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## DIGITAL ATMswitch 900 Firmware Release Notes

### Firmware Version 2.0

### April 1998

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These release notes provide information about the DIGITAL ATMswitch 900 Version 2.0 firmware. This release supports both the ATMswitch 900F and the ATMswitch 900T modules.

#### NOTE

ATMswitch 900 Version 2.0 firmware includes a new command line interpreter (CLI). See the *ATMswitch 900 Management* (EK-DAHSE-MG. B01) manual for descriptions of the commands and options of the CLI.

### Important: Read This First

You should check that your ATMswitch 900 firmware release is the latest version by checking the latest firmware release notes that are available online from the DIGITAL FTP site and the Network Product Business Web Site. If it is not the latest version, you should upgrade it immediately as described in the Installation and Configuration book. To determine the current firmware versions, use the `versions` command at the `ATMswitch->` console prompt.

### Introduction

This document contains important notes for the ATMswitch 900 module, including information about:

- Firmware locations and upgrades
- Configuration guidelines
- Support for modular PHY loop timing
- Known problems
- Unsupported features
- Online information access

### How to Get a Copy of ATMswitch 900 Firmware

The latest firmware kit is located in a release area at the DIGITAL FTP site (`ftp.digital.com`). Copy the image to your system using these commands:

```
# ftp ftp.digital.com

username: anonymous
password: (your Internet address)

ftp> cd /pub/DEC/GIGAswitchATM
ftp> bin
ftp> get file-name file-name
ftp> bye
```

where *file-name* is the name of any file that you are copying.

For example, if you are using a UNIX system, you might copy the A900Rn\_n.tar file where n\_n indicates the version number (for example, V2.0 would be 2\_0). To unpack the new image, use the following UNIX command:

```
# tar -xvf A900Rn_n.tar
```

This command creates a subdirectory named A900Vn\_n within your current working directory. The following files are unpacked into the A900Vn\_n subdirectory:

A900Rnn.CTL	Sample control file
A900Rnn.BIN	Application image
A900Rnn.ROM	Kernel image

If you are using another operating system, you might want to copy the files listed in the above table.

## Upgrading the Firmware

For more detailed instructions about the firmware upgrade procedure, see the Upgrading the Firmware section of the Installation and Configuration book.

## Configuration Guidelines

### **Slot Restrictions for the DIGITAL MultiSwitch 900**

If you are using a DIGITAL MultiSwitch 900 (formerly DEChub 900 MultiSwitch), the ATMswitch 900T module does *not* have any slot restrictions.

However, the ATMswitch 900F module can only be configured in slots 7 or 8 of the DIGITAL MultiSwitch 900. If the module is not in an appropriate slot, you will see the following LED indications:

- Module OK LED is off.
- PHY3 and PHY6 LEDs are amber.
- FRU4 and FRU5 LEDs are amber.

### **Port Restrictions for the DIGITAL MultiSwitch 900**

If you are directing ports 5 through 8 of the ATMswitch 900 module to the backplane of a DIGITAL MultiSwitch 900 for interconnection to other ATMswitch 900 modules, the ports must be connected to the same numbered port on the connected modules. For example, port 5 on one ATMswitch 900 module *must be* connected to port 5 on an interconnected ATMswitch 900 module.

### **LAN Emulation**

If you are using LAN Emulation (LANE), you should be aware of the following guidelines:

- To allow access from other switches to the LECS, create a static route between the switch that has the LECS enabled and the well-known LECS address. The static route's forwarding slot should be set to 1 and the forwarding port should be set to 0. This route must be exported.
- When using LANE over an E1 link, the BUS rate limit must be set to less than 500 kb/s.
- 12 emulated LANs (ELANs) is the maximum number supported. The BUS rate for each ELAN should not exceed 500 kb/s.
- 80 LANE clients is the maximum number supported.

### **Constant Bit Rate Circuits**

When configuring constant bit rate (CBR) circuits for E1, E3, T1, or T3 links, set the CBR link rate to a value that is less than 70% of the total allowable link rate.

The maximum CBR bandwidth is 400 Mb/s.

### **Maximum Sustained Throughput**

800 Mb/s is the maximum sustained throughput supported. Traffic might be discarded when this value is exceeded.

### **Virtual Circuit Range Support**

The ATMswitch 900 module supports 2000 switched virtual circuits and 2000 permanent virtual circuits total. These virtual circuits can be distributed across all ports in any fashion. If you are using ports 7 or 8, these ports only support up to 1700 virtual circuit identifiers (VCIs).

### **Maximum VCI Ranges for a Link**

If the remote node has a limited virtual circuit identifier (VCI) range and the VCI ranges are not exchanged with the switch using ILMI link-up procedures, you might have to configure the maximum VCI range with the `link` command. The maximum VCI value should be the maximum VCI of the remote node. Refer to the *ATMswitch 900 Management* manual for more information about the `link` command.

