

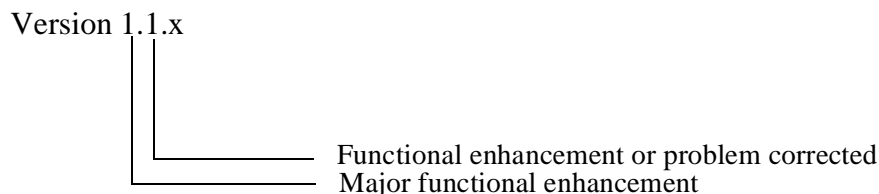


AA-R0N1J-TE

DIGITAL VNswitch 900 Series
Version 3.0
Release Notes
September 1998

As warranted, DIGITAL changes the firmware of this device to make functional enhancements or to correct reported problems. These release notes identify enhancements and changes to the firmware that impact end-user operations. They also contain firmware and software requirements, and list updates in this release as well as known conditions and restrictions that apply to the operation of the modules.

The following example describes the firmware version number:



Note: The VNswitch firmware is currently at Version 3.0.1. However, the product documentation reflects the major functional release of the product, Version 3.0.

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## Hardware and Firmware Support

VNswitch firmware Version 3.0, supports the following products:

- DVNEA (VNswitch 900EA)
- DVNEE (VNswitch 900EE)
- DVNEF\* (VNswitch 900EF)
- DVNEX (VNswitch 900EX)
- DVNFA (VNswitch 900FA)
- DVNLL (VNswitch 900LL)
- DVNXA (VNswitch 900XA)
- DVNXX (VNswitch 900XX)
- DVNFF (VNswitch 900FF)
- DVNFX (VNswitch 900FX)

\* DVNEF-MM includes 12 10BaseT ports and 1 pair fixed ANSI MIC multimode fiber connectors  
DVNEF-MX includes 12 10BaseT ports and 1 MMI FDDI port

### ***VNswitch Operation in the DIGITAL MultiSwitch 900***

For VNswitch operation in the DIGITAL MultiSwitch 900, DIGITAL recommends:

- For the VNswitch 900EE, VNswitch 900EF, VNswitch 900EA, VNswitch 900EX, VNswitch 900XX, VNswitch 900LL, VNswitch 900FA, and the VNswitch 900XA modules, you must use DIGITAL MultiSwitch 900 firmware V5.2 or higher.
- For the VNswitch 900FF and VNswitch 900FX modules, you must use DIGITAL MultiSwitch 900 firmware V5.4 or higher.

### **clearVISN Support**

To manage the VNswitch modules using the clearVISN application, DIGITAL recommends:

- For the VNswitch 900EE, VNswitch 900EF, VNswitch 900EA, VNswitch 900EX and the VNswitch 900XX modules, you must use clearVISN V2.0 or higher.
- For the VNswitch 900LL, VNswitch 900FA, and the VNswitch 900XA modules, you must use clearVISN V2.1 or higher.
- For the VNswitch 900FF and VNswitch 900FX modules, you must use clearVISN V2.2 or higher.

## Features in This Release

VNswitch V3.0 firmware is the first release of the software that supports web-based management of VNswitch modules. The following new features are included in this release. Refer to *DIGITAL VNswitch 900 Series Switch Management* for further information.

- **Web-Based Management**

The VNswitch module, with V3.0 firmware, includes a built-in web server and management application that allows you to configure and monitor the module over the Internet. For web access you must first assign an IP address to the module using the CLI. You can use either of the following web browsers: Netscape V4.0 or Internet Explorer V4.0. Following are the web management features supported in this release:

- **System**

- General

- Reset

- Error Log (Crash Log and Diagnostic Log)

- Memory

- IP Host

- Upgrade Device

- Save/Restore Configuration

- SNMP (Communities, RMON- Statistics Configuration, RMON - History Configuration)

