DEChub Network Products

Problem Solving

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This book explains how to troubleshoot and correct problems that you may encounter with DEChub Networking products.

Revision/Update Information:	This is a new document.
MS-DOS Version:	6.0 or higher
Microsoft Windows Version:	3.1 or higher
Microsoft Windows NT Version:	3.51 or higher
OpenVMS VAX Version:	6.0 or higher
OpenVMS AXP Version:	6.0 or higher
HP Version:	9.0 or higher
SunOS Version:	4.1.3 or higher
Digital UNIX Version:	2.0 or higher
Software and Version:	HUBwatch for Windows Version 4.1 HUBwatch for OpenVMS Version 4.1 HUBwatch for Digital UNIX Version 4.1 HUBwatch for HP-UX Version 4.1 HUBwatch for SunOS Version 4.1

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Preface

Overview

Purpose of This Document

This manual explains how to troubleshoot and correct problems that you may encounter with DEChub networking products.

Other Books in This Series

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DEChub Network Configuration	EK-CONFG-CG
DEChub Network Modules 900-Series Switch Reference	EK-SWTCH-HR
DEChub Network Modules 900-Series Concentrator Reference	EK-CONTR-HR
DEChub Network Modules Repeater Reference	EK-REPTR-HR

For More Information

About...	See...
DEChub Firmware Updates	/pub/DEC/hub900/README at ftp.digital.com
DECagent 90	DECagent 90 Installation and Configuration manual
Hub Manager	DEChub 900 MultiSwitch Owner's Manual
GIGAswitch System	GIGAswitch/FDDI System Manager's Guide

About...	See...
	GIGAswitch/FDDI System Out-of-Band Management (OBM) Guide
	GIGAswitch/FDDI System SNMP Guide
	GIGAswitch/FDDI Installation Service Guide
	GIGAswitch/FDDI Special Features Guide
DEChub and HUBwatch	DEChub 90 Owner's Manual
	DEChub 900 MultiSwitch Owner's Manual
	DEChub Network Modules Configuration Guide
	HUBwatch USE
	HUBwatch for Windows USE
	HUBwatch for SunOS and HP-UX Use
	HUBwatch for Windows Quick Start
DECbridges	DECbridge 90 Owner's Manual
	DECbridge 90FL Owner's Manual
	DECbridge 900MX Owner’s Manual
	RoamAbout Access Point Owner’s Manual
	RoamAbout Access Point Installation
DECbrouters	DECbrouter 90T1 Owner's Manual
	DECbrouter 90T2 Owner's Manual
	DECbrouter 90T2A Owner's Manual
DECswitches	DECswitch 900EE Installation
	DECswitch 900EF Installation
	PEswitch 900TX Installation
DECrepeaters	DECrepeater 90C Owner’s Manual

About...	See...
	DECrepeater 90T Owner’s Manual
	DECrepeater 90TS Installation and Configuration
	DECrepeater 90FA Owner's Manual
	DECrepeater 90FS Installation and Configuration
	DECrepeater 90FL Owner's Manual
	DECrepeater 900GM Installation and Configuration
	DECrepeater 900TM Installation and Configuration
PORTswitches	PORTswitch 900FP Installation and Configuration
	PORTswitch 900CP Installation and Configuration
	PORTswitch 900TP Installation and Configuration
Access Servers	DECserver 90L Owner's Manual
	DECserver 90L+ Owner's Manual
	DECserver 90TL and 90M Owner's Manual
	DECserver 900TM Owner’s Manual
	DECserver 900TH Installation and Configuration
DECconcentrators	DECconcentrator 900MX Installation and Configuration
	DECconcentrator 900TH Installation and Configuration
	DECmau 900TH Installation and Configuration
DECwanrouters	DECwanrouter 90/150/250 Management

About...	See...
Digital MultiStack System	Digital MultiStack System Stackable Hub Installation and Configuration
Miscellaneous	OPEN DECconnect Applications Guide
	OPEN DECconnect Building Wiring Components and Application Catalog
	DECconnect System Planning and Configuration Guide
	Network Buyer’s Guide
	Bridge and Extended LAN Reference

Conventions

Overview

This book uses the following conventions.

Convention	Description
<Return>	A key name enclosed in angle brackets indicates that you press that key. In this example, you would press the Return key.
Italic type	Emphasizes important information, indicates variables, and indicates complete titles of documents.
Boldface type	Boldface type in examples indicates user input.
`Monospaced` type	Text that the system displays on the screen.
Click on	To press and release a mouse button when the pointer is positioned on an active object.
[ ]	Brackets contain default responses to prompts. To accept the default response to a prompt, simply press Return.
Ctrl/x	Indicates that you press the Control key while you type the key represented by x.
Ethernet	The term Ethernet is used in this manual to refer to the IEEE 802.3 standard.
Token Ring	The term Token Ring is used in this manual to refer to the IEEE 802.5 standard.
00.00.00.00	Represents an IP address in examples and figures.
08-00-2B-00-00-00	Represents a MAC address in examples and figures.

Firmware Updates

Digital continuously improves the quality of DEChub products through periodic firmware releases. To ensure the high quality and interoperability of our products, you should always use the latest available version of DEChub firmware.

FTP Location

You can get information about the latest firmware releases from your Digital Reseller of the local Digital Sales Offices. You can also use ftp to access this information from the `README` file found in the `/pub/DEC/hub900/` directory. The Internet address of Digital's ftp server is `ftp.digital.com (16.1.0.2)`.

How To Register for Release Notification

Firmware updates are customer installable. To register for automatic notification of new firmware releases, return the Business Reply Card supplied with DEChub products. Alternatively, you can use the Internet by sending your name, Title, and Mailing Address to `dechub_notice@lkg.dec.com`.

Correspondence

Documentation Comments

If you have comments or suggestions about this document, send them to the Network Products Business Organization.

Attn.: Documentation Project Manager
FAX: (508) 486-6093
E-MAIL: doc_quality@lkg.mts.dec.com

Online Services

To locate product specific information, refer to the following online services:

BBS To read the Bulletin Board System, set your modem to 8 bits, no parity, 1 stop bit and dial 508-486-5766 (U.S.)

WWW The Digital Equipment Corporation Network Products Business Home Page on the World Wide Web is at the following addresses:

North America: http://www.networks.digital.com

Europe: http://www.networks.europe.digital.com

Australia: http://www.digital.com.au/networks

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To order additional documentation, use the following information:

To Order:	Contact:
By Telephone	USA (except Alaska, New Hampshire, and Hawaii): 1-800-DIGITAL (1-800-344-4825) Alaska, New Hampshire, and Hawaii: 1-603-884-6660 Canada: 1-800-267-6215
Electronically (USA. only)	Dial 1-800-DEC-DEMO (For assistance, call 1-800-DIGITAL)
By Mail (USA and Puerto Rico)	DIGITAL EQUIPMENT CORPORATION P.O. Box CS2008 Nashua, New Hampshire 03061 (Place prepaid orders from Puerto Rico with the local Digital subsidiary: 809-754-7575)
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Internationally	DIGITAL EQUIPMENT CORPORATION Attn.: A&SG Business Manager c/o local Digital subsidiary or approved distributor
Internally	U.S. Software Supply Business (SSB) DIGITAL EQUIPMENT CORPORATION 10 Cotton Road Nashua, New Hampshire 03063

Safety

Overview

Any warning or caution that appears in this manual is defined as follows:.

WARNING	Contains information to prevent personal injury.
CAUTION	Contains information to prevent damage to equipment.
VORSICHT	Enthält Informationen, die beachtet werden müssen um den Benutzer vor Schaden zu bewahren.
ACHTUNG	Enthält Informationen, die beachtet werden müssen um die Gerate vor Schaden zu bewahren
DANGER	Signale les informations destinées à prévenir les accidents corporels.
ATTENTION	Signale les informations destinées à prévenir la détérioration du matériel.
AVISO	Contiene información para evitar daños personales.
PRECAUCIÓN	Contiene información para evitar daños al equipo.

The cautions that must be observed for the hardware described in this manual are listed below in English, German, French, and Spanish.

CAUTION	This action deletes all configured settings and replaces them with factory default values. All configuration settings will be lost.
ACHTUNG	Bei diesem Vorgang werden alle Konfigurationseinstellungen gelöscht und die Werkseinstellungen wieder eingesetzt. Alle Konfigurationsdaten gehen verloren.
ATTENTION	Cette action supprime tous les paramètres de configuration et les remplace par des valeurs prédéfinies. Tous les paramètres de configuration seront perdus.
PRECAUCIÓN	Esta intervención borrará todos los parámetros de configuración y los sustituirá por valores por defecto definidos de fábrica. Se perderán todos los parámetros de configuración.

