caused by a controller or channel error, the job ends with an abend code of U3502. If this is a data set error, the area data set is registered in DBRC RECON data set as unavailable and the job continues.

## User response

Look up the VSAM feedback code *yyy* in *DFSMS Macro Instructions for Data Sets* and correct the error. Then rerun the job if it has ended abnormally. If the job has ended normally, see the DEDB Area Status list and use the DEDB Area Data Set Create utility or Database Recovery utility to recover the area data set.

---

**DFR3503E (yyy) AREA=area\_name DD=ddname, WRITE ERROR, CI-NO=nnnnnnnn - ADS STOPPED**

## Explanation

An I/O error has occurred while writing the VSAM control interval with an RBA of *nnnnnnnn* for the indicated data set. *yyy* is the VSAM feedback code set in RPL RPLERRCD.

## System action

If the I/O error is caused by a controller or channel error, the job ends with an abend code of U3503. If it is caused by a data set error, the area data set is registered as unavailable in the DBRC RECON data set and the job continues.

## User response

Look up the VSAM feedback code *yyy* in *DFSMS Macro Instructions for Data Sets* and correct the error. Then rerun the job if it has ended abnormally. If the job has ended normally, see the DEDB Area Status list and use the DEDB Area Data Set Create utility or Data Base Recovery utility to recover the area data set.

---

**DFR3504E**      **AREA=area\_name STOPPED,  
RECOVERY NEEDED**

## Explanation

The indicated area cannot be recovered for one of the following reasons:

- The area data set was in the internal stop process when IMS failed. IMS DEDB Fast Recovery completed the stop processing, but this area data set was the only available data set in the area.
- An I/O error occurred while recovering one of the data sets in the indicated area. This area data set was the only available data set in the area.

## System action

IMS DEDB Fast Recovery cancels recovery of the area and continues.

## User response

After the job ends normally, see the DEDB Area Status list and run the Database Recovery utility to recover the area.

---

**DFR3505E**      **AREA=area\_name DD=ddname,  
INVALID CI FOUND, CI-  
NO=nnnnnnnn - ADS STOPPED**

## Explanation

IMS DEDB Fast Recovery has found a CI with an incorrect VSAM control interval suffix (CIDF, RDF) for the area data set in the RBA of *nnnnnnnn*. Or, an incorrect RBA value was set in a 4-byte field immediately preceding the control interval suffix.

## System action

The area data set is registered in the DBRC RECON data set as unavailable, and the job continues.

## User response

After the job has ended normally, see the DEDB Area Status list and use the DEDB Area Data Set Create utility or Database Recovery utility to recover the area data set.

---

**DFR3507I**      **AREA=area\_name DD=ddname  
CLOSED**

## Explanation

The indicated area data set was closed normally.

## System action

IMS DEDB Fast Recovery continues.

## User response

IMS DEDB Fast Recovery has completed recovery processing of the area data set. See the DEDB Area Status list to see if further processing is required.

---

**DFR3508E**      **(yyy) AREA=area\_name  
DD=ddname CLOSE ERROR**

## Explanation

IMS DEDB Fast Recovery is unable to close the VSAM ACB of the indicated area data set. *yyy* is the VSAM error code set in ACBERFLG.

## System action

IMS DEDB Fast Recovery cancels the close process and continues execution.

## User response

Look up the VSAM error code in *DFSMS Macro Instructions for Data Sets*. After the job has ended normally, use the VSAM access method service VERIFY command to check whether the area data set is usable. If necessary, use the DEDB Area Data Set Create utility or Database Recovery utility to recover the area data set.

---

**DFR3509I**      **DEDB FAST RECOVERY HAS  
BEEN COMPLETED - NO MORE  
OPERATOR ACTION IS REQUIRED**

## Explanation

The job has ended normally. An IMS cold start can be performed without further recovery of DEDB and DL/I database, and there is no database or DEDB area that must be stopped at cold start time.

## System action

The job ends with a return code of 0.

## User response

If DBRC=N, cold start (with the /ERE COLDSYS command) of the failed IMS can be performed after recovering the DBRC RECON data set. If DBRC=Y, the cold start can be performed immediately. The MSDB Dump Recovery utility must be executed as necessary before the IMS cold start.

---

<b>DFR3510W</b>	<b>DEDB FAST RECOVERY HAS BEEN COMPLETED, BUT FURTHER OPERATOR ACTIONS ARE REQUIRED</b>
-----------------	---

## Explanation

The job has ended normally. The following conditions must be resolved before the IMS cold start to preserve data integrity of the database:

- There are DEDB areas that are not yet recovered.
- There are DL/I databases that must be recovered.
- There are DL/I databases that must be backed out.
- There are databases or DEDB areas that must be stopped before starting an application program after cold start.
- There are no DMB entries in the ACBLIB or the DMB entry is invalid and thus the database is not initialized.

## System action

The job ends with a return code of 4 or 8.

## User response

See the recovery status lists and take necessary actions. If DBRC=N, recover the DBRC RECON data set before the IMS cold start. The MSDB Dump Recovery utility must be executed as necessary before the IMS cold start.

---

<b>DFR3511E</b>	<b>AREA/ADS OPEN FAILED</b>
-----------------	-----------------------------

## Explanation

The DEDB area data set cannot be opened. Another DFR3511E message, which includes a reason code for the error, follows this message.

## System action

See the System action section in the following DFR3511E message.

## User response

See the User response section in the following DFR3511E message.

---

<b>DFR3511E</b>	<b>REASON CODE=<i>nn</i> message subtext</b>
-----------------	--

## Explanation

The DEDB area data set cannot be opened. The second message contains one of the following reason codes and message subtext that briefly explains the cause of the error.

### Code

#### Message subtext

#### 02

AREA=*area\_name* DD=*ddname* MAXIMUM EQE COUNT EXCEEDED

#### 13

AREA=*area\_name* DD=*ddname* VSAM OPEN FAILED

#### 14

AREA=*area\_name* DD=*ddname* INCONSISTENT DSN SPECIFIED BETWEEN IN JCL AND IN ONLINE ALLOCATED DATA SET

#### 17

AREA=*area\_name* DD=*ddname* ALLOCATION FAILED

#### 26

AREA=*area\_name* DD=*ddname* ACBLIB AREA NAME NOT EQUAL DMAC

#### 28

AREA=*area\_name* DD=*ddname* DBD AND DATA SET DEFINITIONS INCONSISTENT

#### 29

AREA=*area\_name* DD=*ddname* INCORRECT DATA SET FOR DEDB FAST RECOVERY

## System action

If the reason code is 02, 13, 26, 28, or 29, IMS DEDB Fast Recovery stops processing the indicated area data set, registers it in the DBRC RECON data set as unavailable, and continues. If the reason code is 14 or 17, the job ends with an abend code of U3511.

## User response

Analyze the cause of the error by referring to the following code descriptions. If the job has ended abnormally, correct the error and rerun the job. If the job has ended normally, see the DEDB Area Status list and recover the indicated area data set using the DEDB Area Data Set Create utility or the Database Recovery utility.



**Code****Description****02**

This status should never occur. Check why the named area data set was changed to an available status after it has been changed to an unavailable status.

**13**

Check the VSAM error that is indicated by the previous message DFR3501E.

**14**

The DD statement for the area data set in the execution JCL is incorrect.

**17**

Check register 15 at the time of abnormal termination, which contains the return code from the DYNALLOC macro. For details on return codes from the DYNALLOC macro, see the *Authorized Assembler Services Reference (ALESERV-DYNALLOC)*.

**26**

The area name in DB specified by DBDGEN does not match the area name in the control CI (the second CI).

**28**

The area definition by DBDGEN does not match the actual area data set format (for instance, CISIZE, UOW). The consistency of DBDGEN and VSAM DEFINE must be confirmed. In case the area format must be changed, the area must be reorganized by UNLOAD/LOAD.

**29**

The corresponding area data set is in a format of IMS/VS 1.2 (or earlier) and thus cannot be recovered by IMS DEDB Fast Recovery.

**DFR3512E**

**DBRC INITIALIZATION FAILED -  
RC = nn**

**Explanation**

An error has occurred while initializing the interface with the Database Recovery Control (DBRC) function. *nn* indicates the reason code as follows:

**Code****Meaning****08**

The data set specified in the STEPLIB DD statement does not contain the DBRC module DSPCRTR0.

**12**

DBRC initialization (INIT-0) error.

**16**

DBRC initialization (INIT-1) error.

