



IBM 8260 Multiprotocol Intelligent Switching Hub Release Note for 8260 Switching Modules

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This release note contains important operating information about the IBM 8260 Switching Modules, and applies to the following Switching Modules at software Version v2.00 or later:

- Model Numbers SWE12-TP and SWE12-TP-A
- Model Numbers SWE24-TP and SWE24-TP-A
- Model Numbers SWE16-TP and SWE16-TP-A
- Model Number SWE24-TPT-A
- Model Numbers SWE10-F and SWE10-F-A
- Model Numbers SWE20-F and SWE20-F-A
- Model Numbers SWE12F2-TPF and SWE12F2-TPF-A
- Model Numbers SWE10F2-FF and SWE10F2-FF-A
- Model Numbers SWF4-F and SWF4-F-A
- Model Numbers SWE4-TX and SWE4-TX-A
- Model Numbers SWE4-FX and SWE4-FX-A
- Model Number SWA2-MOD.

For issues and installation information related to the PacketChannel/ATM Switching Module (Model Number SWA2-MOD), see page 8 of this release note.

This release note includes the following sections:

- Important Download Procedure
- Installation Requirements
- Corrected Problems
- Known Problems
- New Features
- Operating Considerations
- PacketChannel/ATM Switching Module Information
- Where to Find User Documentation.

Important Download Procedure

Caution: If you do not follow this download procedure, all bridgeport communication is lost, and if you are using IP relay for connectivity, you will be cannot download code to the DMM.

1. Upgrade all DMM modules in the hub to software Version v5.00 (do not upgrade to Version v5.10 yet).
2. Download Switching Module software Version v2.00 or later to any Switching Modules that are *currently installed* in the hub (do not install new Switching Modules yet).
3. Download software Version v2.00 boot code, then v2.02 operational code to any PacketChannel/ATM Switching Modules (Model Number SWA2-MOD) installed in the hub.
4. Upgrade all DMM modules in the hub to software Version v5.10.
5. Using the information in the *8260 Switching Module Quick Start and Reference Guide* (Part Number 94H9900), install your new Switching Modules.

Installation Requirements

Before you install the Switching Modules, read the following installation requirements:

1. The following table lists the software versions that are required for Switching Modules and management modules in the hub. Ensure that you down load each module with the appropriate software image.

Module	Operational Code Version	Boot Code Version
Switching Module	v2.00 ^a	v1.12
Model A Switching Module (model number includes -A)	v2.00 ^a	v1.00
PacketChannel/ATM Switching Module (SWA2-MOD)	v2.02 ^a	v2.00
DMM or EC-DMM	v5.10 (must install v5.00 before installing Switching Module software Version v2.00)	v1.03
Controller (8000M-RCTL)	v1.14	v1.03
Advanced DMM/Controller (DMM-CTLR)	DMM – v5.10 (must install v5.00 before installing Switching Module software Version v2.00) Controller – v1.14	DMM – v1.03 Controller – v1.03

a. Separate software v2.00 or later images exist for Switching Modules, Model A Switching Modules, and PacketChannel/ATM Switching Modules (the same software image is not used for all three).

You must upgrade all Switching Modules in the hub to software Version v2.00 or later. Switching Modules at Version v2.00 or later will not operate in a hub that contains Switching Modules at previous software versions.

2. If the DMM is running software Version v5.10 and Switching Modules that are installed in the hub are *not* running software Version v2.00 or later:
 - The DMM issues an "Invalid Configuration" trap.
 - Switching Modules that are not running software Version v2.00 display "Software Upgrade Required" in the General Information field of the SHOW MODULE ALL command display.
3. If the DMM is running software Version v5.00 (rather than v5.10) and Switching Modules are running software Version v2.00 or later, bridge port interface (I/F) status is listed as "Not Available" when you enter the SHOW BRIDGE_PORT command.
4. When you download new code, always download the boot code before you download the operational code.
5. After you download new code, enter the CLEAR LOG command for all Switching Modules in the hub. This command removes the download-related information from the Switching Module NVRAM so that, in the event of a Switching Module crash, the SHOW LOG command displays only pertinent troubleshooting information (register and stack information) about the Switching Module.

For general download procedures, see the *8260 Distributed Management Module User's Guide*, Chapter 11, the section titled Downloading Firmware.

6. If you are installing more than one Switching Module in an 8260 hub, the hub must have one of the following backplanes installed. Use the SHOW HUB command to determine the hub type:
 - **ATM/SwitchChannel backplane** – Hub type lists suffix -G
 - **PacketChannel backplane** – Hub type lists suffix -P.

