

Upgrading to S7800 PMF CRUs


Use this procedure to upgrade both PMF CRUs in an enclosure to S7800 PMF CRUs. See [Change History](#) for changes made to this procedure.

S7400 and S7600 PMF CRUs can be upgraded online, but S7000 PMF CRUs *must* be upgraded *offline*. See

- NTL customer site: [PMF CRUs That Can Be Upgraded Online and Coexist Permanently in Mixed Systems](#).
- NTL employee site: [PMF CRUs That Can Be Upgraded Online and Coexist Permanently in Mixed Systems](#).

Notes:

- Do not attempt to upgrade to unsupported configurations.
- IOMF and IOMF 2 CRUs are supported on S7800.
- IOMF 2 CRUs connected through MSEBs are needed to take advantage of ServerNet 2.
- IOMF and IOMF 2 CRUs can coexist in an I/O enclosure for a brief period while performing an online upgrade. For performance reasons, both IOMF CRUs in an enclosure must be IOMF or IOMF 2 CRUs.
- You cannot reconfigure a Tetra 8 to a Tetra 16 topology online. You must perform this expansion offline.

 **Caution:** Ask your service provider to verify the daughter board connectors on the PMF CRU are fully seated before installing the CRU. Instructions are in Technical Bulletin TB20051B. This affects S7800, S76000, S86000, S78000, and S88000.

Preparing for the Upgrade

- 1 If you are upgrading from S7000 to S7800 PMF CRUs, a power shelf and two power supplies must be installed in each processor enclosure by a trained service provider. Contact your service provider for more details.

- 2 If you are upgrading from S7000 (NSR-W) to S7800 (NSR-J), you must change the processor type entry in the CONFTEXT file ALLPROCESSORS statement to NSR-J before you replace the PMF CRUs. You can specify only one processor type. S7000 cannot be in a system with mixed processor types.

After changing the CONFTEXT file, you must perform all required DSM/SCM requests to create a new SYSnn. System load of the new SYSnn is required after the new hardware is installed. Failure to change the processor type causes an immediate %100441 halt when the new SYSnn is loaded. See the appropriate G06.24 or later Release Version Update Compendium for migration and fallback details.

- 3 MSEBs must be installed in slots 51 and 52 of all processor enclosures. The inter-processor cables must be serial copper or fiber optic. SEBs or MSEBs can be installed in slots 53 and 54 to connect I/O enclosures. SEBs and IOMF CRUs have ECL ports. MSEBs and IOMF 2 CRUs can support ECL, serial copper, or fiber optic cables, depending on which type of PIC is installed.

- Model 1952 IOMF CRUs can be connected to SEB ECL ports using standard density (SEB-to-SEB) cables.
- Model 1952 IOMF CRUs can also be connected to an MSEB ECL PIC using the standard-to-high density (SEB-to-MSEB) cables. This is not recommended for performance reasons. MSEBs and IOMF2s are needed to take advantage of ServerNet 2.
- Model 1980 IOMF2 CRUs and MSEBs support the same types of PICs, and can be connected using the corresponding ECL, serial copper, or fiber optic cables. Serial copper or fiber optic are recommended for performance reasons.
- Slots 53 and 54 of processor enclosures 05 - 08 are not used for connections to I/O enclosures and can contain any supported ServerNet adapter.
- In a two processor system, any supported ServerNet adapter can be installed in slots 51 and 52. These slots are not used for expansion beyond two processors.

See NonStop S-Series Topologies>Tetra-8 Topology Diagram and Tetra-16 Topology Diagram. Within these topics, see:

- X-Fabric Cabling Diagram
- Y-Fabric Cabling Diagram

If you are installing MSEBs and replacing the interconnecting ECL cables with serial copper or fiber-optic cables, you can perform these upgrades either offline or online on one fabric at a time. OSM or TSM server product version T7945ABB (from G06.16) and TSM client 2002B T8154ABB are

needed to replace them on one fabric at a time. See [Upgrading SEBs to MSEBs on One Fabric at a Time](#).

Required Tools and Documentation

For this upgrade procedure, you need:

- The G06.nn Software Installation and Upgrade Guide (G06.16 or later RVU).
- The appropriate OSM action or guided procedure for replacing PMF CRUs.

Required Software

S7800 was introduced for G06.23. It is supported on G06.24 and later, on G06.23 with one SPR, and on G06.16 through G06.22 with other OSM or TSM SPRs. G06.16 through G06.23 require SPRs to allow scan-string collection after a hardware error freeze (HEF).

- OSM Service Connection Suite (T0682)
- G06.23: T2728AAJ (OSM Service Provider)
- G06.16 through G06.22:
 - OSM: T2723AAD (OSM Connection Library)
 - T2724AAD (OSM Provider Interface Library)
 - T2725AAD (OSM Configuration)
 - T2726AAD (XML API)
 - T2727AAD (OSM CIMOM)
 - T2728AAD (OSM Service Provider)
 - T2730AAD (OSM Event Viewer)
 - T2751AAD (OSM Web-Based Suite)
 - T2752AAD (OSM Application Suite)
- TSM: T7945ABL (TSM Server)
- T8154ABG (TSM Client)



Caution:

- To upgrade the boot millicode to T7892ABD or later using the online update function, you must have the G06.24 version of the TSM server (T7945ABN) or later or all G06.24 OSM server based SPRs and their prerequisites configured and running. See the Software Installation and Upgrade Guide (G06.24 or later) and Hotstuff HS02865 for details. If you attempt to do an online update without these, the processors will halt. When migrating from an earlier RVU to G06.24 or later, you must use a hard reset as described in Step 4b or install the SPRs first. After G06.24 or SPRs T2728AAL (OSM) or T7945ABN (TSM) are installed and running, the boot code can be updated online. The online bootcode update

option is available on all S-series systems except S7000.