- **Interfaces**

- Configuration

- Packet Counters

- Error Counters

- **Bridging**

- General

- By Port

- Spanning Tree by VSD

- Address Filters

- Protocol Filters

- Forward Bridging Database

- VSD Configuration General

- **IP Routing**

- General

- Enable/Disable Routing

- Addresses

- IP Counters

- Static Routers

- Access Control

- Filtered Routes

- Enhanced Proxy ARP

- **Telnet to Module**

- **BGP4 Interface**  
This feature is an implementation of the latest version of the Border Gateway Protocol (BGP), BPG4, which is defined in RFC 1654. BGP is an exterior gateway routing protocol that allows the exchange of network reachability information among autonomous systems (AS). Routing information within each AS is shared using interior gateway protocols, such as RIP, OSPF, or Integrated IS-IS. For more information, refer to *DIGITAL VNswitch 900 Series Router Management*.
- **T3/E3 and T1/E1 ATM ModPHYs**  
This release supports T3/E3 and T1/E1 ModPHYs for VNswitch ATM modules.
- **New Command Line Interface (CLI) Functionality**
  - **New ATM physical (ATM Phy Config>) commands for T3/E3 and T1/E1 ModPHY support**  
These commands include ENABLE/DISABLE commands, LIST commands, and SET commands.
  - **New counters for the ATM Phy>LIST STATUS command:**
    - Net up count
    - Net down count
    - Data direct and Bridge Tunnel VC count
    - Number of times the PHY went into loopback because the PHY was down
  - **Additional ATM enhancements**  
These enhancements include new LIST SUMMARY commands for ATM> and ATM Config> and improvements for the Config>CLEAR ATM command.
- **Duplicate MAC**  
This release of the firmware adds duplicate MAC support.
- **RMON History and Statistics**  
RMON History and Statistics are supported for Ethernet ports, 10BaseT and 10BaseFL, on VNswitch 900E\* and VNswitch 900LL modules. (E\* includes the VNswitch 900EA, 900EE, 900EF, and the 900EX modules.)
- **Bytes Counters**  
This release of the firmware adds support for bytes counters ifInOctets and ifOutOctets (MIB-2).
- **Year 2000 Compliance**  
This release of the firmware is Year 2000 compliant.
- **Command Line Editing and Command Line Completion**  
This release allows you to edit commands on the command line, recall previously entered commands, and complete partially entered commands automatically.

## Special Considerations for This Release

Read this section for special considerations regarding the operation of your VNswitch 900 modules.

### **Upgrading to VNswitch Version 3.0**

**Note:** Before upgrading to the VNswitch Version 3.0 firmware, you need to install the boot block software, dvnbb301.bin. See “Firmware Upgrades” on page 12 for more information.

You can use the Command Line Interface (CLI) or the web-based management application to upgrade the module.

The VNswitch 3.0 images can be upgraded from a V2.0.6 image only. If an attempt is made to upgrade a module that is running a version earlier than V2.0.6 with either the clearVISN Flash Loader or the CLI **load remote** or **reload** commands, the update will fail with either a **timeout** or **out of memory** error message.

### **Default DEC ATM MIB Values Changed**

In this release, the default values for the following DEC ATM MIB values are changed:

- adpReceiveBuffers = 0 (used to be 20)
- adpMaxReceiveBufferCounter = 20 (used to be 0)

### **CLI Incompatibilities**

Some improvements to the Command Line Interface (CLI) for VNswitch V3.0 firmware may cause minor incompatibilities. Please refer to *DIGITAL VNswitch 900 Series Switch Management* for the new commands. Alternatively, enter the “?” help command at any CLI command for a display of the available commands.

For example, the **config** command at the Monitor prompt, which had a shortcut of **c**, has a new meaning. The new equivalent of the **config** command is **list all**.

### **Momentary Routing Performance Impact for Large IP Networks**

It is possible that certain customers with large IP networks that have also enabled **IP Access Controls** on the VNswitch 900 may observe a momentary performance impact for routed traffic. If this performance impact does occur, it is most likely to happen during a Spanning Tree topology change in the network. This momentary slow down will affect routing only and does **not** affect the bridging performance of the VNswitch. The most noticeable symptom is that a CLI session to the VNswitch will be slower than normal.