If you are installing only one Switching Module, the hub does not require an ATM/SwitchChannel or PacketChannel backplane. The single Switching Module acts as a standalone switch.

Corrected Problems

This section describes hardware and software corrected problems.

Hardware Corrected Problems

The following problems have been corrected in model A Switching Modules (model number includes -A):

1. Ethernet-to-FDDI-to-Ethernet protocol translation may have failed in cases where the protocol on the Ethernet endstation used the 802.3 Length field and the data field was less than 46 bytes (includes SNA and some OSI).
2. The DMM was unable to respond to ARP requests forwarded through the Switching Module.

To allow the DMM to respond to ARP requests, when a model A Switching Module is installed in the hub, include at least one of its ports in the virtual bridge that is acting as the IP relay interface. For example, if there are five virtual bridges, and you are managing the hub through virtual bridge 1, virtual bridge 1 should include at least one of the model A Switching Module's ports.

Software Corrected Problems

The following problems have been corrected in Switching Module software Version v2.00:

1. Fast workstations running requester services did not attach to the file server because a Switching Module port was still in the STP listen or learn state when the driver was run to connect to the server. To decrease the time required for a port to enter the Forwarding state, a new option called "Quick Forward" has been added to the command SET BRIDGE_PORT <x.x> STP BRIDGE_MODE.
2. A Switching Module processor configured as an analyzer while the Switching Module was sending traffic over the PacketChannel to the source port (on a different Switching Module) may have caused a learning loop. As a result, traffic was not forwarded properly on the remaining ports of the system analyzer Switching Module.
3. The SHOW IP ARP_CACHE command displayed only MAC addresses that were resolved on the same Switching Module as the master bridge port of a virtual bridge.

Known Problems

This section describes:

- General Known Problems
- Fast Ethernet Switching Module Known Problems
- FDDI Switching Module Known Problem.

General Known Problems

The following known problems apply to all 8260 Switching Modules:

1. If frames with the same source address arrive at two different ports on the same Switching Module, and broadcast thresholds (rate limits) are enabled for the frame protocol type, the second port's traffic is not rate limited. This problem occurs only on networks that contains loops. To prevent this problem, ensure that your network contains no network loops.
2. The following issues apply to the Switching Module address forwarding table (AFT):
 - Some Switching Modules may have erroneous permanent MAC address entries in the AFT. To clear these entries, enter the following DMM command:

```
> clear vbridge 1 aft all all
```

Enter this command for each virtual bridge in the hub.
 - When you enter the SHOW VBRIDGE AFT STATUS command to retrieve the AFT status, the number of addresses for any one of the address types (learn, mgmt, and self) may be incorrectly listed.
3. When you use IBM Campus Manager LAN ReMON to capture a session between Ethernet and FDDI Switching Module ports, *and* the mirrored port is the Ethernet port, traffic that originates on the Ethernet port is fully decoded. However, for traffic that originates on the FDDI port, only the MAC address is decoded.
4. The SHOW IP ROUTE_TABLE command does not display an interface's information correctly unless the subnet mask's last byte is 00 (for example, ff.ff.ff.00).
5. During a new master port election for a virtual bridge, a timing issue may exist between Switching Modules whose ports participate in the virtual bridge. Occasionally, some Switching Module ports are blocked.

If ports are blocked, identify the blocked ports as follows:

- a. Enter the command SHOW BRIDGE_PORT ALL.
- b. For blocked ports, the I/F Interface is not correctly displayed (may display as "not available"), or the module is not identified by the DMM.

To recover from this event, use one of the following workarounds:

- If the DMM cannot identify the Switching Module, unplug the Switching Module and then plug it back into the hub.
- Reset the Switching Module whose ports failed.
- Disable the master port of the failing virtual bridge. Wait for a new master port to be elected, then re-enable the port that was previously disabled.