Chapter 1

Introduction

Overview

Introduction

This chapter gives an overview of how to troubleshoot problems you may encounter with DEChub networking products.

Digital's network hardware, firmware, and software are very reliable, so most of the problems that you will encounter will be due to installation, configuration, or management errors. If a problem develops after your network has been working properly for some time and you have not made any recent changes to the hardware, firmware, software, or configuration, only then should you consider the possibility of an equipment failure.

In This Chapter

Topic	Page
Common reasons for problems	1-2
Most common problems	1-3
Recommended troubleshooting procedure	1-4

Common Reasons for Problems

Most problems encountered by users are due to the following reasons:

- **The need to install the latest firmware revisions on the network devices.**
  This accounts for at least 50 percent of all reported problems. Firmware upgrades provide new functionality and sometimes fix known problems in earlier versions. Therefore, it is wise to install the latest versions of the firmware on all your network devices as soon as they are available. Refer to the Preface for information on how to obtain the latest firmware versions. When upgrading firmware versions on network modules, be sure to upgrade the DEChub 900MS Hub Manager firmware and the HUBwatch software because firmware and software incompatibility will usually cause problems.

- **A failure to configure the hardware correctly (cabling, port settings, and FDDI configurations, etc.).**
  Obviously, the hardware must be configured correctly or it will not work. For cabling information, refer to the *Open DECconnect Application Guide*. For device specific settings, refer the product documentation and the HUBwatch online help. For bridge and switch configuration information, refer to the *Bridge and Extended LAN Reference* manual and the *DEChub Network Modules 900-Series Switch Reference* manual. For FDDI configuration guidelines, refer to the FDDI appendices in the *DEChub Network Modules Configuration Guide*.

- **A failure to properly install the HUBwatch software on a PC Network Management Station.**
  Because PC hardware and configurations can vary greatly, it is impossible to design a simple PC installation procedure that works for all PCs. Therefore installers need to have some knowledge of how their PC is configured, what it has for networking software (IP stack), and which PC network interface card is installed. If you follow the instructions in the *HUBwatch Installation and Configuration* manual, this problem should be avoided. Note that this manual also contains installation troubleshooting information in an appendix.

- **Using the HUBwatch software incorrectly.**
  If you do not use the HUBwatch software correctly, you most likely will not achieve the desired results. The HUBwatch online help is designed to make management information (task descriptions), detailed descriptions of the GUI (graphical user interface), and overviews of configuration functions, such as the LAN Interconnect functionality, easily accessible. If you are not sure of how to perform a certain task, what a particular field on a management window means, or how a particular function works, use the online help to obtain that information. If you use the online help extensively, this problem should be avoided.

Most Common Problems

The most common problems that users or network manager experience are as follows:

1. Network is slow (poor performance).
2. Cannot perform the desired operation or function.
3. User cannot connect to a service or a node.
4. Network manager cannot access a network, a node, a station, or a device.
5. FDDI configuration does not work or fails after working initially.
6. LAT or Telnet sessions problems.

Recommended Troubleshooting Procedure

Figure 1-1: Troubleshooting Flow Chart

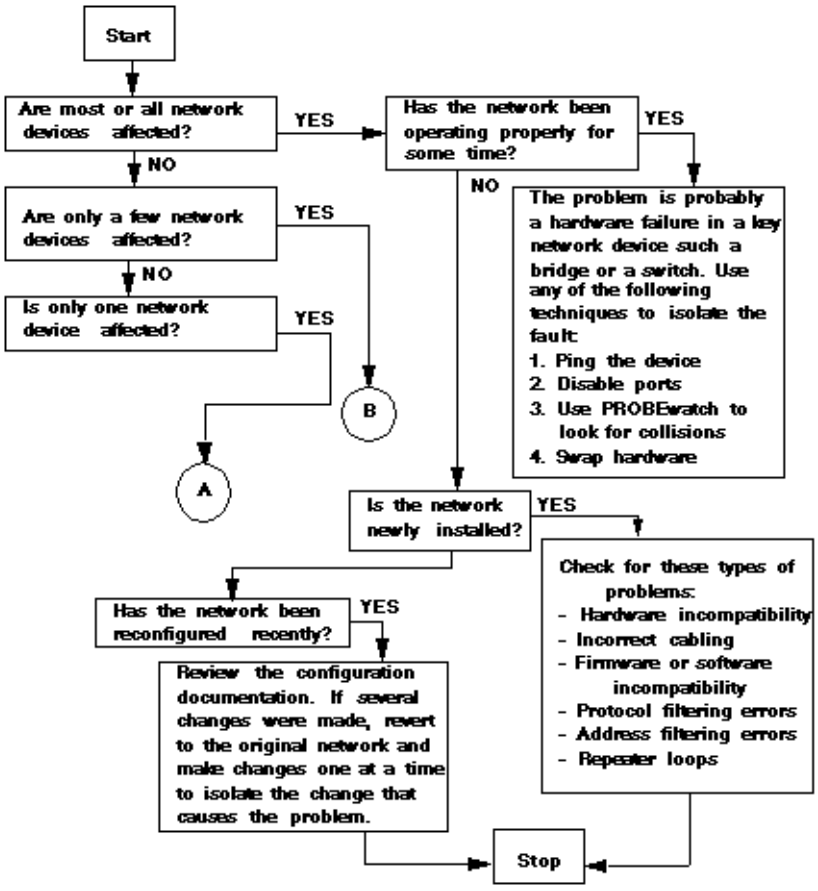

Figure 1-2: Troubleshooting Flow Chart (Cont)

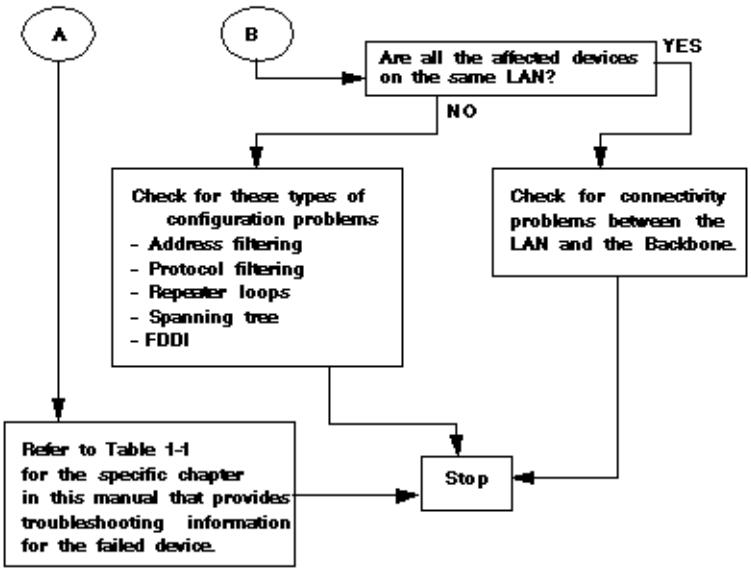

Table 1-1: Location of Troubleshooting Information

If the application or device is...	Then refer to...
DEChub 90 or 900MS	Chapter 2
HUBwatch	Chapter 3
Ethernet Repeater, DECstack, or PORTswitch	Chapter 4
Access Server	Chapter 5
FDDI Bridge, Switch or Concentrator	Chapter 6
DECbrouter	Chapter 7
DECbridge 90	Chapter 8
HUBloader	Chapter 9

Chapter 2

DEChub 90 and 900MS Problems

Overview

Introduction

This chapter contains troubleshooting information for the DEChub 90 and the DEChub 900MS.

In This Chapter

Topic	Page
Hub Configuration problems	2-2
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Hub Configuration Problems

Problem

HUBwatch does not display installed modules in a new hub.

You installed a new hub, but when you start up HUBwatch and display the Hub Front Panel window, one or more of the modules installed in the hub are either not displayed or not manageable.

Solution

Check the following things to locate the cause of the problem:

1. Refer to the HUBwatch release notes to make sure that the modules' firmware versions are compatible with the version of HUBwatch that you are using.
2. Refer to the *HUBwatch Installation and Configuration* manual and follow the instructions to ensure that you have performed all required configuration procedures correctly.

Problem

HUBwatch does not display newly installed modules in existing hub.