### **Support for RMON Capable Ethernet Daughter Cards**

This release of the firmware supports new versions of the 12-port 10BaseT and 12-port 10BaseFL modules. These newer versions provide support for RMON Ethernet counters. To determine if your module has this new functionality, check the product revision against the following table:

<b>Module</b>	<b>Revision</b>
DVNEA-MX	H01 or higher
DVNEE-MA	F01 or higher
DVNEF-MM	F01 or higher
DVNEF-MX	F01 or higher

Module	Revision
DVNEX-MX	J01 or higher
DVNLL-MA	B01 or higher

If your unit is already installed, you can issue the Monitor> **list all** command. The hardware version of the VNswitch is displayed in the HW= field. The current Ethernet adapter card has the designator E and a newer RMON capable Ethernet card has an e designator. For example, the hardware field for an older version VNswitch 900EF might look like HW=70F0E1. This same VNswitch with a RMON capable card would look like this: HW=70F0e0. Note that the REV-id for the newer RMON capable card starts at zero (0).

**Note:** The power requirements for the modules are slightly higher to accommodate this new functionality. The power ratings are listed on the serial label for the product.

### ***Clearing the ARP Cache when Routing Enable/Disable is Changed***

If you change your routing configuration from enabled to disabled, or from disabled to enabled, you must clear your ARP cache (Config> **clear arp**) and reconfigure the ARP configuration data.

## **VNswitch Firmware Conditions and Restrictions**

The following known conditions and restrictions apply to this release of the VNswitch firmware.

### **Setting Line Attenuation and Transmission Power For DS3 Interfaces**

The *set line-building-out* command, which sets the line attenuation, and the *set transmission-power* command are specific to DIGITAL modPMD implementations. They are required for the E3/T3 physical media specifications.

It is strongly recommended that you use the factory default for the transmission power. If the transmission power is not properly set, the physical media will not conform to the T3 or E3 specifications. The factory default for T3 lines is low, and for E3 lines, the default is high.

### ***ATMswitch 900F Interoperability Problems***

To configure the VNswitch 900 ATM modules in a DIGITAL MultiSwitch 900 chassis for LAN interconnect operations with the DIGITAL ATMswitch 900F, follow these special instructions:

- Use ATMswitch 900, Version 1.2, firmware.
- Configure the ATMswitch 900 to operate with UNI V3.1 signaling, using the command:

```
UNI -v31 -p<port #> -s<slot #>
```

If you have two ATMswitch 900F modules in your MultiSwitch 900 chassis and you want to use two ports from each to connect to four VNswitch 900 ATM modules on the backplane, you must use two different sets of ports from each ATMswitch 900F module. For example, if you want to use ports 1 and 3 in the first ATMswitch 900F module, then you must use ports 2 and 4 in the second ATMswitch 900F module.

If you choose the same port numbers in both ATMswitch 900F modules, only the first instance of that port number is available for a connection. Once you have an ATMswitch 900F port 1 connected to another module (VNswitch 900EA), that signal set is in use. The second instance of an ATMswitch 900F port 1 connection to another VNswitch 900 ATM module cannot be completed because that signal set is already in use on the backplane.

### **No Frame Interval Functionality**

The “No Frame Interval” functionality is not supported in this firmware release.

### **Out-of Band Management (OBM)**

The OBM baud rate cannot be set to 4800 when the VNswitch 900 is in the MultiSwitch 900. However, 4800 is a valid speed when the module is in a DEChub ONE docking station.

### **Clearing SNMP Configuration**

When clearing SNMP configuration (using Clear all or Clear SNMP commands), you must restart the module for the clear to take effect.

### **IP Services Module Address**

If you take the IP address of any module that is serving as the IP Services module for the DIGITAL MultiSwitch 900 and reassign it to the VNswitch module, you must remove (power-cycle) the other module (from which the IP address was taken) before this VNswitch module can assume the new address and operate as an IP Services module.

### **VNswitch Configuration on the VNbus**

The primary mechanism for configuring the VNbus is clearVISN LAN-interconnect. If this management tool is unavailable, you may use the VNbus-AutoConnect feature of the DIGITAL MultiSwitch 900. The VNbus-AutoConnect feature should not be enabled when the clearVISN management tool is used to configure any LAN-interconnect.

