



*IBM DS8900F Microcode  
Customer Information  
89.1.x.x to Current*

V1.17

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### 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.
04 March 2020	Updated IBM Call Home Host names and IP addresses.
07 January 2021	Add entry regarding User ID 'customer' default password change requirement. Update documentation title and link for Updating the embedded Copy Services Manager. Update SafeGuarded Copy must be microcode level and Note.
06 October 2021	Update AOS V4.0 DNS names.
25 October 2021	Updated link for Flashes, Alerts, and Bulletins.
16 February 2022	Added LDAP entry.
26 May 2022	Updated the 'General Recommendations' section.
08 September 2022	Added information regarding instances where CSM may be back leveled during a code load.
09 May 2023	Update of AOS brokers and IBM Call Home IP addresses.
06 June 2023	Modify date of AOS brokers and IBM Call Home IP address change.
19 July 2023	Added information related to static Ethernet interfaces.
22 January 2024	Update of IBM Call Home IP addresses.
19 July 2024	Update of IBM Call Home.
30 July 2024	Add entry Host Adapter Firmware Updates and Switches. Remove old Broadcom entry related to FOS 7. Update SafeGuarded Copy entry. Correct the IP address for aosback.us.ihost.com.
24 October 2024	Added zLinux section and information about APAR PH63560.
24 March 2025	Add documentation link for "How to Install DSCLI for IBM i (OS/400)" after a microcode upgrade.

## 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 CSM on the HMC, DSCLI, and the DSGUI will not be available. CSM installed elsewhere will be disconnected from the DS8900F that is being upgraded.

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

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## References

IBM DS8000 Code Recommendations:

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

DS8900F Code Bundle Information (includes Release Notes):

<https://www.ibm.com/support/pages/node/1072022>

DS8900F Flashes, Alerts and Bulletins:

<https://www.ibm.com/support/pages/ibmsearch?tc=ST8GLJ&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>

## DS8900F Information

### HMC Ethernet Interface Static Information

Static route configurations on HMC Ethernet interfaces are not retained after a microcode upgrade if the come from level is below 89.21.28.0 (R9.2.1).

Please ensure that the static route information for HMC Ethernet interfaces is recorded BEFORE the microcode update. When the microcode update is complete, please restore it. Failure to perform these actions may result in issues with CSM, Call Home, AOS, etcetera.

### AOS Considerations

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

Host Name	IP Address	Port	Protocol
aosrelay1.us.ihost.com	72.15.223.60	443	https
aosback.us.ihost.com	150.238.213.135	443	https
aoshats.us.ihost.com	72.15.223.62	443	https

Note: Use DNS names whenever possible. More information can be found at

<https://www.ibm.com/support/pages/node/6964508>

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#### IBM Call Home

**REQUIRED: All DS8000 systems must have DNS Enabled, or firewall/proxy configuration that provides access to [esupport.ibm.com](https://esupport.ibm.com) no later than 30 June 2024. After this date, Call Home will no longer work.**

New network connections between your DS8000's and the IBM servers are required to keep your ability to perform Call Home and download fixes. If you have a firewall in your network, changes may be required to all the new connections.

For more information, please go to:

<https://www.ibm.com/support/pages/node/6964508>  
[DS8900F Configuration Worksheets](#).

#### Customer Login Default Password change

Starting with 89.0.214.0, 89.2.38.0, and 89.10.92.0, the default password “cust0mer” for User ID ‘customer’ must be changed at first login.

#### LDAP Authentication

Please ensure that TLSv1.2 is supported when upgrading to 89.2x. Failure to do so will result in authentication issues.

## Host Adapter Firmware Updates and Switches

As part of the microcode upgrade process, Host Adapters are upgraded. Regardless of attachment, FC or FICON, the update process is concurrent with the attached hosts. This process called “*Lights-on fastload*” and is a unique feature that allows a Host Adapter to perform a fastload firmware update without dropping light to hosts and SAN switches. Typically, the adapters can switch to the new firmware in less than 3 seconds.

If port fencing or port isolation is employed withing the SAN environment, this could cause unexpected results to occur during this portion of the upgrade process. It is recommended that if this practice is in use that prior to a microcode upgrade the port fencing or isolation rules be “relaxed” or turned off.