**System action**

The job ends with an abend code of U3512.

**User response**

Check that the IMS system library is specified correctly on the STEPLIB DD statement and the DBRC RECON data set is specified correctly. If either is wrong, correct it and rerun the job.

In the following cases, check the DBRC RECON data set and the environment of the IMS system that is to be recovered by IMS DEDB Fast Recovery, and correct any inconsistencies. Then rerun the job.

- The IMSPLEX= parameter is specified though the IMS system that is to be recovered by IMS DEDB Fast Recovery does not belong to any IMSplex
- The IMSPLEX= parameter is not specified though the IMS system that is to be recovered by IMS DEDB Fast Recovery belongs to one IMSplex
- The DBRCGRP= parameter is specified when the IMS system that is to be recovered by IMS DEDB Fast Recovery belongs to one IMSplex but does not belong to any DBRC group
- The DBRCGRP= parameter is not specified though the IMS system that is to be recovered by IMS DEDB Fast Recovery belongs to one DBRC group

If there is an error in the DBRC function or the RECON data set, rerun the job with DBRC=N.

**DFR3515E**

**DEDB FAST RECOVERY ABEND,  
SVC DUMP WILL BE TAKEN**

**Explanation**

The job has ended abnormally. IMS DEDB Fast Recovery requests an SVC dump of the utility address space and CSA/ECSA.

**System action**

The job ends with an abend code of the failing system or the user abend code. The storage area used by IMS DEDB Fast Recovery is dumped to a SYS1.DUMPnn data set.

**User response**

Obtain a storage dump from the SYS1.DUMPnn data set and use it together with the utility message issued before abnormal termination (if one exists) to correct the cause of error and then rerun the job.

**DFR3516E**

**DEDB FAST RECOVERY ABEND,  
SVC DUMP FAILED**

## Explanation

The job has ended abnormally. IMS DEDB Fast Recovery has requested an SVC dump of the utility address space and CSA/ECSA, but it was not scheduled by the system.

## System action

The job ends with the abnormal termination code of the failing system or user abend code. The storage area used by IMS DEDB Fast Recovery is dumped to SYSABEND/SYSUDUMP data set, but it is not complete.

## User response

Obtain the storage dump from the SYSABEND/SYSUDUMP data set, use it together with the utility message issued before abnormal termination (if one exists) to correct the cause of error, and then rerun the job.

---

**DFR3517A**      **ENTER 'YES' AFTER ENSURING  
I/O PREVENTION FOR THE FAILED  
ACTIVE IMS HAS COMPLETED**

## Explanation

The recovering system is the IMS XRF complex. IMS DEDB Fast Recovery requests the operator to check whether the I/O prevention has been completed for both the failing active IMS and the failing alternate IMS.

## System action

IMS DEDB Fast Recovery waits for the operator response. If the reply is YES, IMS DEDB Fast Recovery recovers the related DEDB areas from the I/O toleration buffers and continues. Otherwise, it issues a DFR3525A message.

## Operator response

Enter YES after ensuring that the I/O prevention has been completed for both IMS subsystems. If it is impossible to complete the processing because of an MVS failure, rerun the job after forcing the I/O prevention for both the active and alternate IMS by resetting the CEC.

---

**DFR3523E**      **IDTEEQE COULD NOT BE DELETED.  
DL/I DBDNAME=*dbd\_name***

## Explanation

The EEQE of the indicated DEDB area or DL/I database (DBD name or HALDB partition name) could not be

deleted from the DBRC RECON data set for one of the following reasons:

- A DBRC call error has occurred.
- The IMS system that failed was not authorized by DBRC to use the indicated DEDB area or DL/I database.
- An in-doubt EEQE cannot be deleted, because IMS DEDB Fast Recovery invalidates the in-doubt transaction that changes a DL/I database.

## System action

This message is displayed only once for a DEDB area and a DL/I database. The job continues.

## User response

After the job has been ended normally, do the following steps:

- If this message is for DEDB, delete the EEQE with the DBRC CHANGE.DBDS command.
- If this message is for DL/I database, see the Data Base Status list and, if necessary, perform backout using DL/I Batch Backout Utility. If no backout is necessary, delete the EEQE with the DBRC CHANGE.DBDS command.

---

**DFR3523E**      **IDTEEQE COULD NOT BE DELETED.  
DEDB DBDNAME=*dbd\_name*  
AREA=*area\_name***

## Explanation

The EEQE of the indicated DEDB area or DL/I database could not be deleted from the DBRC RECON data set for one of the following reasons:

- A DBRC call error has occurred.
- The IMS system that failed was not authorized by DBRC to use the indicated DEDB area or DL/I database.
- An in-doubt EEQE cannot be deleted, because IMS DEDB Fast Recovery invalidates the in-doubt transaction that changes a DL/I database.

## System action

This message is displayed only once for a DEDB area and a DL/I database. The job continues.

## User response

After the job has been ended normally, do the following steps:

- If this message is for DEDB, delete the EEQE with the DBRC CHANGE.DBDS command.

- If this message is for DL/I database, see the Data Base Status list and, if necessary, perform backout using DL/I Batch Backout Utility. If no backout is necessary, delete the EEQE with the DBRC CHANGE.DBDS command.

---

**DFR3523E**      **IOTEEQE COULD NOT BE DELETED.**  
**DEDB DBDNAME=*dbd\_name***  
**AREA=*area\_name***

### Explanation

The EEQE of the indicated DEDB area or DL/I database could not be deleted from the DBRC RECON data set for one of the following reasons:

- A DBRC call error has occurred.
- The IMS system that failed was not authorized by DBRC to use the indicated DEDB area or DL/I database.
- An in-doubt EEQE cannot be deleted, because IMS DEDB Fast Recovery invalidates the in-doubt transaction that changes a DL/I database.

### System action

This message is displayed only once for a DEDB area and a DL/I database. The job continues.

### User response

After the job has been ended normally, do the following steps:

- If this message is for DEDB, delete the EEQE with the DBRC CHANGE.DBDS command.
- If this message is for DL/I database, see the Data Base Status list and, if necessary, perform backout using DL/I Batch Backout Utility. If no backout is necessary, delete the EEQE with the DBRC CHANGE.DBDS command.

---

**DFR3523E**      **WRTEEQE COULD NOT BE DELETED.**  
**DEDB DBDNAME=*dbd\_name***  
**AREA=*area\_name***

### Explanation

The EEQE of the indicated DEDB area or DL/I database could not be deleted from the DBRC RECON data set for one of the following reasons:

- A DBRC call error has occurred.
- The IMS system that failed was not authorized by DBRC to use the indicated DEDB area or DL/I database.

- An in-doubt EEQE cannot be deleted, because IMS DEDB Fast Recovery invalidates the in-doubt transaction that changes a DL/I database.

### System action

This message is displayed only once for a DEDB area and a DL/I database. The job continues.

### User response

After the job has been ended normally, do the following steps:

- If this message is for DEDB, delete the EEQE with the DBRC CHANGE.DBDS command.
- If this message is for DL/I database, see the Data Base Status list and, if necessary, perform backout using DL/I Batch Backout Utility. If no backout is necessary, delete the EEQE with the DBRC CHANGE.DBDS command.

---

**DFR3525A**      **REPLY ERROR. REENTER 'YES' AFTER ENSURING I/O PREVENTION FOR THE FAILED ACTIVE IMS HAS COMPLETED**

### Explanation

The reply for the message DFR3517A is an unknown answer.

### System action

IMS DEDB Fast Recovery waits for another reply. If there is a reply error, another DFR3525A message is issued.

### Operator response

See the Operator response section of the message DFR3517A for the correct response.

---

**DFR3526E**      **ONE OR MORE INVALID RESYNC CONTROL STATEMENTS FOUND**

### Explanation

There are some incorrect Resync control statements.

### System action

Error messages are shown in the Resync Control Statement list. IMS DEDB Fast Recovery ends with return code 16.

## User response

See the Resync Control Statement list. Correct the errors and rerun the job.

---

**DFR3527I**      **ONE OR MORE INDOUBT UOR'S  
NOT RESOLVED YET**

## Explanation

There are some transactions with in-doubt status. The recovery token names of these transactions are shown in the Resync Control Statement list.

## System action

If the RSYLIST DD statement is specified, the skeleton of Resync control statement is generated in it. IMS DEDB Fast Recovery ends with return code 16.