### **Configuring Two Ethernet Ports on the Same VNswitch to the Same Backplane Channel**

The VNswitch module does not support the mapping of two or more Ethernet ports on the same VNswitch module to the same MultiSwitch 900 backplane channel. In the VNswitch V3.0 release, if this operation is attempted, the second port remains in the DOWN state until it is configured to either a different backplane channel and manually enabled *or* to a front panel port and manually enabled.

### **Configuring VNswitch IP Addresses in a MultiSwitch 900**

A problem occurs when IP addresses are configured for a VNswitch module installed in a Multiswitch 900 and the module is managed by the clearVISN MultiChassis Manager (MCM). The VNswitch module requires a restart when a new or changed IP address is entered.

### **Diagnostic Failures**

If a hardware problem is detected during diagnostics, an entry is made in the diagnostic log. You can view this log from the web-based application (System Error Log window), from the Command Line Interface (CLI) using Monitor> **err-log list diag**, or using Option 7 from the VNswitch 900 INSTALLATION MENU. If any diagnostic entries are present, it is a hardware failure and the module should be replaced.

## **Ping Packets Greater than 1500 Bytes**

The VNswitch 900 module does not reply to ping packets that are greater than 1500 bytes.

## **Displaying Event Log Messages**

When you display events using the Main> **events** command or indirectly using the Config>**set output console** command, be aware that you can retrieve event log messages only once. That is, once an event log message is displayed, it cannot be viewed again. Therefore, if you want to save event log messages for later analysis, save the display output using an appropriate method, such as logging/saving a terminal session.

## **Nonsupport of FDDI Port Redirection to Back of DEChub ONE-MX**

This release does not support redirection of the FDDI port to the back of the DEChub ONE-MX docking station.

## **Duplicate MAC Address**

For networks in which the same MAC address appears within more than one VSD (Duplicate MAC), it is necessary to configure the duplicated addresses as static duplicate MAC addresses using the command BRIDGE config>set duplicated-address <duplicate MAC address>.

## **VNswitch 900LL Configuration Considerations**

The power consumption of the VNswitch 900LL module necessitates these configuration considerations:

- A maximum of six (6) DIGITAL VNswitch 900LL (DNVLL) modules can be placed in a DIGITAL MultiSwitch 900 chassis. This configuration requires three 140- or 163-watt power supplies, or four 140- or 163-watt power supplies for N+1 redundancy.
- The DEChub ONE and DEChub ONE-MX docking stations support the VNswitch 900LL module. However, a comparison of the power label on the DEChub ONE docking station and the power requirements of the VNswitch 900LL modules may indicate otherwise.

## **Incorrect Boot Block Upgrade Procedure**

Chapter 10 in the *DIGITAL VNswitch 900 Series Switch Management* guide incorrectly states that upon the completion of a boot block upgrade, the yellow and green LEDs remain lit until you power-cycle the module. With boot block version V3.0, you do not have to power-cycle the module, the yellow and green LEDs turn off automatically.

## **BGP and RIP Route Limitations**

You cannot import subnetted routes (routes with a mask that is not the natural mask for a Class A, B or C network) learned from the BGP protocol into RIP. Note that non-subnetted BGP routes can be imported into RIP without any problem.

## **Incorrect False Carrier Sense Counter Values**

The false carrier sense counter (FCSR) is incorrectly incrementing and, therefore, the counter value may not be valid.

## **RMON Statistics Counter Differences**

RMON statistics conform to the RMON RFC, except for the following counter differences:

- The octet (etherStatsOctets) and packet (etherStatsPkts) counters will not include all error



packets.

- The number of collisions in the collision counter (etherStatsCollisions) will be understated.
- The undersize packet (etherStatsUndersizePkts) value is always listed as 0 and included as part of the fragment counter (etherStatsFragments).
- The oversize packet (etherStatsOversizePkts) value is always listed as 0 and included as part of the jabbers counter (etherStatsJabbers).
- The broadcast packet (etherStatsBroadcastPkts) value is always listed as 0 and included as part of the multicast counter (etherStatsMulticastPkts).