Fast Ethernet Switching Module Known Problems

The following known problems apply to Fast Ethernet Switching Modules (Model Numbers SWE4-TX, SWE4-FX, SWE4-TX-A, and SWE4-FX-A) only:

1. When a port experiences collisions, the Frame Check Sequence (FCS) and alignment error counters in the 100BASE-X statistics display increment.
2. The percent error counter in the 100BASE-X statistics display may not accurately reflect the actual percentage of errors.
3. If you disable the autonegotiation function on a port after the port has completed autonegotiation, the duplex mode setting on the port reverts to the previous manually configured setting. When autonegotiation is enabled, the ability to configure duplex mode is not available through the DMM terminal commands. To configure duplex mode using DMM commands, disable autonegotiation.
4. After you enter the command `SET BPORT_MAU {slot.port.mau} MODE {primary|backup}`, the status of the port (active or standby) may not be accurately reported in the display of the `SHOW BPORT_MAU VERBOSE` command.
5. After you disable redundancy and perform the required module reset, the MAU that should be disabled may still be enabled. This could cause a network loop in configurations where Spanning Tree is not running. To correct this problem, reset the module again; the MAU should now be in the correct (disabled) state.
6. When a redundant Switching Module port pair is configured to be non-redundant and you reset the module, the following condition occurs:

In the `SET BPORT_MAU VERBOSE` display, the Mode on Reset field for the port that displays a Mode of disabled is incorrect (the Mode on Reset field lists the port as enabled, even though the reset mode of the port is actually disabled).

FDDI Switching Module Known Problem

Occasionally, the `SHOW BRIDGE_PORT VERBOSE` command may display bogus FDDI upstream and downstream neighbor MAC addresses.

New Features

Switching Module software Version v2.00 or later supports the following new features for Ethernet, Fast Ethernet, and FDDI Switching Modules:

1. New commands to display the current roving analysis configuration:

```
SHOW ROVING_ANALYSIS_PORT    {hub_info}
                              {system_analyzer_info}
```
2. Configuration of Spanning Tree parameters per bridge port, including the option *quick_forward*, which decreases the time that a port takes to enter the Forwarding state.
3. PACE support (for 10BASE-T Ethernet Switching Modules only).
4. Port Redundancy (for Fast Ethernet Switching Modules only).

Operating Considerations

Consider the following when using your Switching Module:

1. The Switching Module does not allow the deletion of default translation entries from the protocol table. These entries are set up for proper translation between FDDI and Ethernet.

When you enter the SHOW PROTOCOLS FORWARDING command, the default table appears as follows:

Protocol	Name	Priority	Forward On Ports
dsap 42	spanning tree	normal	ALL
enet 08-00	ip	normal	ALL
enet 08-06	ip arp	normal	ALL
enet 80-f3	appletalk arp	normal	ALL
unkn 00	unknown protocol	normal	ALL

2. Switching Modules implement broadcast thresholds (rate limits) at the module level, not per port. Broadcasts are limited on a FIFO (first in/first out) basis, regardless of the port or virtual bridge. This means that some Switching Module ports may be allowed to transmit more frames of the protocol type to be rate limited than other Switching Module ports.
3. IPX Ethernet_SNAP protocol bridging from Ethernet to FDDI to Ethernet is not supported by Switching Modules, because the IEEE 802.1H standard bridges FDDI SNAP to Ethernet II. For more information, see the *8260 Switching Modules User's Guide* (Document Number SA33-0409), Chapter 5, the section Configuring the Translation Setting.

4. IBM FDDI Adapters (Part Numbers 58G6406 to 58G6415) require the following default driver modifications:
 - If you are running DOS and OS/2 Device Driver, set the SRCRTG parameter to No.
 - If you are running DOS Driver and IBM DOS TCP/IP, set the SRCRTG parameter to No and the Emulate parameter to Ethernet.For more information about these modifications, see the adapter documentation.
5. When you enter the SHOW BRIDGE_PORT VERBOSE command for an FDDI Switching Module port, the MAC address 00-00-F1-00-00-00 may display. This MAC address is a default address to indicate that the neighbor is unknown.

PacketChannel/ATM Switching Module Information

The following information applies only to the PacketChannel/ATM Switching Module (Model Number SWA2-MOD):

- PacketChannel/ATM Switching Module Installation Requirements
- PacketChannel/ATM Switching Module Corrected Problems
- PacketChannel/ATM Switching Module Known Problems
- PacketChannel/ATM Switching Module New Features.

PacketChannel/ATM Switching Module Installation Requirements

Read the following information before installing an PacketChannel/ATM Switching Module:

1. Upgrade all Switching Modules in the hub to software Version v2.00 or later. Be aware that there is one code image for all Switching Modules. However, the PacketChannel/ATM Switching Module at Version v2.02 uses a different code image than the other Switching Modules at Version v2.00 or later.
2. To determine the type of backplane installed in the 8260 hub, enter the DMM SHOW HUB command. If the hub has a:
 - PacketChannel backplane (hub type lists suffix -P) – Install PacketChannel/ATM Switching Modules in any slot.
 - SwitchChannel backplane (hub type lists suffix -G) – Install PacketChannel/ATM Switching Modules only in slots 1 to 8 of the 8260 10-slot hub, or slots 1 to 8 and 13 to 17 of the 8260 17-slot hub.8260 hub types with suffixes that list -A or -0 do not have a required backplane and do not support PacketChannel/ATM Switching Modules.