## User response

Considering the status of coordinator management system (CCTL), determine the action (commit or abort) for all the in-doubt transactions shown in the Resync Control Statement list. Prepare the Resync control statement for each in-doubt transaction and rerun the job. If the RSYLIST DD statement is specified, the skeleton of Resync control statement is generated in it. Add the necessary parameters on the statements.

---

**DFR3528E**      **OPEN FAILED FOR  
DDNAME=RSYLIST**

## Explanation

The data set specified by RSYLIST DD statement cannot be opened.

## System action

IMS DEDB Fast Recovery gives up the process for the data set specified by RSYLIST DD statement and the job continues.

## User response

A DFR3526E and/or a DFR3527E messages are shown with this message. See the User response sections of those messages.

---

**DFR3529E**      **WRITE ERROR FOR  
DDNAME=ddname**

## Explanation

Write error occurs for the data set specified by *ddname* DD statement.

## System action

IMS DEDB Fast Recovery gives up the process for the data set specified by *ddname* DD statement and the job continues.

## User response

Analyze the cause of the write error. Correct the error and, if necessary, rerun the job. If *ddname* is RSYLIST, a DFR3526E or a DFR3527I message is shown with this message. See the User response sections of those messages.

---

**DFR3530E**      **AREA=area\_name DD=ddname  
DAMAGE AT CI-NO=nnnnnnnn  
OFFSET=oooooo LENGTH=llllll**

## Explanation

The VSAM CI in the RBA *nnnnnnnn* of the indicated data set is damaged from the offset *oooooo*th byte for *llllll* bytes. For multiple data sets, an attempt to read a normal CI image from the other data set failed because the data set was already unavailable by the internal stop process or because of an I/O error.

## System action

The area data set is registered in the DBRC RECON data set as unavailable and the job continues.

## User response

After the job ends normally, see the DEDB Area Status list and run the Database Recovery utility to recover the area.

---

**DFR3531E**      **AREA=area\_name DD=ddname  
2ND CI DAMAGE DETECTED**

## Explanation

The DMAC information in the second CI of the data set is damaged.

## System action

The area data set is registered in the DBRC RECON data set as unavailable and the job continues.

## User response

After the job ends normally, see the DEDB Area Status list and use the DEDB Area Data Set Create utility or the Database Recovery utility to recover the area data set.

---

**DFR3532E NEW LOG RECORDS MUST BE ADDED BUT OLDS IS ALREADY CLOSED IN DBRC****Explanation**

IMS DEDB Fast Recovery could not write the log record (X'5637' or X'5638'), which means the sync point determination processing of the in-doubt transaction, into OLDS because the OLDS has already been registered as close status in DBRC RECON data set. This situation occurs in the one of following cases:

- You run IMS DEDB Fast Recovery for the IMS system that ended normally when an in-doubt transaction existed.
- IMS system started by an emergency restart closed the OLDS that it had used when it had ended abnormally, but it ended abnormally before opening a new OLDS. And you run IMS DEDB Fast Recovery for the IMS system.

**System action**

A warning message appears in the Resync Control Statement list, and the job ends with a return code of 16.

**User response**

Register the OLDS used in the next job as open status in DBRC RECON data set by using DBRC NOTIFY.PRILOG (or NOTIFY.SECLOG) command. And then run IMS DEDB Fast Recovery again.

---

**DFR3533I AREA=*area\_name* WITH BLOCK LEVEL SHARED HAS 2ND CI IOT EEQE****Explanation**

The listed data-shared DEDB had an I/O toleration EEQE for a control CI when IMS failed.

**System action**

After the area data set is registered as unavailable, the job continues.

**User response**

After the job ends normally, see the DEDB Area Status list and run the Database Recovery utility to recover the area data set.

---

**DFR3534E DSPSERV FAILED TO OBTAIN DATASPACE. RETURN CODE=*xx*, REASON CODE=*yyyyyyyy*****Explanation**

The job failed to allocate the data space using an MVS DSPSERV macro. The return code (*xx*) and the reason code (*yyyyyyyy*) from the DSPSERV macro are listed in hexadecimal.

**System action**

The job ends with an abend code of U3534.

**User response**

For details of the return code and the reason code from the DSPSERV macro, see the *Assembler Services Reference*.

Correct the error related to the DSPSERV macro, and then run the job again.

---

**DFR3535E ALESERV FAILED TO AND ENTRY TO ACCESS LIST. RETURN CODE=*xx*****Explanation**

The job failed to get access authority for the data space using an MVS ALESERV macro. The return code (*xx*) from the ALESERV macro is listed in hexadecimal.

**System action**

The job ends with an abend code of U3535.

**User response**

For details of the return code from the ALESERV macro, see the *Assembler Services Reference*.

Correct the error related to the ALESERV macro, and then run the job again.

---

**DFR3537E I/O ERROR OCCURRED AT BLDL FOR OLDS MDA MEMBERS****Explanation**

During the automatic determination process of the last OLDS (when DBRC=N and AUTO=Y), the BLDL macro used for the OLDS dynamic allocation request block ended with a return code of 8.

**System action**

The job ends with an abend code of U3537.

**User response**

Check if a correct STEPLIB DD or JOBLIB DD statement is specified for the IMS RESLIB in which the

OLDS dynamic allocation request block is registered. Then rerun the job.

---

**DFR3538E THE NUMBER OF SPECIFIED OLDS IS LESS THAN THREE**

### Explanation

During the automatic determination process of the last OLDS (when DBRC=N and AUTO=Y), the number of OLDSs that are specified in DD statements or that can be dynamically allocated is less than three.

### System action

The job ends with a return code of 16.

### User response

If DBRC=N and AUTO=Y are specified, all the OLDSs that were being used by the IMS to be recovered must be allocatable. Check the DD statements for OLDSs and the STEPLIB or JOBLIB specification and the rerun the job.

---

**DFR3539E xxxx NOT CREATED EVEN AFTER PREVIOUS OLDS PROCESSED**

### Explanation

Even after processing the last and the previous OLDSs determined by the automatic determination function (when DBRC=N and AUTO=Y), xxxx (BCPT or DSET) was not created. The X'42' log record (checkpoint ID log record) or the X'4301' log record (OLDS entry table log record) was not found.

### System action

The job ends with a return code of 16.

### User response

See the OLDS Sort list and check if the last OLDS and the previous OLDS are correctly determined. If not, correct the error in the list and rerun the job. If correct, rerun the job with AUTO=N.

---

**DFR3540E OLDS (SUFFIX=nn) WAS ACTIVE AT IMS FAILURE, BUT UNAVAILABLE IN DSWK**

### Explanation

The OLDS DFSOLPnn and DFSOLSnn were being used by the IMS to be recovered, but they were not registered in the DSET work block (DSWK) for sorting during the automatic last-OLDS determination process (when DBRC=N and AUTO=Y). It is possible that the

OLDSs were not specified in the DD statements or for dynamic allocation, or that errors occurred in the specified OLDSs.

### System action

The job ends with a return code of 16.

### User response

Determine if all OLDSs that were in use by IMS are correctly specified. See the OLDS Sort list to correct the error and rerun the job. If IMS DEDB Fast Recovery cannot read the OLDS because of allocation errors, open errors, read errors, or the presence of an invalid block, recover it with the Log Recovery utility as needed. Then rerun the job with DBRC=N and AUTO=N.

---

**DFR3541E PREVIOUS OLDS (SUFFIX=nn) WAS STOPPED**

### Explanation

The second last OLDS that was used by the IMS when it failed was in a stopped state.

### System action

The job ends with a return code of 16.

### User response

Check the status of the OLDS and recover it with the Log Recovery utility if necessary. Then rerun the job with AUTO=N.

---

**DFR3542E NO CANDIDATE FOUND FOR THE LAST OLDS**

### Explanation

Errors occurred in all specified OLDSs during the automatic last-OLDS determination process (when DBRC=N and AUTO=Y).

### System action

The job ends with a return code of 16.

### User response

Check if all OLDSs that were in use by IMS are correctly specified. See the OLDS Sort list to correct the error and rerun the job.

---

**DFR3543E DUMMY SPECIFIED FOR OLDS DDNAME=ddname**

## Explanation

A DUMMY DD statement is specified for the OLDS or SLDS of the indicated ddname.

## System action

The job continues if the data set allocation is for the automatic determination of the last OLDS. Otherwise, if an error occurred in one of the dual log data sets, the job continues with the other log data set. If errors are found in both data sets, or in the case of a single log data set, the job ends with an abend code of U3543.