- G06.06 provides a new disk bootstrap program. If you are migrating from an RVU prior to G06.06, you must replace the disk bootstrap microcode with the new version.

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You must perform these steps in exactly the order listed here, even if you have successfully completed previous upgrades by doing these steps in a different order.

- 1 Install the SUT and appropriate RVUs. For further instructions, see the G06.23 Software Installation and Upgrade Guide (or a later version).

If you are running G06.16 or an earlier RVU and migrating to a later RVU, see the appropriate G06.xx version of the Software Installation and Upgrade Guide. The migration involves different considerations from other migrations you might have performed in the past. For those migrating from a pre-G06.06 RVU, the guide describes a step needed after the SUT is installed.

- 2 If you are migrating from an RVU prior to G06.06, replace the bootstrap microcode.
- 3 Update service processor firmware.
- 4 Update the processor boot code.
 - a. If you are running G06.24 or later or if SPRs T2728AAL (OSM) or T7945ABN (TSM) are installed and running, you can perform the update online.
 - b. If you are running G06.23 or earlier and SPRs T2728AAL (OSM) or T7945ABN (TSM) are not installed, use the standard (offline) procedure and postpone the hard reset until Step 6.



Caution: Do not use the Online Processor Boot Code Update unless G06.24 or SPRs T2728AAL (OSM) or T7945ABN (TSM) are installed and running on the system.

- 5 Run the ZPHIRNM program.
- 6 Halt and perform a hard reset on all processors.
- 7 Load the G06.23 or later RVU.
- 8 Update the SCSI boot code and perform post-load steps as needed.
- 9 Use the OSM Service Connection or the TSM Service Application to check for alarms and verify that the system is operating properly. Resolve any problems before you install new hardware.

- 10 Replace one PMF CRU by using the OSM action or guided replacement procedure.

When the procedure prompts you to physically replace the PMF CRU, a help button appears that enables you to access detailed instructions.



Caution: Verify the daughter board connectors on the PMF CRU are fully seated before installing the CRU. See Tech Bulletin TB20051B.

- 11 Verify that the PMF CRU is operational, and then immediately replace the other PMF CRU in the same enclosure by using another OSM action or guided replacement session.

Upgrading SEBs to MSEBs on One Fabric at a Time

i Note: If you are replacing SEBS and ECL cables prior to installing the G06.17 or later RVU, use OSM software or TSM server product version T7945ABB (from G06.16) and TSM client 2002B T8154ABB to replace them on one fabric at a time. These products bring down the selected SEB or MSEB and all SEBs or MSEBs that are cabled to it. On earlier versions of TSM, you must perform separate operations to bring down both ends of a link before replacing a cable.

To replace the SEBs on one fabric at a time, run a separate replacement procedure for each SEB to be replaced (you can use OSM replace actions or Replace SEB or MSEB guided procedures):

- 1 Start the procedure to replace one of the SEBs.
- 2 Run the procedure until you are prompted to "Replace the SEB." Then start a new copy of the procedure for another of the SEBs, continuing up to the manual replace prompt.
- 3 Repeat Steps 1 and 2 until the procedures for all the SEBs to be replaced in one fabric display the manual replace message.
- 4 Physically remove all selected SEBs and ECL links, and install MSEBs and new links.
- 5 Complete one procedure. Allow this copy of the procedure to complete before repeating for each of the other replacements.

Replace the SEBs and cables in the other fabric, using this procedure, after verifying that the newly installed MSEBs and links work properly.

For cabling information, see:

- NTL customer site: [NonStop S-Series Topologies](#)
- NTL employee site: [NonStop S-Series Topologies](#)

Change History for Upgrading to S7800 PMF CRUs

August 10, 2005

- **Changed**
 - Updated to clarify configuration rules, MSEB requirements for inter-processor cables, and SEB or MSEB requirements for processor-to-I/O enclosure cables.

January 31, 2005

- **Changed**
 - Added caution to ensure PMF CRU daughter board connectors are fully seated before installing the CRUs. Instructions for service providers are in Tech Bulletin TB20051B.
 - Added caution under required software for upgrading to G06.24 boot millicode (hard reset is required for systems running G06.23 and earlier without specified SPRs.).
 - Added new step 2 to Preparing for the Upgrade, to change the processor code in the CONFTEXT file if you are upgrading from S7000. Failure to change the processor type halts the system when the new SYSnn is loaded.
 - Changed Step 4 in Upgrading to S7800 PMF CRUs to specify hard reset for systems running G06.23 and earlier without specified SPRs.

June 07, 2004

- **New!** Added topic: Upgrading to S7800 PMF CRUs.