3. For proper PacketChannel/ATM Switching Module operation, ensure that a non-ATM Switching Module is installed in the hub.
4. When you install the PacketChannel/ATM Switching Module, leave the DIP switches in their default settings. DIP switches are not user-configurable.

PacketChannel/ATM Switching Module Corrected Problems

This section describes new functionality and problems that have been corrected in PacketChannel/ATM Switching Module software Version v2.02:

1. During the Data Direct VCC backoff state, packets are now forwarded over the Broadcast Unknown Server. This process did not work correctly in the previous version of code.
2. If an outage occurs on the TX cable of the primary PHY, switchover to the backup PHY now occurs. This detection and recovery process takes approximately 10 to 15 seconds, not including the time required for Spanning Tree port transitions.
3. DMM software Version v4.12 did not allow you to issue SET or SHOW commands for bridge port and bport_lec numbers higher than 36 (numbers 36 and lower are valid). This problem has been corrected in DMM software Version v5.10.
4. The PacketChannel/ATM Switching Module accepted Data Direct connections only from LECs whose SETUP signalling message specified Forward/Backward Peak Cell Rate within $\pm 5\%$ of the line rate of 155 Mbps. SETUP messages specifying a Peak Cell Rate outside this range resulted in a Release Complete with Cause 63 (Service or option not available, unspecified).

PacketChannel/ATM Switching Module Known Problems

This section describes the known problems in the 8260 PacketChannel/ATM Switching Module:

1. After you download a new version of boot code, the SHOW MODULE VERBOSE command displays an incorrect version of the boot code.
To correct this problem, reboot the PacketChannel/ATM Switching Module and the correct boot code version appears.

2. After moving the assignment of an active LEC (LAN Emulation Client) from one VBRIDGE to another VBRIDGE, the LEC stops transmitting packets.

To prevent this problem, first disable the LEC; change the VBRIDGE assignment; and then enable the LEC.

If you have already moved the assignment of an active LEC, you can clear the problem by using the same commands to disable and enable the LEC.

The commands are:

- set bport_lec slot.lec mode disable
 - set bport_lec slot.lec mode enable
3. PacketChannel/ATM Switching Module LAN Emulation supports a maximum FDDI MTU of 1518 bytes. The MTU size option of 4544 bytes listed in the command line and shown in the documentation is incorrect. You must configure the FDDI environment for an MTU of 1518 bytes. Full FDDI MTU support is planned for the next release of PacketChannel/ATM Switching Module code.
 4. Downloading code to an PacketChannel/ATM Switching Module using the DMM or ADMM can cause the PacketChannel/ATM Switching Module to produce module up/down traps. This occurs because the ATM Switch to which the PacketChannel/ATM Switching Module is attached must age out the ATM Address before ILMI (Integrated Local Management Interface) can re-register.
 5. The 8260 LAN Emulation Server (located on the 8260 ATM Switch) may reject a LANE Join Request if the request contains a non-null ELAN name that does not match the ELAN name configured on the LAN Emulation Server.

To correct this problem, when you configure an PacketChannel/ATM Switching Module LEC to use LANE manual mode to join an ELAN hosted by a 8260 ATM switch, ensure that you *either*:

- Clear the ELAN name on the PacketChannel/ATM Switching Module LEC using the command CLEAR BPORT_LEC <slot>.<lec> ELAN_NAME
 - Configure the correct ELAN name using the command SET BPORT_LEC <slot>.<lec> ELAN_NAME <name>
6. The PacketChannel/ATM Switching Module supports the ILMI MIB object atmfMyIpNmAddress, which advertises over ILMI an IP address by which the hub can be reached for network management.

The object atmfMyIpNmAddress contains a valid IP address only if virtual bridge 1 is configured to be a network interface for the DMM or ADMM. In this case, the object atmfMyIpNmAddress uses the DMM or ADMM IP address for virtual bridge 1. If virtual bridge 1 is *not* configured to be a network interface for the DMM or ADMM, the object atmfMyIpNmAddress contains the invalid IP address 0.0.0.0. For this reason, you must configure the DMM or ADMM to have a network interface on virtual bridge 1 with a valid IP address.