To display RMON statistics for interface 7 using the CLI, for example, perform the following command:

```
Monitor>interface statistics 7
```

### **RMON Restrictions with NetScout Manager**

When using the NetScout Manager application, the following restrictions apply:

- Since the VNswitch supports only the four basic RMON groups, NetScout applications that rely on the other groups, such as Top N Talkers, will return an error.
- The interface number supplied should be equal to the port number of the desired port. For example, to monitor Ethernet port 2 use interface number 2.
- The interface name returned using the Test Agent command is incorrect and should be ignored.
- When monitoring Ethernet Port 1, ignore NetScout Manager applications displaying information pertaining to an FDDI type device. Note that the percentage utilization is wrong.
- Using the Switch option results in the wrong set of ports. For example, the VNswitch 900EE ports will be defined as ports 2 through 25 instead of ports 1 through 24.
- The reporting of multicast packets in the short term history display has a significant variance between intervals. The smaller the interval time, the greater the variance. For accurate interval multicast packet counts, it is recommended to have an interval time of at least 10 minutes.

### ***Restrictions and Conditions for the VNswitch 900 ATM Modules***

This section lists known restrictions and conditions specific to the VNswitch 900EA, VNswitch 900FA, and the VNswitch 900XA in the V3.0 release.

### **Nonsupport of Nonzero VP Values in ATM**

Nonzero Virtual Path (VP) values are not supported for ATM in this release.

### **No FLOWmaster Support for ATM**

VNswitch 3.0 firmware does not support FLOWmaster for ATM networks.

## Configuring Link Parameters

ATM link failures may be caused by an out-of-revision VNswitch ATM adapter card when connected to a backplane, or by an out-of-revision ModPHY card when connected to the front panel. For backplane connections, be sure that the VNswitch ATM adapter card is at revision 1 or higher, and for front panel connections, be sure that the ModPHY card is at the revision as shown in the following table:

ModPHY Type	Part Number	Revision Level
E1 (2 Mb/s) UTP/ScTP	DAGE1-AA	C01 or higher
E3 (34 Mb/s) coaxial	DAGGE-AA	E01 or higher
DS1/T1 (1.54 Mb/s) UTP/ScTP	DAGT1-AA	A01 or higher
DS3/T3 (44 Mb/s) coaxial	DAGGT-AA	A01 or higher
STS-3c (155 Mb/s) UTP/ScTP	DAGGU-AA	E01 or higher
OC-3 (155 Mb/s) MMF	DAGGM-AA	C01 or higher
OC-3 (155 Mb/s) SMF	DAGGS-AA	C01 or higher

## ATM Bridge Tunnels and LECs

If the default LEC or bridge tunnel does not come up, one of the ATM logical interfaces may already be configured. Reset to factory settings (or at the Config> prompt, enter **clear ATM**) to use the default configuration.

## ATM E1/T1 LAN Emulation Performance

LAN Emulation does not function for an ATM E1 or T1 ModPHY due to low line rates.

## Split Path Routing Learning Problems with LAN Emulation

In certain IP network configurations, outbound packets between a source and a destination may take one path while inbound packets may take a different path on their return. This is known as Split Path Routing. If ATM LAN Emulation (LANE) is used to construct these paths, throughput reductions will be seen. The throughput will be reduced to anywhere from one packet per second to ten packets per second depending on the BUS (Broadcast and Unknown Server) rate throughput set in the VNswitch. The default rate is one frame per second and can be modified for each LEC interface using the **set max unknown frame count** and **set max unknown frame time** commands.

This situation occurs because traffic flow in these paths is unidirectional. In ATM LAN Emulation, the creation and subsequent use of a direct virtual circuit (VC) between LANE clients depends on traffic in both directions to prevent the VC from being aged out. With unidirectional traffic, the direct VC does get aged out (aging time = bridge aging time) and any subsequent traffic is sent through the BUS. The V1.0 LANE standard states that unknown unicast traffic on the BUS is limited to a maximum rate of ten frames per second. This problem can be avoided by reconfiguring the network to eliminate split paths.

## ATM Link Down; Ethernet and VNbus UP

When the ATM PHY LEDs blink amber and ATM module LED blinks green (fatal ATM physical layer error), the ATM link is down, but the Ethernet and VNbus parts of the device are still functional. Make sure that the ATM daughter card is up to the ECO revision level 2.