## User response

DUMMY DD must not be specified for the log data set used by IMS DEDB Fast Recovery. If the job abnormally ended, correct the error and rerun the job.

---

**DFR3543E**      **DUMMY SPECIFIED FOR SLDS  
DDNAME=ddname**

## Explanation

A DUMMY DD statement is specified for the OLDS or SLDS of the indicated ddname.

## System action

The job continues if the data set allocation is for the automatic determination of the last OLDS. Otherwise, if an error occurred in one of the dual log data sets, the job continues with the other log data set. If errors are found in both data sets, or in the case of a single log data set, the job ends with an abend code of U3543.

## User response

DUMMY DD must not be specified for the log data set used by IMS DEDB Fast Recovery. If the job abnormally ended, correct the error and rerun the job.

---

**DFR3545E**      **USER EXIT DFRXDYN0 LOAD FAIL**

## Explanation

IMS DEDB Fast Recovery confirms that DFRXDYN0 exists in the data set specified in the STEPLIB DD statement and tries to load the module DFRXDYN0, but the module cannot be loaded.

## System action

The job ends with an abend code of U3545.

## User response

Correct the error and then run the job again.

---

**DFR3552W**      **WRITE ERROR ON RCIDUMP. NO  
MORE CI DUMP WILL BE TAKEN.**

## Explanation

Writing into the RCIDUMP data set has failed.

## System action

After reporting this message, the job continues without writing into the RCIDUMP data set, and then ends with a return code of 4.

## User response

None.

---

**DFR3560E**      **STOPPED DEDBS EXIST**

## Explanation

One or more DEDBs are stopped.

## System action

The job ends with a return code of 8.

## User response

See the recovery status lists and take necessary actions.

---

**DFR3561E**      **SYNCHRONIZATION OPERATION  
REQUIRED FOR SOME DEDBS**

## Explanation

One or more DEDBs need some operations for synchronization.

## System action

The job ends with a return code of 8.

## User response

See the recovery status lists and take necessary actions.

---

**DFR3562W**      **RETRY REQUIRED FOR SOME  
DEDBS**

## Explanation

One or more shared VSO areas are in retry required status.

### System action

The job ends with a return code of 4 or more.

### User response

See the DEDB Area Status list and take necessary actions.

---

**DFR3563E ACTION REQUIRED UOR EXISTS  
IN EXTERNAL SUB-SYSTEMS**

### Explanation

The external subsystems contain one or more in-doubt UORs.

### System action

The job ends with return code 8.

### User response

See ESS UOR Status list and take the necessary actions in the external subsystems.

---

**DFR3566E STOPPED MSDBS EXIST**

### Explanation

One or more MSDBs are stopped.

### System action

The job ends with a return code of 8.

### User response

See the Database Status list and take necessary actions.

---

**DFR3570E STOPPED DLI DBS EXIST**

### Explanation

One or more DL/I DBs are stopped.

### System action

The job ends with a return code of 8.

### User response

See the Database Status list and take necessary actions.

---

**DFR3571E RECOVERY REQUIRED FOR SOME  
DLI DBS**

### Explanation

One or more DL/I DBs need recovery.

### System action

The job ends with a return code of 8.

### User response

See the Database Status list and take necessary actions.

---

**DFR3572E EEQES EXIST FOR SOME DLI DBS**

### Explanation

One or more DL/I DBs have EEQEs.

### System action

The job ends with a return code of 8.

### User response

See the Database Status list and take necessary actions.

---

**DFR3573E BATCH BACKOUT REQUIRED FOR  
SOME DLI DBS**

### Explanation

One or more DL/I DBs need batch back out.

### System action

The job ends with a return code of 8.

### User response

See the recovery status lists and take necessary actions.

---

**DFR3574E SYNCHRONIZATION OPERATION  
REQUIRED FOR SOME DLI DBS**

### Explanation

One or more DL/I DBs need some operations for synchronization.

### System action

The job ends with a return code of 8.

### User response

See the Database Status list and take necessary actions.



---

**DFR3600I**      **S-VSO CONN STATUS :**  
**CONNECTED AREAS / SHARED**  
**VSO AREAS cccccc / ssssss.**

### Explanation

This message shows the connection status of CF structures that are associated with block-level data-sharing VSO areas. If no connection is necessary, this message does not appear.

#### **ccccc**

The number of connected block-level data-sharing VSO areas. It includes the number of block-level data-sharing VSO areas, which have been associated with a multi-area structure and are ready for the recovery without connection.

#### **sssss**

The number of block-level data-sharing VSO areas that are in use in failed IMS and still in VSO (excluding areas that are VUNloaded by another IMS after target IMS failure).

### System action

IMS DEDB Fast Recovery issues DFR3601A when CFCONF=Y is specified and the connection fails (ccccc is not equal to sssss). Otherwise, it continues processing.

### User response

None. This message is informational.

---

**DFR3601A**      **REPLY ACTION FOR CF CONNECT**  
**FAILURE, 'TERM','CONT' OR**  
**'RETRY'.**

### Explanation

The previous message is DFR3600I. At least one block-level data-sharing VSO area has failed to be connected. The cause of the error is shown in the previous message. This message requires an operator response.

### System action

IMS DEDB Fast Recovery waits for an operator response.

### Operator response

Reply with one of the following character strings. If none of them is entered, a DFR3601A message is shown again.

#### **Response**

##### **Explanation**

#### **CONT**

IMS DEDB Fast Recovery gives up recovering the areas whose structure failed to be connected. If CFRET=N is specified, these areas are registered as unavailable. See the DEDB Area Status list and run the Database Recovery utility to recover the area data set. If CFRET=Y is specified, nothing is done for these areas. The area needs another IMS DEDB Fast Recovery execution. Analyze the cause of the error and correct it. Prepare the Area Recovery Retry Statement and run IMS DEDB Fast Recovery again, if necessary.

#### **RETRY**

IMS DEDB Fast Recovery tries to connect the areas whose structure failed to be connected again. Analyze the cause of the error according to the previous message DFR3600I, correct it, and then reply with the word 'RETRY'. (No action for connected areas.) In this case, if another IMS sharing the areas saves the areas into DASD using the VUNLOAD command, IMS DEDB Fast Recovery does not try to connect the areas again. If any areas that lost the connections remain, a DFR3600I message and a DFR3601A message are shown again.

#### **TERM**

IMS DEDB Fast Recovery ends execution. No recovery is done.

---

**DFR3602I**      **DEDB FAST RECOVERY**  
**TERMINATED BY USER**  
**RESPONSE .**

### Explanation

TERM was the reply to a DFR3601A message.

### System action

IMS DEDB Fast Recovery ends with return code 16 without doing any recovery for DEDBs.

### User response

Determine the reason why IMS DEDB Fast Recovery cannot connect the structures of the block-level data-sharing VSO areas. Correct errors and run IMS DEDB Fast Recovery again, if necessary.

---

**DFR3607E**      **CF ENTRY DELETE**  
**FAILED. AREA=area\_name,**  
**RBA=rba, STR=str\_name.**  
**RETCODE=ret\_code,**  
**RSNCODE=rsn\_code.**

## Explanation

The entry for the recovery needed CI cannot be deleted from the structure.

### **area\_name**

Area name

### **str\_name**

Structure name

### **rba**

RBA of deletion failed CI

### **ret\_code**

Return code for IXLCACHE  
REQUEST=DELETE\_NAME macro

### **rsn\_code**

Reason code for IXLCACHE  
REQUEST=DELETE\_NAME macro

For the return and reason code of IXLCACHE macro, see the *Sysplex Services Reference*.

## System action

After the area data set is registered as unavailable, the job continues. Even if the area consists of two structures and another one has no error, the area becomes unavailable, because the CI that failed to be deleted has a previous image for the recovery, and this image might be read by other IMS systems.

## User response

After the job ends normally, see the DEDB Area Status list and run the Database Recovery utility to recover the area.

---

<b>DFR3608E</b>	<b>CAST OUT READ FAILED. AREA=area_name, RBA=rba, STR=str_name. RETCODE=ret_code, RSNCODE=rsn_code.</b>
-----------------	---

## Explanation

The CI to be cast out cannot be read from the block-level data-sharing VSO area.

### **area\_name**

Area name

### **str\_name**

Structure name

### **rba**

RBA of the CI that cannot be read

### **ret\_code**

Return code for IXLCACHE  
REQUEST=CASTOUT\_READ macro

### **rsn\_code**

Reason code for IXLCACHE  
REQUEST=CASTOUT\_READ macro

For the return and reason codes of the IXLCACHE macro, see the *Sysplex Services Reference*.