7. If a PacketChannel/ATM Switching Module has LECs connected to more than one LANE server hosted on different ATM devices, and one of the LANE servers reboots or disconnects, the PacketChannel/ATM Switching Module may experience a large volume of ATM UNI signalling activity. The purpose of this signalling activity is to disconnect the LECs associated with the disconnected LANE server.

This signalling activity can delay the PacketChannel/ATM Switching Module response to UNI STATUS ENQUIRY messages for VCCs of LECs that are connected to LANE servers that are operating normally. In some cases, this results in timeouts that cause the VCCs to be released and these LECs to disconnect.

To prevent this problem, distribute the PacketChannel/ATM Switching Module LECs evenly over available LAN Emulation server devices, so that failure of one LAN Emulation server device does not result in excessive UNI signalling activity.

8. At startup of the PacketChannel/ATM Switching Module, the DMM or ADMM generates chipChange traps for the MIB objects oc66nnMLASMBPortIfAdminStatus and oc66nnMLASMMModLoad, because the correct status values for these objects are not determined until after the default values have been communicated by the Switching Module to the DMM or ADMM.
9. The Spanning Tree Topology Changes counter is accurate for the command SHOW COUNTER VBRIDGE, but changes that occur while the command MONITOR VBRIDGE is in progress are not detected and not displayed in the Cumulative count field.
10. Under certain conditions, user-entered FLOOD entries incorrectly display an assigned port number (rather than FLOOD) in the SHOW VBRIDGE AFT display. This problem happens only when the following steps occur:
 - a. A PacketChannel/ATM Switching Module and a non-ATM Switching Module share a virtual bridge.
 - b. The non-ATM Switching Module ports cease to be members of the virtual bridge (for example, the non-ATM Switching Module is removed from the hub), so that the only port remaining on the virtual bridge is an PacketChannel/ATM Switching Module port.
 - c. A different non-ATM Switching Module is inserted into the hub and you enter the SHOW VBRIDGE AFT command.

Note that the floods for the virtual bridge continue to operate correctly; only the display is incorrect.

To correct the AFT display, re-enter the SET VBRIDGE <x> AFT <mac address> FLOOD command for the affected entries. To delete (clear) one of these entries, you must enter the FLOOD command before the CLEAR command is accepted.

PacketChannel/ATM Switching Module New Features

Switching Module software Version v2.02 includes the following new features for the PacketChannel/ATM Switching Module only:

1. A new command for the SONET clock source parameter, can be configured per physical port (PHY):

```
SET SONET {slot}. {port} CLOCK_SOURCE      {external}  
                                           {internal}
```

The clock_source parameter determines whether the PacketChannel/ATM Switching Module derives timing locally (internal) or derives timing from the received signal on the SONET interface (external). This parameter takes effect immediately; it does not require a module reset.

The factory default setting is external.

To view the current clock_source setting, enter the command SHOW SONET {slot}. {port} STATUS. A new field called "Medium Clock Source" has been added to the display to indicate the current clock_source setting.

2. A new command to manage the rate limiting of Broadcast and Multicast packets sent to the BUS:

```
SET BPORT_LEC {slot}. {ec} BUS_RATE_LIMIT {pps}
```

where {pps} is 0 to 65535 packets per second. The default is 5000 pps. A value of 0 indicates no limit.

To view the current BUS Rate Limit, enter the command SHOW BPORT_LEC {slot}. {ec} CONFIGURATION. A new field called BUS Rate Limit has been added to the display to list this value.

Access to the BUS Rate Limit value through SNMP is available through the LASM MIB using the variable lasmllecBUSRateLimit.

3. A new trap called "Duplicate LES Address". This trap alerts you if two LECs on the same PacketChannel/ATM Switching Module are assigned to the same LAN Emulation Services (LES). This configuration is illegal.

Where to Find User Documentation

The *8260 Switching Modules User's Guide* (Document Number SA33-0409) is available in Adobe Acrobat format on the *IBM Hub Documentation* CD-ROM that is shipped with the product.

This CD-ROM also contains:

- Additional IBM documentation in Adobe Acrobat format
- Adobe Acrobat Reader (Version 3.0) and Reader installation instructions.

If you have difficulty installing the Acrobat Reader, use an Internet browser to download the reader from the Adobe home page (<http://www.Adobe.com>).