You installed additional modules standalone or in an existing hub, but when you start up HUBwatch and display the Hub Front Panel window, one or more of the modules installed in the hub are either not displayed or not manageable.

Solution

Check the following things to locate the cause of the problem:

1. Refer to the HUBwatch release notes to make sure that the module's firmware version is compatible with the version of HUBwatch that you are using.

2 Perform these steps to ensure that all configuration requirements are met.

Step	Action
1	If you added one of the following modules to your DEChub 90 or 900MS, use the HUBwatch Add Agent dialog box to add the module as an agent to the Agent List box in the Community Table window, being sure to specify the IP address and MAC address of the module: • DECserver 90M and 90TL • DECbrouter 90T1, 90T2, and 90T2A
2	If you added one the following modules to your DEChub 900MS, use the HUBwatch Add Agent dialog box to add an agent to the Agent List box in the Community Table window, being sure to specify the IP address of the DECagent 90 and MAC address of the module. • DECbridge 90 and 90FL • DECserver 90L and 90L+
3	Exit and restart HUBwatch. If this does not correct the problem, go to step 4.
4	Refer to the *HUBwatch Installation and Configuration* manual and follow the configuration instructions to ensure that you performed all required configuration procedures correctly.

Problem

The SNMP agent is no longer manageable.

A DEChub 900MS hub or an SNMP agent configured in either the DEChub 90 or the DEChub 900MS is no longer manageable.

Solution

This problem may be caused by mis-matched community strings between HUBwatch and the device or may develop when you change the community name of the agent in the Community Table Agent List box.

Perform these steps to correct this problem.

Step	Action
1	Is the SNMP agent the DEChub 900MS Hub Manager? If yes, do the following: • Use the DEChub Setup Port to reset the Hub Manager. If no, go to the next step.
2	Exit and restart HUBwatch.

Problem

SNA traffic is dropped doing firmware upgrade.

You upgraded the firmware of a production DEChub 900MS. The hub did a reset/ reboot and came up with the new firmware. The hub had DECrepeater 900TMs and DECswitch 900EFs installed and connections to the hub backplane LANs were fine, however, all Ethernet SNA traffic was dropped at the reboot.

Solution

SNA traffic over Ethernet is very time sensitive and any interruption in service may cause traffic to be dropped. The Hub Manager optimizes channel assignments at boot-time. If they were optimal prior to the reboot, the Hub Manager does not disconnect and reconnect anything. However, sometimes the Hub Manager causes the backplane port to go through a disconnect/reconnect cycle on reboot. This should only take about 1.5 seconds maximum. This could result in SNA traffic being dropped.

Frequently Asked Questions

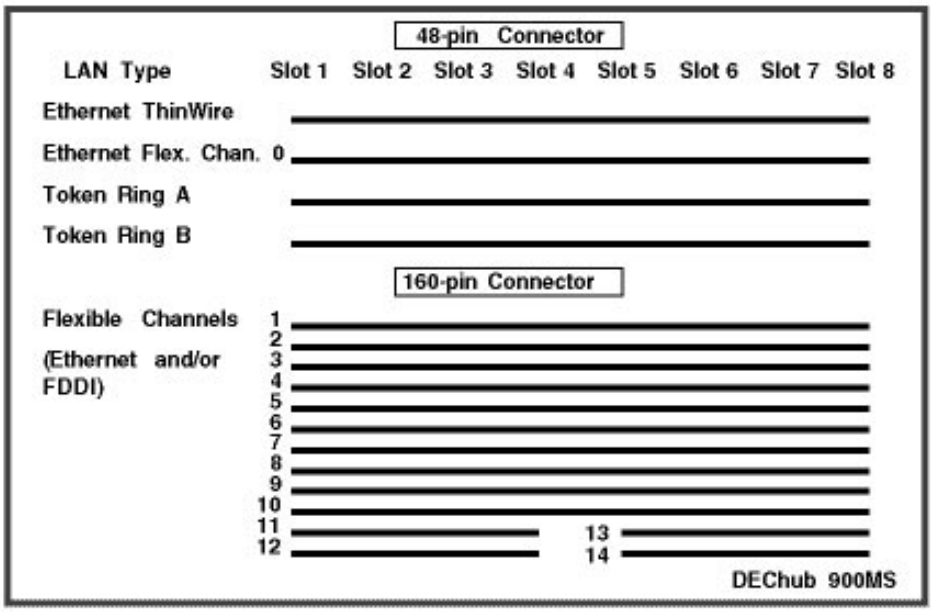
Question

What is the layout of the DEChub 900MS backplane?

Answer

The hub backplane supports a total of 18 “flex” channels. The 48-pin connector (top connector) supports four LANs—one ThinWire Ethernet, one Ethernet flexible, and two Token Ring. The 160-pin connector (bottom connector) supports 14—10 that span all 8 slots and 4 that span only 4 slots. The LANs on the bottom connector can be configured as Ethernet LANs, FDDI LANs or a mixture of both. LANs are created using the flex channels. In some cases, more than one channel is used to create the LAN. Figure 2-1 illustrates the backplane layout.

Figure 2-1: DEChub 900MS Backplane Wiring



Question

How are Ethernet LAN segments implemented on the DEChub 900MS backplane?

Answer

The DEChub 900MS supports one fixed ThinWire Ethernet LAN and one Ethernet LAN “flex” channel on the 48-pin connector (top connector) and five on the 160-pin connector (bottom connector). If you count the ThinWire LAN segment on the 48-pin connector, then the total is seven. In the future, a total of 13 will be supported.

Question

How many Ethernet LAN segments can be configured on the DEChub 900MS backplane?

Given a DEChub 900MS hub with three DECswitch 900EF modules and three PORTswitch 90OTP modules, how many Ethernet LANs can you configure on the hub backplane?

Answer

A maximum of seven—six flexible LAN segments plus the ThinWire segment. In the future, a total of 13 will be supported.

Question

How many FDDI LAN segments can be configured on the DEChub 900MS backplane?

Answer

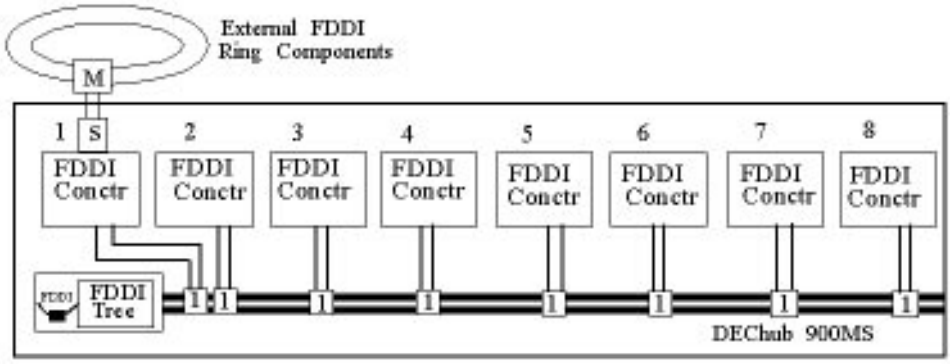
A total of four.

Question

What is the token flow in an FDDI tree Configuration and what does a tree configuration look like?

In a configuration with a DEChub 900MS fully populated with eight FDDI concentrator modules, all the concentrators are connected in a tree configuration in the hub backplane (See Figure 2-2). The tree root is in slot 1 with its port configured S-Front/M-Back. The other modules have one port configured SM-Back and are connected to the backplane LAN through that port.

Figure 2-2: FDDI LAN with Modules is a Tree Configuration



These are the questions and answers:

Questions	Answers
1. What is the token flow scheme in this configuration?	The token flow is from left to right, however, since slot 1 is the root it comes after slot 8. The token flow on the ring is slot 2>3>4>5>6>7>8>1.
2. How is the tree affected if, for example, the module in slot 4 is removed?	When a module is removed, the adjacent modules are automatically connected to each other. This is true whether FDDI Auto Healing is enabled or disabled or the hub is powered on or off. When the concentrator in slot 4 is removed, the module in slot 3 is connected to the module in slot 5.

Questions	Answers
3. What is the configuration of the tree and the token flow scheme when the module is replaced in slot 4 and reconnected to the FDDI LAN?	If FDDI Auto Healing is enabled when the module is replaced and reconnected to the LAN, the original token flow is restored. If FDDI Auto Healing is not enabled, the module is not reconnected to the LAN when it is replaced.

Question

Do **IP services modules require an Ethernet or FDDI connection to the hub backplane?**

For example, the DECswitch 900EF does not connect to a hub backplane LAN by default. In order to use that module for IP services, does it need to be connected to a hub backplane LAN?