## System action

After the area data set is registered as unavailable, the job continues. Even if the area consists of two structures and another one has no error, the area becomes unavailable, because the two structures must have the same status. Cast-out locks must be obtained from both structures.

## User response

After the job ends normally, see the DEDB Area Status list and run the Database Recovery utility to recover the area.

---

<b>DFR3609E</b>	<b>DIRECTORY ENTRY READ FAILED. AREA=area_name, STR=str_name. RETCODE=ret_code, RSNCODE=rsn_code.</b>
-----------------	---

## Explanation

IMS DEDB Fast Recovery cannot read the directory entry names for the necessary structure to determine the CIs to be cast out.

### **area\_name**

Area name

### **str\_name**

Structure name

### **ret\_code**

Return code for IXLCACHE  
REQUEST=READ\_COCLASS macro

### **rsn\_code**

Reason code for IXLCACHE  
REQUEST=READ\_COCLASS macro

For the return and reason code of IXLCACHE macro, see the *Sysplex Services Reference*.

## System action

If the structure is the last one available, the area is registered as unavailable. If there is another available structure, IMS DEDB Fast Recovery tries to read the CI from it.

## User response

After the job ends normally, see the DEDB Area Status list and run the Database Recovery utility to recover the area, if necessary.

---

**DFR3610W**      **CAST OUT UNLOCK  
FAILED. AREA=area\_name,  
RBA=rba, STR=str\_name.  
RETcode=ret\_code,  
RSNcode=rsn\_code.**

### Explanation

The cast-out lock cannot be released for the cast-out CI.

**area\_name**  
Area name

**str\_name**  
Structure name

**rba**  
RBA of the CI whose cast-out lock cannot be released

**ret\_code**  
Return code for IXLCACHE  
REQUEST=UNLOCK\_CASTOUT macro

**rsn\_code**  
Reason code for IXLCACHE  
REQUEST=UNLOCK\_CASTOUT macro

For the return and reason codes of the IXLCACHE macro, see the *Sysplex Services Reference*.

### System action

The job continues and ends with return code 4 or more. All obtained cast-out locks are released at job termination.

### User response

It is no problem from the point of the recovery that the obtained cast-out lock cannot be released. Unless RCVNEED nor RETRY appears for the area on DEDB Area Status list, the recovery is normally completed. But the structure might have an error after the recovery. Examine the return and reason codes of the IXLCACHE REQUEST=UNLOCK\_CASTOUT macro, determine the cause of the problem, and take proper action.

---

**DFR3611I**      **VUNLOAD DETECTED AFTER  
CF RELATED ERROR FOR  
AREA=area\_name. PROCESS CAN  
BE CONTINUED.**

### Explanation

IMS DEDB Fast Recovery detects a CF structure-related error. Moreover, IMS DEDB Fast Recovery detects that the area is VUnloaded. The error on the structure can be ignored.

### System action

IMS DEDB Fast Recovery ignores the error and continues recovery on DASD.

### User response

None. This message is informational.

---

**DFR3612E**      **CF CONNECTION FAILED.  
AREA=area\_name, STR=str\_name.  
RETcode=ret\_code,  
RSNcode=rsn\_code.**

### Explanation

For the return and reason codes of the IXLCONN macro, see the *Sysplex Services Reference*. When the structure is a multi-area structure, the message is issued by the block-level data-sharing VSO area, which is to be associated with the structure. In this case, return and reason codes are not shown. In the message text:

**area\_name**  
Area name

**str\_name**  
Structure name

**ret\_code**  
Return code for IXLCONN macro

**rsn\_code**  
Reason code for IXLCONN macro

### System action

It depends on CFCONF= parameter whether the recovery is continued when there is a connection failed area. Moreover, it depends on the CFRET= parameter whether the area is registered as unavailable. See “JCL requirements” on page 50 for these EXEC parameters.

### User response

After the job ends normally, see the DEDB Area Status list. If RCVNEED is shown for the area, run the Database Recovery utility to recover the area. If RETRY is shown for the area, analyze the cause of the problem and remove it. Prepare the Area Recovery Retry Statement and run IMS DEDB Fast Recovery again, if necessary.

---

**DFR3612E**      **CF CONNECTION FAILED.  
AREA=area\_name, STR=str\_name.**

### Explanation

For the return and reason codes of the IXLCONN macro, see the *Sysplex Services Reference*. When

the structure is a multi-area structure, the message is issued by the block-level data-sharing VSO area, which is to be associated with the structure. In this case, return and reason codes are not shown. In the message text:

**area\_name**

Area name

**str\_name**

Structure name

**ret\_code**

Return code for IXLCONN macro

**rsn\_code**

Reason code for IXLCONN macro

**System action**

It depends on CFCONF= parameter whether the recovery is continued when there is a connection failed area. Moreover, it depends on the CFRET= parameter whether the area is registered as unavailable. See “[JCL requirements](#)” on page 50 for these EXEC parameters.

**User response**

After the job ends normally, see the DEDB Area Status list. If RCVNEED is shown for the area, run the Database Recovery utility to recover the area. If RETRY is shown for the area, analyze the cause of the problem and remove it. Prepare the Area Recovery Retry Statement and run IMS DEDB Fast Recovery again, if necessary.

---

**DFR3613E**      **CF READ  
FAILED. AREA=area\_name,  
RBA=rba, STR=str\_name.  
RETCODE=ret\_code,  
RSNCODE=rsn\_code.**

**Explanation**

The CI cannot be read from the block-level data-sharing VSO area.

**area\_name**

Area name

**str\_name**

Structure name

**rba**

RBA of the read failed CI

**ret\_code**

Return code for IXLCACHE REQUEST=READ\_DATA macro

**rsn\_code**

Reason code for IXLCACHE REQUEST=READ\_DATA macro

For the return and reason code of the IXLCACHE macro, see the *Sysplex Services Reference*.

**System action**

If the structure is the last one for the area, IMS DEDB Fast Recovery stops the recovery for the area. All area data sets that are related to the area are registered to the DBRC RECON data set as unavailable. If there is another available structure, IMS DEDB Fast Recovery continues the recovery for the area. However, even in this case, if IMS DEDB Fast Recovery cannot determine whether the area needs recovery because it could not read another structure, it stops the recovery for the area and registers all area data sets related to the area to the DBRC RECON data set as unavailable.

**User response**

After the job ends normally, see the DEDB Area Status list. If RCVNEED is shown for the area, run the Database Recovery utility to recover the area.

---

**DFR3615W**      **DISCONNECT vvvvvvvvvvvvvv  
FAILED FOR STRUCTURE  
str\_name. RETCODE=ret\_code,  
RSNCODE=rsn\_code.**

**Explanation**

The disconnection failed for the structure indicated by *str\_name* that is associated with a block-level data-sharing VSO area. *Ret\_code* and *rsn\_code* indicate return code and reason code as the result of the macro for disconnection. vvvvvvvvvvvvvv indicates the type of macro as follows:

**vvvvvvvvvvvvv**  
**The type of macro and parameter**

**(RSN=NORMAL)**  
IXLDISC REASON=NORMAL

**(RSN=FAILURE)**  
IXLDISC REASON=FAILURE

**FORCE**  
IXLFORCE

For the return and reason codes of these macros, see the *Sysplex Services Reference*.

**System action**

The job continues and ends with return code 4 or more.

**User response**

The disconnection error is no problem from the point of the recovery. Unless RCVNEED nor RETRY appears

for the area on the DEDB Area Status list, the recovery is normally completed. But the structure might have an error after the recovery. Examine the return and reason codes of the macro, determine the cause of the problem, and take proper action.

---

**DFR3616E**      **CF IXCQUERY FAILED.**  
**AREA=area\_name, STR=str\_name.**  
**RETCODE=ret\_code,**  
**RSNCODE=rsn\_code.**

### Explanation

XCF information cannot be obtained for the block-level data-sharing VSO area indicated by *area\_name*, the structure indicated by *str\_name*. *Ret\_code* and *rsn\_code* indicate return code and reason code as the result of IXCQUERY macro. For the return and reason codes of this macro, see the *Sysplex Services Reference*.

### System action

The job ends with an abend code of U3616.

### User response

Determine the cause of the error and run the job again, if necessary.

