IBM

IBM DS8870 Microcode Customer Information 87.0.x.x to Current

V5.05

Contents

Summary of Changes

Date	Change
14 February 2020	Correct Call Home IP address for eccgw01.boulder.ibm.com
	Add recommendation that no DS8000 configuration changes are to be made after acquisition.
07 January 2021	Added minimum microcode level to support Remote Code Loads. Include notice of VPN support no longer available. Updated IBM Call Home Host names and IP addresses.
06 October 2021	Update AOS V4.0 DNS names.
25 October 2021	Updated the link for Flashes, Alerts and Bulletins
26 May 2022	Updated the 'General Recommendations' section.

Document Purpose

The information contained in this document is to inform you of:

- Actions that may need to be taken prior to a microcode upgrade.
- Recommendations regarding Operating Systems, APARs, and Copy Services.
- Messages that may be posted during the microcode upgrade.

General Recommendations

!!! IMPORTANT !!!

Once a microcode bundle has been downloaded, **no changes** are to be made to the DS8000 configuration as it may adversely affect the upgrade process. If changes are made, unpredictable results may occur, such as repeated warmstarts or loss of access to attached Host systems.

During a microcode activation, regardless of it being performed by Client, SSR, or via Remote Code Load (RCL), the following should be avoided:

- IPL of Host Operating Systems.
- Changes to Copy Services configurations.

If you wish to make configuration changes after microcode has been downloaded, please contact IBM Support and request to have the preload canceled and rescheduled.

Note

During a microcode upgrade, access to DSCLI and the DSGUI will not be available. CSM installed elsewhere will be disconnected from the DS8870 that is being upgraded.

All Copy Services functions: Metro Mirror, Global Mirror, etc., will continue to be active during this time.

References

Note

On 15 October 2019, IBM announced Withdrawal of Services for the DS8870 Model 961, effective 31 December 2020. For more details, please go to https://www-01.ibm.com/common/ssi/cgi-bin/ssialias?infotype=AN&subtype=CA&htmlfid=897/ENUS919-176&appname=USN

IBM DS8000 Code Recommendations:

https://www.ibm.com/support/pages/ds8000-code-recommendation

DS8870 Code Bundle Information (includes Release Notes):

https://www.ibm.com/support/pages/ds8870-code-bundle-information

DS8870 Flashes, Alerts and Bulletins:

https://www.ibm.com/support/pages/ibmsearch?tc=ST8NCA&dc=DD200+D600+DB600+DC6A40&sortby=desc

My Notifications – keep up to date by subscribing for updates about installed Hardware and Software: https://www.ibm.com/support/mynotifications

IBM System Storage Interoperation Center's (SSIC) interoperability matrix:

https://www-03.ibm.com/systems/support/storage/ssic/interoperability.wss

DS8870 Information

Remote Code Load Support
To take advantage of Remote Code Loads, the microcode level must be at 87.51.95.0.

AOS Considerations
AOS V4.0
Customers must open network **Port 443** and add the following addresses to their firewall settings to allow for outbound-initiated support connections.

- https://aoshats.us.ihost.com
- https://aosrelay1.us.ihost.com

This is applicable for microcode levels 87.50.114.0 and higher.

AOS V3.3
Customers using embedded AOS on microcode levels at or below 87.41.44.0 must update their firewall setting as stated above for AOS V4.0, before upgrading to R7.5 bundle levels.

VPN

Customers that use VPN for call home and/or remote support must configure call home over SSL, and either AOS V4.0 or RSC for remote support.

Note

Effective 01 January 2021, VPN support is no longer available.

Modem Support

Modem support has been discontinued as of 30 June 2017. Broadband connections are now recommended. For more information about this, please go to https://www.ibm.com/support/pages/ds8000-call-home-and-remote-support-modem-need-move-broadband-connections.

IBM Call Home

This function may encounter failures if the following IP addresses and ports are not configured and enabled in your firewall settings. Please ensure that the following are added.

For DS8870s that are below 87.52.x.x –

Host	IP Address	Port	Protocol
eccgw01.boulder.ibm.com	207.25.25.197	443	https
eccgw02.rochester.ibm.com	129.42.160.51	443	https
www.ecurep.ibm.com	192.109.81.20	443	https

For DS8870s that are at 87.52.x.x and above –

Host	IP Address	Port	Protocol
esupport.ibm.com	129.42.54.189	443	https
esupport.ibm.com	129.42.56.189	443	https
esupport.ibm.com	129.42.60.189	443	https

For more information, please go to:
https://www-03.ibm.com/support/techdocs/atsmastr.nsf/WebIndex/PRS4743.