Answer

If the NMS (network management station) running HUBwatch connects to the IP services module's front panel, either over the network or directly via a cable, then the IP services module does not have to be connected to the hub backplane. This is because the IP services connection within the hub is made through the hub management channel and that channel connects directly to the IP services module. If, however, the NMS connects to a module that does not provide IP services, for example, the DECrepeater 90FA, then the NMS must gain access to the IP services module through the hub backplane. In this case, the repeater and the IP services module must be connected to the same LAN segment on the hub backplane.

Question

What are the Hub Manager self-test codes and their meanings?

Answer

If a Hub Manager self-test code is displayed in the DEChub 900MS LCD during power up self-test, the Hub Manager module may need to be replaced.

Self-test Code	Definition
0101	CPU Test
0102	Diagnostic Code (EPROM) CRC Test
0103	M68332 Internal Memory Test
0104	Memory Data Bus Test

Self-test Code	Definition
0105	Memory Address Bus Test
0106	Protected Memory Test
0107	Refresh Timer Test
0108	Main Firmware (FLASH) CRC Test
0201	Non-Volatile Memory (EEPROM) Test (MFG only)
0202	Main Memory Quick Verify Test
0203	Main Memory Extended Test (MFG only)
0301	Bus Error timer
0302	Stuck Interrupt
0303	RTOS Event Interrupt
0304	RTOS General Timer Interrupt
0305	2681A DUART Interrupt
0306	Software Watchdog Timer Interrupt
0307	Interrupt Priority
0401	M68332 Chip Select Mapping
0402	PMCA Test
0403	2681A DUART Test
0404	2681A External Loopback Test (MFG only)
0405	Console Port Test
0406	Token Ring Relay self-test (MFG only)
0407	Secretariat Backplane Test (MFG only)
0408	Matrix Backplane Test (MFG only)
0409	Power supply Bus Test (MFG only)
040A	Temperature Monitor Test

Question

Is it possible to use SNMP to set the default gateway or netmask on the DEChub 900MS?

Answer

No. Version 4.0 and later versions of the Hub Manager and 900-series network modules support setting a default gateway address or netmask, but only via the setup port. IP address information is currently not settable via SNMP. The intent is to prevent security problems such as remote intruders changing an IP address. IP address changes can only be made locally.

Chapter 3

HUBwatch Problems

Introduction

This chapter lists and describes problems that you may encounter when installing HUBwatch or using it to manage DEChubs and networking modules.

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Installation Problems

Problem

Error message displayed on start up.

After installing HUBwatch for Windows and entering an IP address or agent name to start up HUBwatch, an error message is displayed.

Solution

Refer to the READ_ME.TXT file on the HUBwatch distribution media and the Troubleshooting appendix in the *HUBwatch Installation and Configuration* manual.

If you cannot correct the problem using the manual, check the following items:

Check These Items	Ok
Are you using the correct MIB file from the HUBwatch software distribution kit?	☐
Is WINSOCK.DLL in the path statement?	☐
Is the HUBwatch network management workstation out of memory?	☐
Is the SNMP agent *really* not responding or is it just not reachable?	☐
Note: Check this for HUBwatch for Windows V4.0 or older only. Are the HUBWATCH_LIBRARY and HUBWATCH_SYSTEM environment variables correct? These may be set but may be incorrect especially if the you are running different versions of HUBwatch. This would occur if you did not elect to modify the AUTOEXEC.BAT file. Therefore, the environment variables are pointing to and trying to run the wrong HUBwatch version, a version that was previously installed.	☐
Is WINSOCK.DLL in the same directory as HUBwatch.EXE? WINSOCK.DLL should be located in the same directory as the IP stack software. Delete the version of WINSOCK.DLL located in the directory with HUBwatch.EXE.	☐

Problem

Error displayed on start up on PC with Etherlink3 NIC card.

After installing HUBwatch on a PC with an Etherlink3 network interface card and starting up HUBwatch, the following error messages are displayed:

```
msdos LAN Manager Net Bind V2.1
Scheduler SCHK version 5.1.00
>> SCH0011 No NDIS Interrupt Activity
>> Maybe NI/IRQ set wrong or Cable not attached or
hardware/DLL broken
```

Solution

Edit the STRTNDIS.BAT file and change SCHK to SCHK /N.

Problem

HUBwatch will not run on Novell NMS.

You cannot get HUBwatch Version 4.0 to run on a Novell NMS (NetWare Management System) because you cannot get the NMS and HUBwatch to run using the same IP stack. You can get one or the other to run, but not both. The PC is set up with Novell's NMS Version 2.0c and is running the IP stack that ships with the NMS.

Solution

Refer to the READ_ME.TXT file that is included with the HUBwatch distribution software and the troubleshooting appendix in the *HUBwatch Installation and Configuration* manual.

Problem

Fatal error script line 825 occurs during the installation.

When installing the HUBwatch for windows V4.0 from the network, the following error message occurs:

```
Fatal Error at script line 825
cannot open MediaBuilder Library file
```

Solution

The HUBwatch install program does not allow files to span across directories. The HUBwatch distribution files should reside in one single directory, for example: C:\HUBWKIT\INSTALL.EXE. You can use a network file service to install HUBwatch as long as all the diskette files are placed in a single directory.

Problem

Fatal error script line 1947 occurs during the installation.

When installing HUBwatch for Windows V4.0, the installation fails and the following error message is displayed:

```
Fatal error
Fatal error at script line 1947
too many added lines
```

Solution

This error sometimes occurs in the HP OpenView set-up portion of the script installer (HUBW40.INF on diskette 1). Even if you are not using HP OpenView, you may encounter this error.

If you are not using HP OpenView, comment this section out in the HUBW40.INF file and install HUBwatch.

If you are using HP OpenView, comment this section out and install HUBwatch. Then uncomment this section, start the HUBwatch install again, and select Setup for HP OpenView from the HUBwatch for Windows installation main menu. If this fails, you will have to perform the HP OpenView integration edits manually. To see how to perform the edits manually, examine the HP OpenView section in HUBW40.INF. It should be fairly easy to see what the installation program does for you automatically.

Startup Problems

Problem

DECagent 90 Error message displayed on start up after OpenVMS V6.1 upgrade.

After upgrading OpenVMS from V5.5-2 to V6.1, the following error message is displayed when you try to invoke HUBwatch on a DECagent 90: "The front panel type is unknown."

Solution

Reset the DECagent 90 to factory defaults and then restore it to the previous parameters.

Problem

Error message occurs on startup.

After installing HUBwatch for Windows and entering an IP address or agent name to start it up, an error message is displayed.

Solution

Refer to HUBwatch Installation Problems in this chapter.

Problem

Error message on start up on VAXserver 3600.

When attempting to start HUBwatch from a VAXserver 3600 and display it to a VAXstation 2000, the following error message is displayed:

```
$ WATCH/AGENT msir01

HUBwatch for OpenVMS, Revision V4.1.1
(I) HUBWATCH$LIBRARY = SYS$LOGIN
(W) Using community public
(W) Agent type DETMM found for 130.237.217.223
X Toolkit Warning: I18NOpenFile: Couldn't open file
decw$system_defaults:hub_gsw_gui_lc_sum.uid - MrmFAILURE
Failed to fetch UID files for hub type 16
```

Solution

Increase the Fillm parameter to 160.

Problem

Numerous toolkit warnings and fatal errors on start up.

Numerous X Toolkit warnings and fatal errors occur when using HUBwatch for Digital UNIX on a DEC 3000 Model 600. The errors do not occur when displaying to other nodes. The following error messages are an example:

```
# hubwatch -a idglabdechub900 & [1] 1034

HUBwatch for Digital UNIX, Revision V4.1.1
Warning: Couldn't allocate color #0000698c8f5b
(I) HUBWATCH_LIBRARY = /usr/kits/HUBwatch
(I) HUBWATCH_LIBRARY = /usr/kits/HUBwatch
(I) Using community "public"
(I) Agent type Hub900 found for 16.127.96.14
X Toolkit Warning: Cannot allocate colormap entry for
"#0000698c8f5b
Warning: Couldn't allocate color #FA94DA46C193
X Toolkit Warning: Cannot allocate colormap entry for
"#696969696969"
```

Solution

HUBwatch for Digital UNIX does not handle colors very well when other applications are currently invoked that potentially use many colors, such as NetScape. Try exiting non-critical applications and see if this helps.