---

**DFR3617E**      **STRUCTURE *str\_name* IS NOT  
DEFINED IN CF FOR AREA  
*area\_name*.**

### Explanation

The structure indicated by *str\_name* is not defined in CF for the block-level data-sharing VSO area indicated by *area\_name*. When the structure is a multi-area structure, the message is issued by the block-level data-sharing VSO area, which is to be associated with the structure.

### System action

It depends on CFCONF= parameter whether the recovery is continued when a necessary structure is not defined. Moreover, it depends on the CFRET= parameter whether the area is registered as unavailable. See [“JCL requirements ” on page 50](#) for these EXEC parameters.

### User response

After the job ends normally, see the DEDB Area Status list. If RCVNEED is shown for the area, run the Database Recovery utility to recover the area. If RETRY is shown for the area, analyze the cause of the problem and remove it. Prepare the Area Recovery

Retry Statement and run IMS DEDB Fast Recovery again, if necessary.

---

**DFR3618I**      **STRUCTURE *str\_name* IS NOT  
ALLOCATED IN CF FOR AREA  
*area\_name*.**

### Explanation

The structure indicated by *str\_name* is not allocated in CF for the block-level data-sharing VSO area indicated by *area\_name*. If the structure is a multi-area structure, the message is issued by the block-level data-sharing VSO area, which is to be associated with the structure.

### System action

If there is another structure for the area, the recovery continues by using it. Otherwise, it depends on CFCONF= parameter whether the recovery continues. Moreover, it depends on the CFRET= parameter whether the area is registered as unavailable. See [“JCL requirements ” on page 50](#) for these EXEC parameters.

### User response

After the job ends normally, see the DEDB Area Status list. If RCVNEED is shown for the area, run the Database Recovery utility to recover the area. If RETRY is shown for the area, analyze the cause of the problem and remove it. Prepare the Area Recovery Retry Statement and run IMS DEDB Fast Recovery again, if necessary.

---

**DFR3618E**      **STRUCTURE *str\_name* IS NOT  
ALLOCATED IN CF FOR AREA  
*area\_name*.**

### Explanation

The structure indicated by *str\_name* is not allocated in CF for the block-level data-sharing VSO area indicated by *area\_name*. When the structure is a multi-area structure, the message is issued by the block-level data-sharing VSO area, which is to be associated with the structure.

### System action

If there is another structure for the area, the recovery continues by using it. Otherwise, it depends on CFCONF= parameter whether the recovery continues. Moreover, it depends on the CFRET= parameter whether the area is registered as unavailable. See [“JCL requirements ” on page 50](#) for these EXEC parameters.

## User response

After the job ends normally, see the DEDB Area Status list. If RCVNEED is shown for the area, run the Database Recovery utility to recover the area. If RETRY is shown for the area, analyze the cause of the problem and remove it. Prepare the Area Recovery Retry Statement and run IMS DEDB Fast Recovery again, if necessary.

---

**DFR3619E**      **NO CONNECTION  
DETECTED DURING *process*.**  
**AREA=*area\_name*, STR=*str\_name*.**

## Explanation

A connection loss is detected for the area indicated by *area\_name*, the structure indicated by *str\_name* during the *process* process. *Process* indicates the following process:

### OBTAINING CASTOUT LOCK

Cast-out lock obtaining process in redo phase.

### CF READ

CF read process in redo phase.

### CF CASTOUT READ

CF casting-out reading process in redo phase.

### CF ENTRY DELETE

CF entry deletion process in redo phase.

### CASTING OUT

CF casting-out reading process in casting out phase. Redo phase is already finished.

## System action

If there is another available structure, IMS DEDB Fast Recovery disconnects the connection lost structure normally and tries to delete it by the IXLFORCE macro. If there is no other active connector, the structure is deleted. If any failed-persistent connectors remain on the structure and the structure is not deleted due to the timing of issuing the IXLFORCE macro, delete the structure by using the MVS command (SETXCF) in order to protect the structure from misuse.

If the structure is the last available one for the area, the action depends on CFRET= parameter.

### Parameter

#### Process

### CFRET=Y

IMS DEDB Fast Recovery disconnects the structure and keeps the failed-persistent connection. Even if no other active connector, it remains.

### CFRET=N

IMS DEDB Fast Recovery disconnects the structure normally. If no other active connector, it is deleted. The area is registered as unavailable.

## User response

After the job ends normally, see the DEDB Area Status list. If RCVNEED is shown for the area, run the Database Recovery utility to recover the area. If RETRY is shown for the area, analyze the cause of the problem and remove it. Prepare the Area Recovery Retry Statement and run IMS DEDB Fast Recovery again, if necessary.

---

**DFR3620I**      **AREA SELECTION FUNCTION  
SPECIFIED.**

## Explanation

The AREASLCT DD statement is specified to select areas to be recovered.

## System action

The job continues. IMS DEDB Fast Recovery recovers only the selected area.

## User response

None. This message is informational.

---

**DFR3622E**      **[INCLUDED | EXCLUDED] AREA  
*area\_name* IN AREASLCT DD IS  
NOT FOUND IN DDIR**

## Explanation

The area specified in AREASLCT DD statement cannot be found in the failed IMS definition.

## System action

IMS DEDB Fast Recovery ends with return code 16.

## User response

Specify correct area names in the data set specified by AREASLCT DD statement and run IMS DEDB Fast Recovery again, if necessary.

---

**DFR3624E**      **INVALID STATEMENT IN  
AREASLCT DD. RSN=*rsn\_code***

## Explanation

An incorrect statement is detected in the data set specified by the AREASLCT DD statement.

### *rsn\_code*

#### Explanation

### 01

There is incorrect statement in the first line. Specify 'INCLUDE' or 'EXCLUDE'.

- 02** There are more than 1000 area names specified. Decrease the number of names to 1000 or less.
- 03** There is no area name specification.
- 04** There is a blank line.
- 05** The length of area name exceeds 8.
- 06** There are duplicate area name specifications.

**System action**

The job ends with a return code of 16.

**User response**

Correct the error in the control statement, and then run the job again.

---

**DFR3624E**      **INVALID STATEMENT IN  
AREASLCT DD. RSN=*rsn\_code*.  
AREANAME=*area\_name***

**Explanation**

An incorrect statement is detected in the data set specified by the AREASLCT DD statement.

*rsn\_code*

**Explanation**

- 01** There is incorrect statement in the first line. Specify 'INCLUDE' or 'EXCLUDE'.
- 02** There are more than 1000 area names specified. Decrease the number of names to 1000 or less.
- 03** There is no area name specification.
- 04** There is a blank line.
- 05** The length of area name exceeds 8.
- 06** There are duplicate area name specifications.

**System action**

The job ends with a return code of 16.

**User response**

Correct the error in the control statement, and then run the job again.

---

**DFR3700I**      **JCL CREATION FUNCTION FOR  
MSDB RECOVERY ACTIVATED**

**Explanation**

The JCL creation for MSDB Dump Recovery utility is started by the MSDB=Y or MSDB=O specification.

**System action**

The job continues.

**User response**

None. This message is informational.

---

**DFR3701E**      **JCL CREATION FUNCTION FOR  
MSDB RECOVERY TERMINATED**

**Explanation**

The JCL creation for MSDB Dump Recovery utility is ended. If message DFR3708E was issued before this message, check its contents. If message DFR3708E was not issued, it means that the IMS DEDB Fast Recovery needed SLDS for the MSDB recovery. Though DBRC=N,AUTO=Y was specified, the automatic log-data-set-sequence determination function cannot be processed, so JCL creation cannot be continued.

**System action**

The job continues without creating the JCL for the MSDB Dump Recovery utility.

**User response**

If message DFR3708E is issued, check its contents. Otherwise, you cannot run this function specifying DBRC=N,AUTO=Y. If necessary, run the MSDB Dump Recovery utility manually.

---

**DFR3704I**      **NO ALLOCATION FOR  
DDNAME=MSDBOUTx. THE JCL  
WILL BE PUT FOR THE OTHER D/S.**

**Explanation**

The x represents either 1 or 2. No DD statement is specified for MSDBOUTx data set.

**System action**

The job continues by not writing to what is indicated on MSDBOUTx but to the other data set (MSDBOUT1 or MSDBOUT2).

## User response

None. This message is informational.

---

**DFR3705E MSDBCPx IS A DUMMY DATA SET**

## Explanation

The *x* is the suffix of the MSDB checkpoint data set. A DUMMY data set was specified for the DD statement.