## Problems Configuring VNswitch 900 ATM Modules Using clearVISN MCM

Problems and solutions configuring the VNswitch 900 ATM modules with the clearVISN MultiChassis Manager (MCM) are as follows:

- **Problem:** Enabling a configured LEC does not result in the LEC being moved to the enable window. No error or warning indication is given.

**Solution:** Verify that no LAN name conflict exists. The VNswitch 900EA does not allow more than one LEC with the same LAN name to be enabled. This includes multiple LECs with blank (i.e. default) LAN names.

- **Problem:** Enabling a configured FDDI bridge tunnel does not result in the tunnel being moved to the enable window. No error or warning indication is given.

**Solution:** The FDDI bridge tunnel may recently have been configured without performing a required restart of the VNswitch 900 ATM module. To restart the module use MCM's RESET button in the VNswitch Switch Summary view, or use the VNswitch 900EA Command Line Interface Restart command from the configuration menu.

## ATM FDDI Bridge Tunnel to ATM Ethernet Bridge Tunnel Connection Not Recommended

You can manually configure an ATM FDDI bridge tunnel on one VNswitch module to connect to an ATM Ethernet bridge tunnel on another VNswitch module. While this configuration does allow the bridge tunnel to come up, the mismatch in tunnel types causes unwanted and unpredictable results. For this reason, DIGITAL recommends that you do not attempt this configuration.

## VNswitch 900FA Defaults to ATM Ethernet Bridge Tunnel

The plug-and-play values for the VNswitch 900FA module default to an ATM Ethernet bridge tunnel, even if two VNswitch 900FA modules are connected together. If an ATM FDDI bridge tunnel is desired, this must be manually configured.

## Copying ATM Configurations to Another Module is Not Supported

VNswitch v3.0 does not support copying ATM configurations to another module. If you back up a module's configuration database to a server with the intention of later restoring it to a VNswitch module other than the one it was originally saved from, you must clear the ATM configuration (**Config> clear atm**) before saving the configuration.

## ATM LEC Maximum Frame Size is Not Settable from the Web Management Interface

Do not use the VNswitch Web Management interface to set the ATM LEC maximum frame size. This causes the module to crash. You must use the CLI (**ATM/n LEC Config> set max\_frame\_size**) command to set ATM LEC maximum frame size.

## Firmware Upgrades

Refer to Chapter 10 in *DIGITAL VNswitch 900 Series Switch Management* for instructions on how to perform firmware upgrades, including a boot block software installation. You can use the Command Line Interface (CLI) or the web-based management application to upgrade the module.

If you are using the CLI to perform the upgrade, do not log out from the Main prompt during the upgrade.

**Note:** You must install the V3.0 boot block software first. Then install the Version 3.0 firmware.

The VNswitch modules do not support firmware upgrades using the DIGITAL MultiSwitch 900 Downline Upgrade menu option. You can perform firmware upgrades for the VNswitch modules using the CLI **reload** or **load remote** commands or using the clearVISN Flash Loader application.

**Note:** The **reload** and **load remote** commands rely on IP Host Services being configured.

If you are using an OpenVMS system and VMS UCX (V4.0 and earlier) as the TFTP load server for the firmware upgrade, the TFTP load may fail. As a workaround, convert the firmware image file format from Fixed-512 to Stream\_LF record format.

### **Upgrading from V1.1/V1.5 to V3.0**

To upgrade from V1.1 or V1.5 to V3.0, you must upgrade to V1.6.2 first, then to V2.0.6. When upgrading to V1.6.2, please review the V1.6.2 release notes as they contain important information with respect to the upgrade process.

**Note:** Before upgrading to the VNswitch Version 3.0 firmware, you need to install the boot block software, dvnbb301.bin. See “Firmware Upgrades” for more information.

The VNswitch 3.0 images can be upgraded from a V2.0.6 image only. If an attempt is made to upgrade a VNswitch module that is running a version earlier than V2.0.6, either via the clearVISN Flash Loader program or via the CLI **load remote** or **reload** commands, the update will fail with either a timeout or out of memory error message.