### **Setting the Module Startup Mode**

To set the module startup mode, use the `setStartupMode('mode')` command. The value for *mode* can be one of the following:

- 0 (zero) indicates normal startup mode with self-test.
- F indicates normal startup mode without self-test.

- L indicates image load. If you use this startup mode, you must reset the startup mode to 0 or F and reboot the switch. Do not use this mode with the DIGITAL MultiSwitch 900.

### ***Slot Designations When Using ATM Commands or MIBs***

When using ATM commands or MIBs, the slot value is always 1 and **does not** indicate the slot in the DIGITAL MultiSwitch 900 into which the module is plugged.

## **Support for Modular PHY Loop Timing**

The ATMswitch 900 firmware supports the selection of the transmit timebase. SNMP already supports read-write access of the transmit timebase for DS3, DS1, E3, and E1. The menu interface also supports read-write access to the transmit timebase for all interfaces with menu option 3.8 (Modify Transmit Clock Generation Source).

### ***Supported modPHY Types***

The following modular PHY (modPHY) cards are supported for this release:

<b>modPHY Type</b>	<b>Part Number</b>
E1 (2 Mb/s) short reach TP	DAGE1-AA
E3 (34 Mb/s) coaxial	DAGGE-AA
DS1/T1 (1.54 Mb/s) short reach TP	DAGT1-AA
DS3/T3 (44 Mb/s) coaxial	DAGGT-AA
STS-3c (155 Mb/s) UTP/ScTP	DAGGU-AA
OC-3 (155 Mb/s) MMF	DAGGM-AA
OC-3 (155 Mb/s) SMF	DAGGS-AA

### ***Transmit Timebase Selection and Nonvolatile Parameter Storage***

Transmit timing sources are established for each link. Each physical link can be configured to derive its transmit timing from either a local oscillator or the recovered receive clock. Local timing specifies that the transmit timing is derived from the local oscillator. Loop timing specifies that the transmit timing is derived from the recovered receive clock.

### ***System Behavior at Switch Reboot and Across modPHY Hotswap***

When the switch is rebooted, the nonvolatile records for each populated link are examined. If a record is found for the PHY type detected, the stored setting is used. If a record is not found, local timing is used. This implies that if a PHY type is changed while the switch is powered down, switch initialization will not necessarily yield the default setting.

The same sequence of actions occurs if a link is unpopulated at switch powerup, but is populated later.

When modPHY hotswap yields a PHY type change, the new link is initialized with the default setting (local timing). When modPHY hotswap does *not* result in a PHY type change, the link is reinitialized with its last known setting (if it is not overridden by a condition described in the next section). Note that hotswap does *not* trigger a nonvolatile record update. So, a subsequent switch reboot might, by virtue of a previously stored record for that link and type, change the timing setting.

### ***Effect of Port Conditions on the Transmit Timebase Setting***

Two conditions, loss of signal and loss of frame, will force a loop-timed link to revert to local timing. Subsequent clearing of the condition will force such a port back to loop timing. Neither of these forced transitions will cause a nonvolatile record update.

## **Known Problems**

### ***Documentation Errata***

On page 5-2 of the *ATMswitch 900 Management* hardcopy manual, under Displaying the Current Date and Time, the example is invalid. The example should read:

```
ATMswitch-> date
Time since last initialization: 118 hrs, 17 mins, 50 secs
```

### ***UNI Version and IISP Links***

When there is an IISP link between two DIGITAL ATM switches, the UNI version is specified as UNI 3.1 by default. Do not specify any UNI version other than UNI 3.1.

### ***Telnet Session on Existing Connection***

Invoking a Telnet session to a switch that is already used by a serial line connection causes the initial session to be locked out until the Telnet session is terminated.

## **Unsupported Features in This Release**

The following features are not supported in this release:

- IP switching
- Rate-based flow control
- EFCI
- SLIP/OBM port

Note that running CLIP client and Redundant Lane services may result in intermittent problems.

## Accessing Online Information

Further information on this network product or topic is available on the Network Product Business Web Site. The Web Site maintains a common, rich set of up-to-date information about DIGITAL networking products, technologies, and programs. The Web Site can be reached at geographic locations via the following URLs:

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Americas Network Product Business Home Page	<a href="http://www.networks.digital.com/">http://www.networks.digital.com/</a>
Europe Network Product Business Home Page	<a href="http://www.networks.europe.digital.com/">http://www.networks.europe.digital.com/</a>
Australia Network Product Business Home Page	<a href="http://www.networks.digital.com.au">http://www.networks.digital.com.au</a>
Digital Equipment Corporation Home Page	<a href="http://www.digital.com/">http://www.digital.com/</a>

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To get firmware and MIB information, choose the “Technical Information” link, and from there choose the “Technical Information (Drivers, Manuals, Tech Tips, etc.)” link.