## System action

IMS DEDB Fast Recovery checks other data sets specified in MSDBCPx DD statements, then the job ends with a return code of 16 after displaying message DFR3706E.

## User response

Specify the correct data set for the DD statement, and then rerun the job.

---

**DFR3706E UTILITY TERMINATED DUE TO MSDBCP DATA SET ERROR(S)**

## Explanation

The job cannot be continued, because there is an error in the MSDB checkpoint data set.

## System action

The job ends with a return code of 16.

## User response

Check the preceding message and the MSDB checkpoint data set list, correct the error, and rerun the job.

---

**DFR3707E INVALID MSDBCPx DATA SET. RSN CODE=*rsn\_code***

## Explanation

An error is found in the MSDB checkpoint data set. The *x* is the suffix of MSDB checkpoint data set. The following list describes the meaning of variable *rsn\_code*:

***rsn\_code***  
**Description**

### 01

The IMSID= and RSENAME= parameter specification of IMS DEDB Fast Recovery and the XRF/Non-XRF status in the MSDB checkpoint data set are inconsistent.

### 02

There is no data in the MSDB checkpoint data set.

### 03

The RDJFCB macro run for the MSDB checkpoint data set was unsuccessful.

## System action

IMS DEDB Fast Recovery checks other MSDB checkpoint data sets, then the job ends with a return code of 16 after displaying message DFR3706E.

## User response

Check the MSDB checkpoint data set list and specify the correct data set for the DD statement, and then rerun the job.

---

**DFR3708E NO VALID MSDBCP FOUND. NO JCL CREATED FOR MSDB RECOVERY.**

## Explanation

IMS DEDB Fast Recovery detected that checkpoint IDs of all usable MSDB checkpoint data set are of later time stamps than the Fast Path checkpoint ID of the failed IMS system. The JCL for the MSDB Dump Recovery utility is not generated.

## System action

The job continues without generating the JCL for the MSDB Dump Recovery utility

## User response

Check the MSDB checkpoint data set list and analyze the error. If necessary, rerun the job.

---

**DFR3710W NO \$\$\$sssssss STATEMENT FOUND IN *ddname* DATA SET**

## Explanation

No \$\$ statement indicated by \$\$\$sssssss exists in the data set specified by *ddname* DD statement. The variable ssssssss indicates the name of \$\$ statement.

## System action

The job continues.

## User response

Check the contents of the data set specified by the MSDBIN DD statement and analyze the error. If necessary, correct the error and then rerun the job.



---

**DFR3711W      INVALID \$\$ STATEMENT FOUND  
IN *ddname* DATA SET****Explanation**

An error is found in the \$\$ statement in the data set specified by *ddname* DD statement.

**System action**

The \$\$ statement is ignored and the job continues.

**User response**

Check the contents of the data set specified by the *ddname* DD statement and analyze the \$\$ statement error. If necessary, correct the error and then rerun the job.

---

**DFR3715W      SLDS MAY BE NEEDED FOR MSDB  
RECOVERY JCL****Explanation**

SLDS, other than OLDS, specification might be necessary for the IEFRDER DD statement in the MSDB Dump Recovery utility output JCL. The necessary SLDS specification might be missing, because IMS DEDB Fast Recovery does not recognize SLDS when DBRC=N,AUTO=Y is specified.

**System action**

Only OLDSs of the failed IMS system are specified for the IEFRDER DD statement, and the job continues.

**User response**

If SLDS specification is necessary, add it to the IEFRDER DD statement in the output JCL, and then submit the job for MSDB Dump Recovery utility.

---

**DFR3716E      LOG DATA SET NOT FOUND IN  
RECON FOR MSDB RECOVERY****Explanation**

The log data set information cannot be found in the DBRC RECON data set. Thus, the IEFRDER DD statement in the JCL for the MSDB Dump Recovery utility could not be specified.

**System action**

The JCL for the MSDB Dump Recovery utility will contain the line:

```
// ***** LOG D/S CAN NOT BE DETERMINED *****
```

This JCL will cause an error. The statements other than the \$\$\$\$IEFRDER statement will be processed.

**User response**

Specify the correct log data set for the IEFRDER DD statement, and then submit the job for MSDB Dump Recovery utility. Check also the DBRC RECON data set, because there might be an error in it.

---

**DFR3717E      DBRC DASD LOG *yyyyyy* EXIT  
FAILED (*rr*)****Explanation**

DBRC was called for the JCL creation, and an error code was returned from the DASD logging online interface. The variable *yyyyyy* indicates the following errors:

**LOCREC**

LOCREC exit

**LAST**

LAST exit

The variable *rr* is the return code from DBRC in decimals. For the details of DBRC return codes, read *IMS Messages and Codes*, "DSP messages", "DBRC request return codes". Due to this error, the IEFRDER DD statement in the JCL for the MSDB Dump Recovery utility could not be specified.

**System action**

The JCL for the MSDB Dump Recovery utility will contain the line:

```
// ***** LOG D/S CAN NOT BE DETERMINED *****
```

This JCL will cause an error. The statements other than the \$\$\$\$IEFRDER statement will be processed.

**User response**

Specify the correct log data set for the IEFRDER DD statement, and then submit the job for MSDB Dump Recovery utility. Check also the DBRC RECON data set, because there might be an error in it.

---

**DFR3725W      THE OLDER MSDBCP IS USED FOR  
RECOVERY****Explanation**

The checkpoint ID of one of the usable MSDB checkpoint data set is of later time stamps than that of the Fast Path checkpoint ID of the failed IMS system. This occurs when the system fails after MSDB checkpoint data set has been finished written, but

before the Fast Path checkpoint is updated. Therefore, the MSDBCPx DD statement written to the data set specified in the MSDBOUTn DD statement describes the older MSDB checkpoint data set in the later pair.

### System action

IMS DEDB Fast Recovery selects the older MSDB checkpoint data set name in the later pair for the JCL of the MSDB recovery. It is specified for all MSDBCPx DD statements in the data set specified by the MSDBOUTn DD statement.

### User response

Check the MSDB checkpoint data set list, and if necessary, confirm the status of the data set.

---

**DFR3726W**      **THE LATEST MSDBCP IS NOT FOUND, THE OLDER ONE IS USED FOR RECOVERY.**

### Explanation

The MSDB checkpoint data set that has the latest Fast Path checkpoint ID cannot be found. Normally, this does not happen, because IMS updates the Fast Path checkpoint ID after it has confirmed that the checkpoint data set has been written successfully.

### System action

If MSDB=O is specified, MSDBCPx DD statements written in the data set specified by the MSDBOUTn DD statement will contain the older MSDB checkpoint data set name in the later pair.

### User response

Check the MSDB checkpoint data set list, and if necessary, confirm the status of the data set.

---

**DFR3729E**      **WRITE ERROR. DDNAME=*ddname***

### Explanation

An error occurred while data was being written to the data set specified by *ddname*.

### System action

The job continues without writing to the data set causing the error.

### User response

Analyze the cause of the error. If necessary, correct the error, and rerun the job.

---

**DFR3730E**      **DFRMAIN0 IS NOT APF AUTHORIZED PROGRAM**

### Explanation

The library that includes DFRMAIN0, the main module of IMS DEDB Fast Recovery, is not authorized as an MVS library.

### System action

The job ends abnormally with code U3730.

### User response

Verify that the installation is correct, or authorize the library as an MVS Authorized (APF) library, and rerun the job.

---

**DFR3731E**      **IMS VV.N IS NOT SUPPORTED**

### Explanation

IMS DEDB Fast Recovery loaded module DFSVC000 from the IMS module library specified on the STEPLIB, and found that IMS DEDB Fast Recovery does not support the IMS whose version is *VV* and release is *N*.

### System action

The job ends abnormally with code U3731.

### User response

Verify that the installation and the name of the IMS.SDFSRESL or IMS.RESLIB (the library containing IMS load modules) on the STEPLIB are correct. Correct the cause of the error, and rerun the job.

---

**DFR3732I**      **DFR EXECUTING ON IMS VV.N**

### Explanation

The version and release of the IMS that IMS DEDB Fast Recovery is attempting to recover are *VV* and *N*.

### System action

The job continues.

### User response

None. This message is informational.

---

**DFR3733E**      **BLDL FAILED FOR DFR CONTROL MODULE *module\_name***

## Explanation

IMS DEDB Fast Recovery control module *module\_name* cannot be found in the data set specified on the STEPLIB DD statement.

## System action

The job ends with an abend code of U3733.