### **Clearing the ARP Cache**

You must clear your ARP cache (Config> **clear arp**) and reconfigure the ARP configuration data at the completion of your upgrade, unless routing was enabled prior to the upgrade and it remains enabled at the completion of the upgrade. Refer to “Special Considerations for This Release” on page 5 for additional information.

## Documentation

The following documentation supports the VNswitch Version 3.0 firmware release:

- *DIGITAL VNswitch 900 Series Technical Overview*
- *DIGITAL VNswitch 900 Series Switch Management*
- *DIGITAL VNswitch 900 Series Router Management*

These documents exist in Adobe Acrobat online readable and printable (PDF) format on the documentation CD-ROM that ships with the module.

## VNswitch MIB Support

The VNswitch supports the following MIBs. If a MIB is defined in more than one RFC, the supported RFC is listed first and the other RFCs are listed on a separate line. The MIB handlers do not support SNMP set requests unless otherwise noted.

<b>MIB</b>	<b>RFC/GROUP</b>
<b>mib-2</b>	iso(1).org(3).dod(6).internet(1).mgmt(2).mib-2(1) rfc-1213 rfc-1158 -> rfc-1213 system(1) (set) interfaces(2) ifAdminStatus(7) (set) at(3) ip(4) ipDefaultTTL(2) (set) icmp(5) tcp(6) udp(7) egp(8) transmission(10) (interface mibs) snmp(11)
<b>ethernet</b>	.mib-2(1).transmission(10).dot3(7) rfc-1643 rfc-1284 -> rfc-1398 -> rfc-1623 -> rfc-1643 dot3StatsTable(2) dot3CollEntry(5) dot3Tests(6) <oid pointers> dot3Errors(7) <oid pointers> dot3ChipSets(8) <oid pointers>
<b>fddi</b>	.mib-2(1).transmission(10).fddi(15).fddimib(73) rfc-1512 rfc-1285 -> rfc-1512 fddimibSMT(1) fddimibMAC(2) fddimibPATH(3) fddimibPORT(4)
<b>ds1</b>	.mib-2(1).transmission(10).ds1(30) rfc-1406 dsx1ConfigTable(6) (set) dsx1CurrentTable(7) dsx1IntervalTable(8) dsx1TotalTable(9) dsx1FarEndCurrent(10) Not supported dsx1Interval(11) Not supported dsx1total(12) Not supported dsx1FracTable(13) Not supported

<b>MIB</b>	<b>RFC/GROUP</b>
<b>ds3</b>	.mib-2(1).transmission(10).ds3(30) rfc-1407 dsx3ConfigTable(5) (set) dsx3CurrentTable(6) dsx3IntervalTable(7) dsx3TotalTable(8) dsx3FarEndConfigTable(9) Not supported dsx3FracTable(13) Not supported
<b>rmon</b>	.mib-2(1).rmon(16) rfc-1757 statistics(1) (set) history(2) (set) alarm(3) (set) event(9) (set)
<b>mau</b>	.mib-2(1).snmpDot3MauMgt(26) draft-ietf-hubmib-mau-mib-03.txt dot3RpMauBasicGroup(1) Not applicable dot3IfMauBasicGroup(2) dot3BroadMauBasicGroup(3) Not applicable dot3IfMauAutoNegGroup(5)
<b>sonet</b>	.mib-2(1).transmission(10).sonetMIB(39) rfc-1595 sonetObjects(1) sonetMedium(1) sonetSection(2) sonetSectionIntervalTable(2) sonetLine(3) sonetLineIntervalTable(2) sonetFarEndLine(4) Not supported sonetObjectsPath(2) sonetPath(1) sonetPathCurrentTable sonetPathIntervalTable sonetFarEndPath(2) Not supported sonetObjectsVT(3) Not supported sonetVT(1) Not supported sonetFarEndVT(2) Not supported