Windows Problems

The following problems are may occur in the HUBwatch management windows. For example, the Hub Front Panel window, the LAN Interconnect window, or the Environmental Summary window.

Problem

Changes not shown in Front Panel window.

You made changes to modules installed in the hub, but HUBwatch does not show the changes in the Hub Front Panel window or the module windows.

Solution

Check that HUBwatch is polling and that Polling is not Disabled.

To correct this problem, use the Option pulldown menu on the Hub Front Panel window to either Enable polling or Refresh the HUBwatch windows.

Problem

OK and Apply buttons not sensitized.

Selecting and deleting all text in window text fields does not always cause the Apply and OK buttons to be sensitized.

Solution

Type a character in the text field to cause the Apply and OK buttons to sensitize.

Problem

Start up problem on a Highnote PC.

You installed HUBwatch on a Highnote PC, but when you try to make a connection to a hub, you get the message: "Not enough conventional memory."

Solution

Your PC have too many components loaded in conventional memory. Remove some components to free up conventional mememory. To examine PC memory layout, type the MEM command (MEM/c) at the DOS prompt. Most applications require a minimum of 300 Kbytes of conventional memory to run. Refer to the MS-DOS online help for a description of the Mem command and its switches.

Problem

Displays are different on different platforms.

With HUBwatch V4.1 installed, there are differences between the MS-DOS platform and the Digital UNIX platform. In the Environmental summary, the MS-DOS platform shows the fans on the DECconcentrator 900MX as yellow, but the Digital UNIX platform shows them as red. In addition there were differences in the firmware versions shown for some modules.

Solution

None. This is a known problem to be fixed in a future release.

Problem

Colors lost in hub Front Panel window on PC.

When HUBwatch starts, the colors in the Hub Front panel are correct, but after selecting different modules and views, the window colors are lost and some windows are displayed with portions blanked out. The system is a Compaq Pentium PC running MS-Windows V3.1.

Solution

From the MS-Windows Program Manager, open the Main group and display the Windows Setup. If the Display driver is a Compaq proprietary one, try changing it to a straight VGA driver.

Problem

Empty hub displayed when using SLIP.

When HUBwatch is invoked using SLIP on a workstation running the Digital UNIX operating system, an empty DEChub 900MS is displayed.

Solution

The problem may be SNMP timeouts. Enable SNMP_TRACE and watch the SNMP traffic. If timeouts are occurring, edit the HUBwatch resource file or increase the SNMP timeout by means of the -t switch when you invoke the HUBwatch startup command.

To invoke SNMP_TRACE, follow these procedures:

- For OpenVMS:

  a `$ DEFINE SNMP_TRACE 1`

  b Invoke HUBwatch.

- For Digital UNIX:

  a `> setenv SNMP_TRACE`

b Invoke HUBwatch.

- For MS-Windows:

  a Invoke HUBwatch.

  b Depress and hold Ctrl/Shift and double click on the right mouse button.

  c Select **Message Box** from the HUBwatch Front Panel **View** pull-down menu. The HUBwatch Message Box appears.

  d A message should appear in the Message Box indicating that SNMP_TRACE is enbled. Each time you depress and hold Ctrl/Shift and double click the right mouse button, SNMP_TRACE is toggled on/off.

LAN Interconnect Configuration Problems

Problem

Actual hub configuration does not match the LAN Interconnect window.

The actual configuration of the hub does not match the configuration displayed by HUBwatch. For example, the LAN Interconnect window shows an FDDI bridge or concentrator port switched to the module backplane, but the module front panel LEDs show that the port is switched to the module front panel.

Solution

This problem develops if HUBwatch loses synchronization with the Hub Manager.

Do the following to correct the problem:

Step	Action
1	Click on **Refresh** in the LAN Interconnect Summary window. If this does not correct the problem, go to step 2.
2	Is polling Enabled or Disabled? If Enabled, go to step 3. If Disabled, click on **Refresh** on the Hub Front Panel window and click on **Refresh** in the LAN Interconnect Summary window again. If this does not correct the problem, go to step 3.
3	Click on Exit in the File pulldown menu on the Hub Front Panel window and start up HUBwatch again. If this does not correct the problem, you need to reset the Hub Manager to factory defaults. Go to step 4.
4	Execute the Reset with Factory Defaults option at the Hub Setup port.
5	Some time after the Hub Manager begins self-test (rebooting), power cycle the hub by unplugging the hub power cord and plugging it in again.

CAUTION

Resetting the hub to factory defaults deletes all configuration settings in the Hub Manager and replaces them with factory default values. Therefore, you must reconfigure the DEChub 900MS.

Problem

HUBwatch rejects attempts to make or delete connections to LAN segments.

Solution

There are several possible problems:

1 The destination LAN type may not be incompatible with the module's backplane connection.

1 HUBwatch has lost synchronization with the Hub Manager. Do the following to correct the problem:.

Step	Action
1	Click on Refresh in the LAN Interconnect Summary window. If this does not correct the problem, go to step 2.
2	Is polling Enabled or Disabled? If Enabled, go to step 3. If Disabled, click on **Refresh** on the Hub Front Panel window and click on **Refresh** in the LAN Interconnect Summary window again. If this does not correct the problem, go to step 3.
3	Click on Exit in the File pulldown menu on the Hub Front Panel window and restart HUBwatch.

2 You are trying to connect DECrepeater 90FS or 90TS modules to more than one flexible LAN segment. If you have two or more DECrepeater 90FS or 90TS modules in your hub, you must connect port 2 on all of them to the same Ethernet flexible LAN segment. DECrepeater 90FS and 90TS modules are half-height modules; therefore, the Hub Manager can only connect port 2 of these modules to the single flexible LAN segment on the top backplane connector.

3 There are no more Ethernet flexible channels available on the hub backplane for connecting repeaters. You cannot connect repeater modules to more than six Ethernet flexible channels on the hub backplane.

4 There are no more channels available on the hub backplane. The hub backplane supports a maximum of 18 channels. The top row of backplane connectors supports four channels: one ThinWire channel, two token ring channels, and one flexible channel. The bottom row of backplane connectors supports 14 flexible channels. The flexible channel on the top row can be used only for an Ethernet LAN. The 14 flexible channels on the bottom row can be used for Ethernet or FDDI LANs. Each Ethernet flexible LAN segment with any number of modules connected to it uses one channel. For FDDI LAN segments, the total channels used depends on whether the ring is closed within the hub backplane or outside

the hub. In a closed-ring configuration, each FDDI LAN segment uses two channels for each pair of connected ports between different modules. In an open-ring configuration, each FDDI LAN segment uses two channels for each pair of connected ports between different modules less two. For example, a LAN configuration that consists of four FDDI modules in an open-ring configuration uses six channels ($2n - 2 = 6$, where n equals the number of FDDI modules).

5 The Hub Manager has not allocated the flexible channels on the hub backplane in an optimal manner. If you know your configuration has not used all of the 15 available flexible channels, do the following to correct the problem.

Step	Action
1	Disconnect all of the FDDI modules from the LAN segments.
2	Reconnect the FDDI modules in ascending order starting with the module in the lowest numbered slot.

6 The Hub Manager needs to be reset to factory defaults. Do the following to reset the Hub Manager.

Step	Action
1	Execute the Reset with Factory Defaults option at the Hub Setup port.
2	While the Hub Manager is doing self-test (rebooting), power cycle the hub by unplugging the hub power cord and plugging it in again.

CAUTION

Resetting the hub to factory defaults deletes all configuration settings in the Hub Manager and replaces them with factory default values. Therefore, you must reconfigure the DEChub 900MS.

Problem

Lost communications to hub after backplane connections deleted.

You deleted connections to the hub backplane LAN segments and now your NMS cannot communicate with the hub.

Solution

You disconnected the DEChub 900MS IP Services module from the network and HUBwatch lost communications with the hub.

To reestablish communications with the hub, do one of the following:

- Use the out-of-band management (OBM) port to access the hub using HUBwatch and reconnect the IP Services module to the network (for Windows and UNIX platforms only).
- Use the hub setup port to designate a hub network module that is reachable from the HUBwatch network management station as the IP Services module.
- Connect the workstation running HUBwatch to an enabled front panel port on the IP Services module.

SNMP and Community Management Problems

Problem

DECagent 90 community strings missing or communities not reachable.

When you access the Community Table window and select a DECagent 90 agent, you either do not see any community strings or the strings are displayed but you cannot make a connection to them.