## User response

Specify the name of DFR.SDFRLMD0 (the library containing IMS DEDB Fast Recovery load modules) on the STEPLIB DD statement, and rerun the job.

---

**DFR3734E**      **VERSION AND RELEASE OF IMS  
IN OLDS/SLDS IS VV.N, WHICH  
IS DIFFERENT FROM THE ONE  
FOUND IN STEPLIB**

## Explanation

The version and release of IMS found in the checkpoint log record is different from the version and release of IMS found in module DFSVC000 of the IMS module library specified on the STEPLIB. In the message, *VV* denotes the version and *N* denotes the release found in the checkpoint log record. The version and release of IMS in module DFSVC000 is indicated in message DFR3732I.

## System action

The job ends abnormally with code U3734.

## User response

Either the IMS module library specified on STEPLIB or OLDS/SLDS is not the one of the failed IMS. Make sure that both the name of the IMS RESLIB specified on the STEPLIB and the name of RECON data sets and/or the OLDS/SLDS data sets specified on the DD statement are correct. Correct the error and rerun the job.

---

**DFR3735E**      **DEDB DMB=xxxxxxx IN ACBLIB  
NOT COMPATIBLE WITH IMS**

## Explanation

The level of the DMB that corresponds to the indicated DEDB is not compatible with the IMS to be recovered.

## System action

The job abnormally ends with code U3735.

## User response

There is a conflict between the version and release of IMS of the IMS module library and that of the ACB library. Verify that both the name of the IMS RESLIB specified on the STEPLIB and the name of ACB libraries specified on the DD statement are correct. Correct the cause of the error and rerun the job.

---

**DFR3736E**      **SDEP DISCREPANCY DURING  
LOG PROCESSING FOR  
AREA=*area\_name***

## Explanation

Log processing found a problem with the log record that is related to the sequential dependents of area *area\_name*. The number of preallocated sequential dependent CIs in the log record is out of the permissible range.

## System action

The recovery for the area is stopped and the job continues. All area data sets that are related to the area are registered to the DBRC RECON data sets as unavailable.

## User response

After the job ends normally, check the DEDB Area Status list and run the Database Recovery utility to recover the area.

---

**DFR3737W**      **RECOVERY SKIPPED FOR  
DB=*dbname* AREA=*area\_name*.  
AREA NOT FOUND IN [ACBLIB |  
IMS CATALOG]**

## Explanation

IMS DEDB Fast Recovery finds database *dbname* updates to area *area\_name*, but it cannot validate if these updates need recovery (REDO). There is no subsequent X'5926' log record nor the X'5927' log record to show that the area has been deleted by online change. This condition occurs if the user has changed the IMS block structure since the specified checkpoint was taken.

## System action

The job continues, and ends with return code 4 or higher.

## User response

Make sure that there is no data integrity problem that is caused by the user by changing the IMS block

structure since the specified checkpoint was taken. If the area has been closed before the IMS failure, there will be no data integrity problem.

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### **Programming interface information**

This publication is intended to help the customer use the functional capabilities of the IMS DEDB Fast Recovery for z/OS. It presents a complete description of the utility.

This publication primarily documents information that is *not* intended to be used as Programming Interfaces of the IMS DEDB Fast Recovery for z/OS.

This publication also documents intended Programming Interfaces that enable the customer to write programs to obtain the services of the IMS DEDB Fast Recovery for z/OS. This information is identified where it occurs by an introductory statement to a topic or section.

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# Glossary

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The following terms are used in IMS DEDB Fast Recovery information.

**area data set control block (ADSC)**

A control block that contains DEDB area data set information. One ADSC is created for each area data set.

**ADSC global information**

ADSC information used in the data sharing environment.

**central electronic complex (CEC)**

A processor that operates under the control of a single MVS operating system.

**control interval update sequence number (CUSN)**

A sequence number that exists in the VSAM CI of a DEDB area. The number is incremented by one with each CI update. The CUSN is used to determine if the CI needs to be recovered when, after an emergency restart or after a takeover by an alternate IMS subsystem in the XRF complex, IMS recovers DEDB.

**data space**

A virtual storage address space up to 2 GB, which programs can directly manipulate through assembler instructions. It is different from the address space and can contain only data, not system data nor programs. No instructions can be executed in the data space.

**DL/I database directory (DDIR)**

A list of Data Management Blocks (DMBs) that defines DL/I physical/logical databases used by an application program.

**DEDB area control list (DMAC)**

A list that holds the DEDB area information. One DMAC is created for each DEDB area.

**DEDB master control block (DMCB)**

A DEDB base control block. One DMCB is created for each DEDB.

**disabled reference storage (DREF storage)**

A storage area to which the disabled mode program can refer. Although a page is not fixed in the main storage, a page fault is resolved synchronously by referring to the disabled mode program.

**EEQE queue element (EQEL)**

One of the RIS control blocks, which contains database names used by UOR.

**DEDB area name list (FPALDS)**

One of the DEDB control blocks, which contains a list of area names in a DEDB.

**image copy data set control block (IDSC)**

A control block that contains DEDB HSSP image copy data set information. One IDSC is created for each area data set. The IDSC has the same format as that of the ADSC.

**in-doubt**

The status of the transaction (UOR) that is started by a transaction manager except IMS, reaches a sync point, and is not determined to be committed or aborted. IMS performs the preliminary process (sync point process phase 1) and the last process (sync point process phase 2) to determine a sync point. When sync point process phase 1 is completed, a sync point process phase 1 completion log record (X'5611') is written. In a sync point process phase 2, log records that show a sync point is completed or failed (X'37', X'5937', X'38', X'5938', X'5637', X'5638') are written. When sync point process phase 2 is completed, a sync point process phase 2 completion log record (X'5612') is written. When IMS failed, the UOR that has no sync point process phase 1 completion log record (X'5611') is assumed not to reach a sync point. A UOR with in-doubt status is one that has a sync point process phase 1 completion log record (X'5611') and no sync point log records written in a sync point process phase 2.

**in-doubt EEQE (Extended Error Queue Element)**

An identifier of the CI or block that cannot be accessed because a transaction has in-doubt status.

**I/O toleration EEQE (Extended Error Queue Element)**

In an XRF complex, after a takeover by an alternate IMS, the failed IMS creates the I/O toleration EEQE to save and identify the database block or VSAM CI that was being updated until I/O prevention process is completed. Then the data is moved to the main storage buffer and updated in the buffer (I/O toleration buffer).

**I/O toleration buffer**

See I/O toleration EEQE.

**recoverable in-doubt structure (RIS)**

If the transaction started by a transaction manager except IMS has in-doubt status when the transaction manager or IMS terminates abnormally, RIS is created for all UORs by an IMS subsystem or a takeover IMS subsystem in the emergency restart or XRF environment, and is written into an IMS log data set. RIS contains UOR, update record, and in-doubt EEQE.

**recoverable service element (RSE)**

A service element that is backed up and that can initiate a takeover. An RSE is composed of an active IMS and an alternate IMS on the same or different CECs.

**recovery token**

A 16-byte identifier that is created by the IMS or CICS® transaction manager for identifying UOR.

**redo**

Apply the uncommitted update to the CI and write the updated CI to DASD.

**Remote Site Recovery (RSR)**

A remote recovery function of the IMS subsystem, which transfers the necessary data to the remote site as a log to recover the active IMS subsystem. The remote IMS subsystem is defined as a tracking system, and its activities are tracked by the data the IMS sent. The latest image of the database is kept in the remote site.

**residual recovery element (RRE)**

A main control block that RIS consists of.

**RSE name**

A name that an installation gives to the two IMS subsystems that form a recoverable service element (RSE).

**sync point abort process**

A process that aborts the message process or the database update process if a UOR that reached a sync point did not complete its process. One or more sync point failure log records of X'38', X'5938', or X'5638' are generated.

**sync point commit process**

A process that commits the message process or the database update process when a UOR that reached a sync point did not complete its process. One or more sync point completion log records of X'37', X'5937', or X'5637' are generated.

**sync point determination process**

A process that determines whether the message process or the database update process during the UOR need to be established when a UOR that reached a sync point did not complete its process.

**unit of recovery (UOR)**

A minimum unit of recovery. UOR is a sequence of operations within a unit of work between commit points (such as from transaction scheduling to a sync point, or between two sync points).

**Virtual Storage Option (VSO)**

An IMS Fast Path function, which stores a DDEP portion of a DEDB area into the data space and can access it.

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