Broadcom (formerly Brocade) Switches and Concurrent Code Loads

Customers using Broadcom switches FOS 7.0 levels up through 7.1.1 or 7.2.0 are exposed to an issue where the switch may reboot continuously. For more information regarding this exposure, please reference
http://www-01.ibm.com/support/docview.wss?uid=ssg1S1004578.

Storage Manager GUI

Starting with microcode level 87.10.102.0[i], HTTP access has been disabled. This includes SSPC or browser. Please access the Storage Manager GUI using **https** and **port 8452**. Example: **https://<IP address of HMC>:8452/DS8000**.

Copy Services

PPRC Possible Loss of Access

If the Primary and Secondary DS8870s are not running 87.10.91.x[i] or higher, a potential Loss of Access condition may occur during a microcode upgrade. To avoid this potential issue, the following options are recommended.

1. Update the microcode on the Primary DS8870 first. This will avoid the issue.
2. Suspend the PPRC session(s), then the DS8870s may be upgraded in either order. This may be desirable when the PPRC Primary is also a PPRC Secondary as it will prevent the possibility of a Loss of Access.

Global Mirror and Fast Reverse Restore

For those Customers who are at 87.40.140.0[i] and below, a condition exists where a Fast Reverse Restore (FRR) on Global Mirror (GM) secondary volume(s) may result in fenced volumes causing the GM to go into a FATAL status. This is corrected in 87.40.141.0[i] and higher. Mitigation steps are available to prevent this.

- Before performing an FRR, remove all GM FlashCopy relationships and then re-establish them.
- This is required once, even after the microcode has been upgraded to a level that contains the correction.

Note
If an Active / Standby CSM server configuration is in place, they must be at the same CSM release in order to communicate with each other. During the time they are at disparate releases, attempts to connect them will result in CSM error message IWNR3016E or IWNR3051E Reason Code 114.

IBM System Z

System Storage Fabric Backbones

SAN768B-2 Fabric Backbone

Fabric OS (FOS) Version 7.3.0b includes defects that can cause fabric interruption or outage in FICON or FCP environment. A high number of Request Diagnostic Parameter (RDP) requests from DS8870 model 961 suing 16 Gb links can overdrive the director's CP card to the point where it can cause the backup CP to fault the primary.

FOS V7.3.0b5 has been qualified for use in FICON|FCP environments, per the qualification letter posted on the IBM z Systems FICON|FCP web page (FOS V7.4.0a is recommended).

z/OS Systems

Note
The entries following are not exhaustive. It is strongly recommended that PSP Buckets or FIXCATs be reviewed prior to any microcode upgrade, in addition to reviewing the Footnotes section of the DS8000 Code Recommendation web page. Alerts, Flashes, and Bulletins should also be reviewed as listed in the **References** section at the beginning of this document.

Incremental FlashCopy with 'Preserve Mirror=Required'

Environments using this function may encounter a problem if used while the Primary DS8870 is at R7.4[i] and higher, while the Secondary DS8870 is at R7.3 and lower. The problem can occur during a DS8870 microcode upgrade if the PPRC Primary is updated first, or if a failover/HyperSwap is performed after updated the Secondary. If this scenario is possible, please contact IBM Support in advance for a workaround (ID 319535).

Sysplex / CFRM Couple Data Sets (CDS) and PPRC

A condition exist that causes a primary volume in a PPRC pair to stay in a long busy state (does not respond to the Host system) after a warmstart on the secondary volume in the PPRC pair. The primary volume will stay in the long busy state until I/O is re-driven to the volume, or a state change interrupt occurs on the volume. A time-out of the Sysplex primary CDS will cause the Sysplex to switch to the Alternate CDS. If the Alternate CDS volume times out, this will cause a Sysplex-wide failure. Sysplex customers should not include volumes containing any Sysplex CDS in an active PPRC pair, except for the LOGR CDS.