Causes and Solutions

This problem could be caused by any of the following six conditions.

1. The agent may be unreachable. Check the network connections.
2. Check that the default community is currently selected. The default community is the community established when the DECagent 90 is initially configured with an IP address. You create all subsequent communities for that agent using the Community Table window.
3. You may have set a filter on the bridge that prevents access to the agent. Do the following to correct this problem.

Step	Action
1	Check bridge filtering to see if the agent can be accessed. If the agent cannot be accessed, go to step 2.
2	Reconfigure bridge filtering to allow access to the agent.

4. Another hub could be using that agent for management. If this is the case, no corrective action is necessary.
5. You could have accidentally deleted the agent from the community. To correct this problem, add the agent to the community.
6. You may have incorrectly entered the name of the default community. Do the following to correct this problem:

Step	Action
1	Check the Community Name field of the agent.
2	Try using "public" as the community name. The default community name is usually "public."

If none of these conditions apply and you still cannot see community strings, do the following.

Step	Action
1	Try a soft reset of the DECagent 90. If this does not correct the problem, go to step 2.
2	Turn off power to the agent, then turn it on again. If this does not correct the problem, go to step 3.
3	Do a factory reset. If this does not correct the problem, go to step 4.
4	Attach a terminal to the agent setup port.
5	From the Console menu, select the Restore Factory Settings option. This makes the agent forget everything it knows about any communities except for itself in the community public.

Problem

New community string discarded.

You can access the Community Table window, but when you attempt to add a new community, the new community string is discarded.

Solution

Make sure you are entering a unique community string. If you attempt to create a new community using a name that already exists in another community, HUBwatch ignores your request.

Problem

HUBwatch does not automatically learn all the SNMP agents.

Solution

HUBwatch stores the agent list in the Agent file. Currently, there is no way to automatically add an agent to the file and to the Agent list box on the Community Table window. Therefore, this information must be manually added to HUBwatch. Use the Manage Table window to add SNMP agents.

Performance Problems

Problem

HUBwatch is running slowly.

Solution

There will be times when HUBwatch performance will vary. However, if HUBwatch performance seems particularly slow relative to other periods in time, there may be a problem. If performance is slow, first verify that the following two requirements are met:

1. The system parameters on your network management station (NMS) are set according to the specifications in the HUBwatch software release notes.
2. Your NMS has the minimum required memory as specified in the Software Product Description (SPD).

Then check the Timeout and Retries values for the current agent. If you set large values for these parameters, HUBwatch may appear to hang for long periods of time.

NOTE

If either Timeout or Retries is set to zero, HUBwatch uses the default value. The Timeout default value is 5 seconds. The Retries default is 1.

If the above requirements are met, then heavy network traffic could be causing a slowdown of HUBwatch. HUBwatch uses the network to communicate with the hub and standalone modules.

Do the following to reduce network traffic and improve HUBwatch performance.

Step	Action
1	Reconfigure filtering on the bridge to reduce unnecessary network traffic.
2	If possible, connect the network management station running HUBwatch to the same LAN segment as the agent that you are managing.

Problem

Empty hub displayed.

When you use an unavoidably busy network, sometimes HUBwatch shows you a view of an empty hub, even though, a short time before, a populated hub was displayed.

Solution

When your network is very busy you may want to increase the agent's Retry or Timeout values. This will result in the agent being more persistent in its attempts to get the information that you need; however, HUBwatch performance may suffer.

Alarms Traps Problems (OpenVMS only)

Problem

HUBwatch Poller Viewer is not receiving events.

Solution

If the HUBwatch Alarms Poller is invoked through the HUBWATCH$STARTUP.COM command procedure, it must be invoked after the DECwindows shareable images have been installed. Otherwise, the HUBwatch Alarms Poller, which uses several DECwindows shareable images, will not run.

To correct this problem, use the Applications pull-down menu on the Hub Front Panel window to open the Alarms Setup window and click on the Alarms Poller push button.

Problem

Traps not being received for Access Server modules.

You added a DECserver 90M, 90TL, 900GM, or 900TM to the Alarmed Agents file and enabled traps, but no traps are being received.

Solution

This problem occurs because the HUBwatch Alarms software cannot add a trap address to Access Server modules. The Access Server modules do not support this function.

To correct this problem, perform this step.

Step	Action

1	For DECserver 90M, 90TL, 900GM, and 900TM, you must Enable traps on the terminal server module and specify the IP address of the management workstation that is to receive the traps.
	To do this, enter the following commands at the terminal server's local console:
	`LOCAL> Set Priv`
	`LOCAL> <password>`
	`LOCAL>Change SNMP community <community_name> address <ip_address>`
	`LOCAL> Change SNMP community <community_name> trap enabled`
	Where:
	• Community_name is the community name to be used to receive traps. For example: trap_com.
	• IP_address is the address of the network management station running HUBwatch.
	Note: When you add the traps agent to the Alarmed Agents list box in the Alarms Setup Window, be sure to use the traps' community name (for example, trap_com) along with the IP address of the Access Server module.

The following example shows a terminal server module that is properly configured to send traps to HUBwatch:

```
LOCAL> Show SNMP

SNMP State: Enabled          Authentication Failure:
                             Enabled

Community      Address    GET   GET/NEXT    SET    TRAP
Name

Public         Any        ENA   ENA         ENA    DIS

Traps_com      00.00.0    ENA   ENA         DIS    ENA
               0.00
```

Alarms Traps Problems (OpenVMS only)

Problem

Traps not being received.

Your network management workstation is receiving traps from a DEChub 900MS hub but not from individual modules installed in the hub.

Solution

To receive traps from an individual module, the following requirements must be met:

- The module must have its own IP address.
- The module must be listed in the Alarmed Agents file with its IP address and have Traps enabled.
- The Alarms Poller must be running.
- The module must be reachable from the HUBwatch network management station.

Modules that do not have an IP address can not send traps to a network management station even though the hub that contains the module is sending traps for the hub chassis.

Problem

Traps not being processed correctly.

Your NMS (network management station) is receiving traps from the HUBwatch Alarms application and the DECmcc TCP/IP trap sink at the same time, but the traps are not being processed correctly.

Solution

To use the HUBwatch traps capability, the DECmcc TCP/IP trap sink must be stopped first. Perform these steps to stop the DECmcc TCP/IP trap sink:

```
$ SHOW SYSTEM

(process display is printed; look for MCC_TCPIP_SINK

$ STOP /ID=nnnnn (where nnnnn is the pid of MCC_TCPIP_SINK
process)
```

Conversely, to receive traps with DECmcc, the HUBwatch Event Daemon must be stopped first.

Perform these steps to stop the HUBwatch Event Daemon:

```
$ SHOW SYSTEM
(process display is printed; look for NMS_EVENTD)

$ STOP /ID=nnnnn (where nnnnn is the pid of NMS_EVENTD
process)
```

Online Help Problems (Not Applicable to HUBwatch for Windows Help)

Problem

Context Sensitive help question mark disappears.

You click on Context Sensitive in the Hub Front Panel Help pull-down, but the question mark changes to a pointer before you can click on the label on which you want help.

Solution

This is not a system fault, but rather a characteristic of Motif Windows Help.

To avoid this problem, do either of the following things:

- Shrink or move the Hub Front Panel window until the module window on which you want help is in full view. Then click on the Context-Sensitive help option in the Help pull-down menu and move the question mark over the label and click.
- Or, type the keyboard accelerator Ctrl/c, move the question mark over the label, and click.

Problem

Error message displayed when attempting to access help.

You attempt to access online help, but an error message is displayed stating that the help file cannot be found.

Solution

This problem may develop if you use HUBwatch online help frequently and your NMS reaches its OpenVMS Process File Limit.

To correct this problem:

Step	Action
1	Exit HUBwatch to close the Bookreader files.
2	Start up HUBwatch again.

To reduce the chance that this problem will occur again, increase the OpenVMS FILLM parameter. Refer to the System Parameters in the HUBwatch release notes for the recommended setting.

Repeater Management Problem

Problem

Attempts to disable repeater ThinWire port fail.

Using a repeater window, you attempt to disable a repeater backplane ThinWire port (BP) on a repeater module that is installed in the DEChub 900MS and its ThinWire port is connected to a hub backplane LAN segment, but HUBwatch does not respond.

Solution

The repeater backplane ThinWire port (BP) cannot be disabled from any of the repeater windows if the repeater is installed in the DEChub 900MS. If you attempt to do this, you will receive a "BadValue" SNMP response.