For more information regarding this topic, please refer to the following manuals:

[IBM Storage DS8900F Architecture and Implementation](#)

[SAN and Fabric Resiliency Best Practices for IBM b-type Products](#)

[SAN and Fabric Resiliency Best Practices for IBM c-type Products](#)

## Copy Services Manager on the HMC

All DS8900F models have Copy Services Manager (CSM) co-located on the HMC. CSM is included in the microcode – just as DSCLI – but is not dependent upon the level of microcode. If you are using CSM and it is co-located on the HMC, please note the following:

- If the level of CSM in use is below the level that is bundled with the microcode, CSM will be upgraded.
- If the level of CSM in use is above the level that is bundled with the microcode, CSM will not be upgraded.

### Important!

There are certain levels of microcode that require the HMC operating system to be upgraded. When this occurs, the version of CSM that is included in the microcode bundle is used.

- If upgrading from below 89.20.x.x to any version above 89.20.x.x and,
- If the current version of CSM is higher than what is in the microcode bundle, CSM will be back leveled to what is in the bundle.

This will require a re-install of the CSM version that was previously in use by the Client.

### Attention

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 Reason Code 114**.

CSM release levels are not on the same schedule as DS8000 microcode releases. There may be times when there is a higher CSM release level available than what is available via microcode.

### Note

You can upgrade CSM software independent of a microcode upgrade. For more information on this topic, please refer to the [\*IBM DS8900F Architecture and Implementation R9.2 Redbook\*](#) – Chapter 6.2.5 Updating the embedded Copy Services Manager.

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As previously noted, during the microcode upgrade, the embedded CSM server will not be available. If the environment has an Active / Standby configuration, please see the CSM Knowledge Center about [Initiating a takeover](#).

## Copy Services

### SafeGuarded Copy

All Clients employing SafeGuarded Copy should review the DS8000 Code Recommendation web site regularly and be signed up for IBM My Notifications (see [References](#) for links).

## IBM i

The IBM i operating system with the PowerHA License Program Product (LPP) requires that the [DS8000 DSCLI](#) is installed on each of the systems or partitions participating in the high availability solution with DS8000. Every DS8000 microcode bundle contains a DSCLI version. As a Best Practice, the DSCLI version on the Host may be higher than or equal to what is installed on the storage but cannot be lower. Directions on how to download and install DSCLI for IBM i is found here: <https://www.ibm.com/support/pages/how-install-dscli-ibm-i-os400>.

## IBM System Z

### 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.

## zLinux Systems

### [IBM Db2 Analytics Accelerator \(IDAA\)](#)

APAR [PH63560](#) discusses the possibility of a data anomaly when using Extent Space Efficient (ESE) volumes and a race condition with the accelerator-shadow tables stored in Db2wh. This can occur during a microcode upgrade or a DS8000 warmstart and colliding with an update operation on Db2wh, such as it is triggered by a reload of data to an accelerator-shadow table. This issue affects all maintenance levels of the Accelerator on IBM Z including 7.5.13. Please review APAR PH63560 for more detail.



#### [z/OS Systems](#)

##### [Exploitation of Media Manager Channel Programs](#)

APAR **OA52080** introduced the exploitation of the Media Manager channel programs for VSAM, VSAM RLS, and Media Manager to access VSAM data sets on the DS8000. If this APAR has been applied to your operating system, **HIPER** APAR **OA55379** MUST be applied to avoid a deadlock and DS800 warmstart (See Note 26 of the [DS8000 Code Recommendation](#) web page).

##### [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 MUST 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 APPLIED prior to DS8900F microcode upgrades.

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 ANTXX8117I during EOS activity.

##### [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.

##### [z/OS Non-Disruptive State Save Fails with ANTXX5000E](#)

At microcode level 88.51.49.0 and above, APAR **OA56446** is required so that Non-Disruptive State Saves (NDSS) may be taken from z/OS. For example:

F ANTAS000,STATESAVE B1F5 01 N

Results in following error messages:

ANTX5000E 0B1F5,INB1F5,F3,0001,...,**CCW\_COUNT\_LESS\_THAN\_REQUIRED**  
ANTX8037I 0B1F5 NON-DISRUPTIVE STATE SAVE FAILED:I/O ERROR

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#### [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.ssssssssssss.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-ia074i>

#### [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 following 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.

#### [z/VM Systems](#)

##### [z/VM Red Alert Web Page](#)

Prior to a DS8900F 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 DS8900F microcode upgrade.

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#### [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.