For example: a concurrent microcode code load could possibly see a warmstart and cause this problem to occur. Customers who do not exclude Sysplex / Coupling Facility Resource

Management (CFRM) CDSs from an active PPRC relationship <u>MUST</u> remove or suspend those PPRC pairs of volumes with Sysplex/CFRM CDSs prior to a microcode upgrade.

z/OS Global Mirror (formerly eXtended Remote Copy [XRC])

System Data Mover (SDM) APARs **OA54082**, **OA55040**, and **OA55162** are required to be APPLY'd prior to DS8870 microcode upgrades. This applies to 87.51.52.0[i] and higher.

Clients employing Erase on Scratch (EOS) in an z/OS GM (zGM) environment should review APAR **OA55742** as excessive delays on the secondary may be seen via message ANTX8117I during EOS activity.

Messages that may be seen during a microcode upgrade

Message IEA074I may also be seen during a microcode upgrade and considered normal. For example:

> **IEA074I MODERATE CONTROLLER HEALTH,MC=cc,TOKEN=$dddd$,SSID=$xxxx$,**
> **DEVICE NED=$tttt.mmm.ggg.pp.sssssssssss.uuuu$,RANK|DA|INTF=$iiii$,$text$**

Specifically, Message Codes (MC):

MC	Description
09	SFI CODE ACTIVATION IN PROGRESS
0A	SFI CODE ACTIVATION COMPLETE
0B	HOST ADAPTER CODE ACTIVATION IN PROGRESS
0C	HOST ADAPTER CODE ACTIVATION COMPLETE
22	PPRC SECONDARY CONTROLLER FAILOVER RECOVERY ACTION
23	PPRC SECONDARY CONTROL FAILBACK RECOVERY ACTION

Note: this is a subset of the Message Codes related to this message. For more information, please review message IEA074I at
https://www.ibm.com/docs/en/zos/2.5.0?topic=messages-iea074i

Concurrent Copy sessions

This type of session will be terminated during a microcode upgrade. You may want to terminate these sessions prior to the upgrade.

FICON Direct-attached devices and 8Gb Host Adapters

During a microcode upgrade, the Host Adapter (HA) firmware is updated. If 8Gb HAs are installed and FICON direct attached, the following message may be seen:

> **IOS050I CHANNEL DETECTED ERROR ON 3BD4,3E,**,**02,PCHID=0285**

These are normal during the HA update phase and will recover automatically. You may see a number of these messages. In addition, you may also see message IEA498I as discussed below, or IEA074I listed above.

z/OS Hosts running PPRC

During the Host Adapter (HA) updates of a microcode upgrade on a PPRC primary or secondary storage subsystem, the partner subsystem may post the follow message:

IEA498I B000, ONLH4Z, PPRC-PATH ONE OR MORE PPRC PATHS REMOVED UNEXPECTEDLY SSID=B000 (PRI)=0175-FRBK1, CCA=00

These messages are considered normal; the PPRC paths will be automatically recovered.

zHPF Environments

Customers planning to use zHPF must install APAR **A39087** (Media Manager), **OA38939**, **OA39130**, plus PRE-REQs **OA38966** and **OA38925** prior to upgrading to microcode level 87.0.184.0 and higher. *It is strongly recommended that zHPF is disabled until all software and microcode levels are updated*.

z/VM Systems

z/VM Red Alert Web Page

Prior to a DS8870 microcode upgrade, this web page must be checked as it provides information about high-impact items that are associated with z/VM. Please review http://www.vm.ibm.com/service/redalert/ prior to a microcode upgrade, as preventative service may need to be put on prior to the upgrade.

z/VSE Systems

(E)CKD disks

z/VSE strongly recommends that all z/VSE systems be shut down for local disks and if remote disks are coupled via PPRC, prior to a DS8870 microcode upgrade.

FCP-attached SCSI disks

z/VSE does not support concurrent microcode upgrades for FCP-attached SCSI disks. Please ensure that the following steps are performed:

1. Shutdown the z/VSE system(s)
2. Allow IBM to perform the microcode upgrade
3. IPL the z/VSE system(s)

This recommendation includes all dependent z/VSE systems, e.g., those z/VSE systems that use the same lock file.

---

[i] This is below the minimum recommended microcode level. Consider upgrading to the 'Recommended "go to" Level' (87.52.45.0 [R7.5 SP13.1]).