To disable the port, open the LAN Interconnect window and disconnect the port from the hub backplane ThinWire segment.

Frequently Asked Questions

Question

How do you use HUBwatch to change a read-only community name so that it is different from the read-write community name?

Answer

You cannot use HUBwatch to change the any community names. However, to accomplish the same thing from a security stand point, use the Setup Port on the hub or module to change the read-write community name to something other than public. The result is that users can use public to read community information but cannot use public to modify (set) community information.

Question

When HUBwatch receives an IP Trap, is there a way to sound an audible alarm?

Answer

Note that HUBwatch for OpenVMS is the only version of HUBwatch that supports traps of any kind.

To enable or disable the audible alarm, open the HUBwatch Alarms Events Viewer window, there is a menu item that produces a pop-up window. In that pop-up window, you can turn the audible beep on and off, and change its volume.

Question

What is the effect of traps on icons of HUBwatch Front Panel windows?

If you have all of the HUBwatch DEChub front panel displays reduced to icons when a trap is received, will the icon that received the trap provide some form of visual indication so that you do not have to open up each icon to see which hub sent the trap?

Answer

No. Traps do not affect on HUBwatch windows.

Question

Is it possible to access HUBwatch online help even though you cannot access a DEChub?

Answer

Yes. The access method depends on the operating system that you are using to run HUBwatch.

- For MS-DOS (Windows), use the File Manager to access howto.hlp in the HUBwatch directory.

- For Digital UNIX, use Bookreader to access /usr/lib/help/hubwatch.decw_book.
- For OpenVMS, use Bookreader to access SYS$HELP:HUBWATCH.DECW$BOOK.

Question

What is the meaning of the repeater gauges?

What is the meaning of the gauges on the HUBwatch 900-series Repeater Summary window and Repeater Port Summary window?

Answer

For a description of the gauges, access the online help by clicking on the Help button in the window that contains the gauges. For example, in the HUBwatch for Windows help for the Repeater Summary window, click on Port Table and then click on either Offered Load %, Collision %, or Invalid Frames %. In the help for the Repeater Port Summary window, click on Performance and then click on the either Octets/Sec, Frames/Sec, or Errors/Sec.

Question

How are thresholds set on repeater gauges?

How do you set the thresholds on the gauges on the HUBwatch 900-series Repeater Port Summary window?

Answer

For instructions on how to set the thresholds, access the online help by clicking on the Help button on the Repeater Port Summary window. For example, in the HUBwatch for Windows help for the Repeater Port Summary window, scroll to the heading "Use this Window to," and click on "Set Up the Repeater Port Performance Monitors."

Question

Can repeater counters be reset?

Answer

No.

Question

How does the Find Address option work?

Does it find addresses of workstations connected to bridges or devices connected to Access Servers?

Answer

The Find Address option only finds addresses of stations connected to repeaters that are listed in the HUBwatch Agents file. It does not find addresses of stations connected to other types of network modules such as bridges, concentrators, and Access Servers.

Question

Is there a way to control or limit the scope of the HUBwatch Find Address and Find Duplicates functions.

Answer

Yes. The Find functions use the list of repeaters and hubs listed in the HUBwatch agents file to perform the search. If you do not want the Find function to query a particular repeater or hub, delete it from the agents file.

Question

Will the backup and restore application, clearVISN Resilience, be added to HUBwatch?

Will a future version of HUBwatch have backup and restore capability so that module configurations can be saved and restored? If so, will Access Server modules be among the network devices supported?

Answer

No. The backup and restore product, clearVISN Resilience, is packaged and shipped separately. The Access Server modules will not be supported by clearVISN Resilience. TSM (Terminal Server Manager) provides configuration management for Access Server modules. In the future, all clearVISN applications, including HUBwatch and Resilience, will be more fully integrated.

Question

What *module* temperatures produce yellow and red alerts?

At what temperatures does the HUBwatch Environmental Summary window show yellow and red temperature alerts for modules?

Answer

In modules released prior to the release of HUBwatch V4.0:

Color	Range	Result
Yellow	30 to 35C ambient	Fan Speed bumped up from slow to fast. Modules should continue to run.
Red	60 to 70C ambient	Module initiates orderly shutdown

In modules released with HUBwatch V4.0 or later:

Color	Range	Result
Green	30 to 35C ambient	None.
Yellow	45 to 50C ambient	Fan Speed increased from slow to fast. Module should continue to run.
Red	60 to 70C ambient	Module initiates orderly shutdown.

Question

What *hub* temperatures produce yellow and red alerts?

At what temperatures does the HUBwatch Environmental Summary window show yellow and red temperature alerts for the DEChub 900MS hub chassis?

Answer

Color	Range	Result
Yellow	65C ambient	Fan Speed increased from slow to fast. The hub should continue to run.
Red	72C ambient	The hub initiates orderly shutdown

Question

Is there a document that defines the MIBs used by HUBwatch?

Answer

A list of all the MIB variables used by HUBwatch is included on the software distribution kit. The file names for the various operating system are as follows:

- MS-Windows for DOS: hw_mib.dat
- Digital UNIX: hubwatch_mib_master
- OpenVMS: hubwatch_mib_master.dat

You can use ftp to access the MIBs from the `/pub/DEC/hub900/` directory. The Internet address of Digital's ftp server is `ftp.digital.com (16.1.0.2)`.

Question

Does HUBwatch provide the functionality to reload or reset the DEChub 900MS?

Answer

This functionality was provided in HUBwatch in the version 4.1 release.

Question

How do you use the read/write community string to restrict users' privileges?

How do you use the HUBwatch read/write community string for security on SNMP devices to restrict users from setting device configuration parameters?

Answer

You can set two community strings on SNMP devices, a read/write community string and a read-only community string. Both strings are set to public by default. To restrict users to read-only privileges, change the read/write community to something other than public. Users will still be able to read device parameters but not set them.

Question

How does HUBwatch, installed under HP Open View on SunOS, determine device names?

How does HUBwatch, installed under HP OpenView on SunOS, determine device names in an autotopology mode, that is, how does the IP address get used or is it the MAC? To ask this question another way, regarding autotopology, since the network management software is implemented down to the card level, how is the system name derived?

Answer

HP OpenView netmon only discovers IP addresses. It uses the IP addresses not MAC addresses. HUBwatch for SunOS provides oid_to_type, oid_to_sym files, and the HUBwatch icon for HP OpenView launchability. During the discovery process, HP OpenView figures out that the device is a Digital device and then associates it with the HUBwatch icon.

Question

Does HUBwatch recognize a WANrouter 90 and 90EW when they are installed in a hub?

Answer

Currently, HUBwatch does recognize the DECwanrouter 90, but not the DECwanrouter 90EW. However, router management is not yet available.

Question

Can selected duplicate addresses on repeater ports be suppressed when using the Find function?

When using the HUBwatch Find function a problem occurs. The network consists of eight DEChub 900MS hubs with FDDI modules and repeaters 900TMs. The network management tool is POLYCENTER with HUBwatch. The problem is due to a connection between a DECrepeater 900TM and a DECswitch 900EF which serves as

an interconnection between two hubs. The interconnecting repeater port remembers stations communicating across the link. However, these stations are also connected to specific ports of other repeaters in the network. The Find Duplicates function correctly displays each of these stations as duplicate addresses. Though this is the expected behavior, the function would be more useful if such known configuration points could be isolated and excluded from the Find function. Is there a way to do this?

Answer

No.

Question

Is it possible to launch multiple sessions of HUBwatch on a single workstation or PC?

Answer

Multiple sessions can be launched on a workstation running Digital UNIX, HP-UX, OpenVMS or SunOS operating systems, but not on a PC.

Question

Is it possible to set up more than one read/write community on a module or a hub?

Answer

Currently the modules and hubs are limited to one read/write community and one read-only community. This limitation is due to the relatively small amount of non-volatile memory (NVRAM) on older modules.

Question

Is it possible to run HUBwatch using SLIP through a modem connected to the OBM port of a DEChub 900MS?

Answer

Yes, but on Windows and UNIX platforms only. That is exactly how the OBM port is intended to be used. For instructions on how to do this, refer to the *DEChub 900MS Owner's* manual and the *HUBwatch Installation and Configuration* manual.

Question

Is it possible to run HUBwatch using PPP or Telnet?

Answer

You cannot use Telnet to run HUBwatch. You cannot use PPP to run HUBwatch over an OBM (out-of-band management) connection. However, you can use PPP to make a serial connection to an Access Server module in a hub and then use HUBwatch to connect to the hub using in-band management via the IP Services module in the hub.