<b>MIB</b>	<b>RFC/GROUP</b>
<b>bridge</b>	.mib-2(1).dot1dBridge(17) (multiple spanning tree support) rfc-1493 rfc-1286 -> rfc-1493 & rfc-1525 dot1dBase(1) dot1dStp(2) (set) dot1dSr(3) Not applicable dot1dTp(4) (set) not implemented: dot1dStatic destination address filtering dot1dStaticTable(1) traps
<b>interfaces</b>	.mib-2(1).ifMIB(31).ifMIBObjects(1) rfc-1573 ifStackTable(2)
<b>digital</b>	.private(4).enterprises(1).dec(36).ema(2) mib-extensions-1(18)
<b>elan</b>	elanext(1).efddi(1) (set) elanext(1).ebridge(4) (set) ebrIfSpanTable Not supported ebrTwoPortStatic Not supported ebrTwoProtoFilt Not supported ebrNTP Not supported
<b>hub</b>	dec_elan_vendor_mib_v30.mib decHub900(11).pubCommon(2) pcomHub(2) pcomLed(3) (set) pcomLoad(4) (set) pcomSnmpAuth(5) pcomSnmpAuthTrap(1) (set)
<b>atm</b>	.mib-2(1).atmMIB(37) rfc-1695 atmInterfaceConfTable(2) (set) atmInterfaceDs3PlcpTable(3) atmInterfaceTCTable(4) atmTrafficDescrParamTable(5) atmVplTable(6) atmVclTable(7) atmVpCrossConnectIndexNext(8) Not supported atmVpCrossConnectTable(9) Not supported atmVcCrossConnectTable Not supported aal5VccTable
<b>comet</b>	comet-mib(2) cinterface(1)

<b>MIB</b>	<b>RFC/GROUP</b>
<b>vlan</b>	vlan_v1.mib pe2000(33).bridgeGroup(1) (set) bridgeGroupPortTable(4) bridgeGroupNameTable(5) bridgeGroupPeBusTagTable(7) bridgeGroup atomics
<b>proteon</b>	.private(4).enterprises(1).dec(36).ema(2). mib-extensions-1(18).cometBROUTERS(20).proteon-mib(1) no rfc - proteon mib text fully supported including sets admin(1).oid(1) admin(1).status(2) admin(1).els(3) admin(1).xface(4) admin(1).private(5) (no documentation) nvrAm(1) reset(2) xface(2) proto(3)
<b>atm</b>	dec_atm.mib atmExpand(17) ad(1) dxatm(2)                      Not supported
<b>atm bridge tunnel</b>	decAtmBridgeTunnel.mib decAtmBridgeTunnel(28)
<b>atm lec</b>	.private(4).enterprises(1).atmForum(353). atmForumNetworkManagement(5).atmFLanEmulation(3) leClientMIB(1).leClientMIBObjects atmLecClient.mib lecConfigTable(1)                      (set) lecStatusTable(2)                      Not supported in v1.0 lecMappingTable(3)                      Not supported in v1.0 lecStatisticsTable(4)                      Not supported in v1.0 lecServerVccTable(5)                      Not supported in v1.0 lecAtmAddressTable(6)                      Not supported in v1.0 lecMacAddressTable(7)                      Not supported in v1.0 lecRouteDescrTable(8)                      Not supported in v1.0 leArpTable(9)                      Not supported in v1.0 leRDArpTable(10)                      Not supported in v1.0



<b>MIB</b>	<b>RFC/GROUP</b>	
<b>icom</b>	internal(0).intCommon(1)	
	int-common.mib	
	The icom MIB objects are normally only visible to the MAM on the chassis backplane serial line	
	icomHlap(1)	
	icomRoot(2)	Table not populated
	icomHub(3)	
	icomStatus(4)	
	icomTrap(5)	Not supported
	icomIps(6)	
	icomEnviron(7)	
	icomPower(8)	
	icomIntProtInstrumentation(9)	Not supported
	icomBp(10)	
	icomBpTotalConfigChanges(1)	
	icomBpIfNumEntries(2)	
	icomBpIfTable(3)	
	icomBpPortDescrTable(4)	Missing in walk
	icomBpIfSubtypeNumEntries(5)	
	icomBpIfSubtypeTable(6)	
	icomBpSignalSetNumEntries(7)	
icomBpSignalSetTable(8)		
icomBpConnNumEntries(9)		
icomBpConnTable(10)		
icomSlot(11)		
icomEntity(12)		
icomRemotePoll(14)	Not supported	
icomLigo(15)		
icomLast	Not supported	