Question

How does the HUBwatch Find Duplicate Addresses function work?

Answer

The Find Duplicate Addresses function queries the agents in the HUBwatch agents file to see if any of them are reporting that they have seen the same MAC address. If they have, then HUBwatch reports the location being reported for that address. If you have a station (PC) connected to a port on a repeater, then the MAC address of that station will be reported by all ports that have received packets with that station's MAC address as the source address.

This is not an indication that anything is necessarily wrong. However, if you see the same MAC address being reported off more than one port on the same repeater (as an example), then this could indicate a problem such as a loop or more than one station with the same MAC. On the other hand, if you look at the addresses reported and it looks like a map of repeater ports to which the station is connected, then that is normal and healthy.

There may be times, however, when the Find Duplicate Addresses function does not detect and display some addresses that fit the above criteria. This may occur because of the limited capacity of repeaters to store all the addresses seen. For an address to show up as a duplicate, it has to be in the table of two or more repeaters when they are queried by the Find Duplicate Addresses function. If the second repeater's table is full, however, by the time the second repeater's agent is queried the address may have been replaced by that of another station. Also, according to the erptr MIB, addresses that have not been seen for a reasonable amount of time may be flushed. The size of the repeater's table (erptrAddrDBPortAddrtable) and the existence of address flushing are implementation dependent. If the same addresses continually show up while others do not, then this probably means that the ones that show up are the heaviest talkers on the Ethernet. If this is the case, then other addresses should show up occasionally.

Question

Does HUBwatch have a built-in SNMP trace facility? If so, how is it invoked?

Answer

No, not officially. HUBwatch does have an UNSUPPORTED SNMP trace facility, which means that if you use it and have problems, Digital will not provide any additional help.

To invoke SNMP_TRACE, follow these procedures:

- For OpenVMS:

  a `$ DEFINE SNMP_TRACE 1`

  b Invoke HUBwatch.

- For Digital UNIX:

  a > `setenv SNMP_TRACE`

  b Invoke HUBwatch.

- For MS-Windows:

  a Invoke HUBwatch.

  b Press and hold Ctrl/Shift and double click on the right mouse button.

  c Select **Message Box** from the HUBwatch Front Panel **View** pull-down menu. The HUBwatch Message Box appears.

  d A message should appear in the Message Box indicating that SNMP_TRACE is enbled. Each time you depress and hold Ctrl/Shift and double click the right mouse button, SNMP_TRACE is toggled on/off.

Question

Is there a limit to the number of SNMP agents that can be defined in the HUBwatch agents file?

Answer

Yes. Currently, the maximum number is 256. A future release of HUBwatch will support an unlimited number of agents. Even with the current limit, however, it is important to note that not all agents need be defined in the agents file. There are very few modules that need to be in the agents file (Only DECbridge 90's, DECserver 90L's, hubs that have repeaters modules that are used for the Find Address function, and any agents to which you want easy access need to be there). You do not need to put every agent in that file. In fact, both UNIX and OpenVMS versions of HUBwatch will do an ARP cache search for any agent name you specify on the HUBwatch startup and translate the agent name into an IP address. For example:

- For UNIX: `# hubwatch -a myagent`
- For OpenVMS: `$ WATCH /AGENT myagent`

If, however, you require that more than 256 SNMP agents be in the agents file, then consider having two agents files. To define two agents file, do the following on OpenVMS:

Step	Action
1	To define the first agents file, enter these commands: • `$ DEFINE HUBWATCH_LIBRARY <directory with first agents file>` • `$ WATCH /AGENT <ip address>`
2	To define the second agents file, enter these commands: • `$ DEFINE HUBWATCH_LIBRARY <directory with second agents file>` • `$ WATCH /AGENT <ip address>`

Question

Can you use HUBwatch to reset the DEChub 900MS Hub Manager or is the Setup Port the only means of doing this?

Answer

HUBwatch V4.1 or later provides this capability.

Chapter 4

Ethernet Repeater, DECstack, and PORTswitch Problems

Introduction

This chapter lists and describes problems that you may encounter when installing or using Ethernet repeater and PORTswitch modules.

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Cabling Requirements

If you do not use the correct cables when you connect the repeater module to the network or to user stations (such as PCs and workstation), the repeater will not work.

For a complete listing of the correct cables for each type of repeater module and a cabling diagram of a typical installation, refer to the *OPEN DECconnect Applications Guide.*

Configuration Problems

Problem

Adding one hub breaks the network.

A network of 10 hubs works fine, but when 1 more hub is added, HUBwatch cannot access or manage 2 or 3 of the 11 hubs. All the hubs are DEChub 900MS hubs with DECrepeater 900TM modules providing IP services.

Either of the following actions corrects the problem:

- Reset management modules in the Hubs that cannot be accessed using HUBwatch or Ping.
- Remove and re-insert the IP services modules in the hubs that cannot be accessed using HUBwatch or Ping.

Solution

All hubs are strictly independent of one another. Adding a hub to a network should not cause any reconfiguration of IP services in another hub. If the new hub or one of its modules has the same IP address as the IP services module in an existing hub, communications would be disrupted to those two hubs, but not to others.

A temporary repeater loop could cause this problem. A loop could cause a blast of frames to the repeater providing IP services that would knock the module from the "Up" state to the "Unknown" state. If the module oscillates quickly several times between these two states, the Hub Manager might deconfigure the IP services module.

Problem

DECrepeater 90T+ is not shown in DEChub 90.

A DEChub 90 is configured with three DECrepeater 90T+ modules and a DECrepeater 90FS. After setting up the IP address on the DECrepeater 90FS and starting up Hubwatch V4.1, a DEChub 90 Backplane with a DECrepeater 90FS is displayed, but the slots containing the DECrepeater 90T+ module show up as empty.

Solution

Make sure that the DECrepeater 90FS is running firmware version 2.0.0 or later.

Management Problems

Problem

HUBwatch Message Box displays: "RPT900 Missing LED Data."

HUBwatch shows the Port State LEDs as off on the front panel of a PORTswitch 900CP or 900TP and then displays the following message in the HUBwatch Message Box when a refresh is done.

```
"RPT900 Missing LED Data..."
```

Solution

This message is due to HUBwatch not handling the MIB information properly. Currently, when the Momentary LED Cycle button located on the physical front panel bezel of a PORTswitch 900CP or 900TP is depressed, the firmware only returns the information on the LEDs shown on the module. HUBwatch unfortunately takes this to mean that not all the LED information is available and takes the action described above.

Problem

DECrepeater 90FS and 90TS modules disappear

When managing other DECrepeater 90FS and 90TS modules in a 8-slot DEChub 90, 16-slot DEChub 90, or a Digital MultiStack System via DECrepeater 90FS or 90TS agent, the managed DECrepeater 90FS and 90TS modules occasionally disappear in one HUBwatch poll and reappear in another. This problem occurs with both in-band and out-of-band management, but it is more pronounced in OBM mode.

Solution

This is a known problem in HUBwatch V4.1. A refresh of the HUBwatch front panel is usually sufficient to get a full view of the DEChub 90 or Digital MultiStack System.

Problem

Management control of Hub Master lost

When a DECrepeater 90FS or 90TS is acting as an agent, if the DECrepeater's Hub Master is currently enabled and then it is toggled in the Agent Summary view to Disabled and then Enabled again, management control of the Hub Master is lost.

Solution

Press the Reset button in the Agent Summary view to regain full SNMP management control of the hub or Digital MultiStack System.

Frequently Asked Questions

Question

Why is it that collisions on one DECrepeater 900FP port do not propagate to other ports on the same repeater?

Answer

A collision by definition is the existence of more than one station transmitting at a time. Collisions are detected by DC levels (for coaxial links) or simultaneous transmit and receive activity (for twisted pair or inter-repeater links) on the media. A repeater does not propagate collisions, rather, it enforces the collision throughout its collision domain by sending out a 96-bit jam signal. The jam signal prevents any other stations on the segment from transmitting (unless they are broken) until all other stations in the collision domain have stopped transmitting. Digital repeaters use alternating 1's and 0's for 9.6 bit times to produce the jam signal.

When a Digital repeater detects a collision on one segment, it sends out a jam signal for 96 microseconds (minimum) to ensure that none of the stations on the other ports tries to transmit and thus perpetuate the collision. Thus, the DECrepeater 900FP works the same way all IEEE 802.3-compliant repeaters work. If you connect a LAN analyzer to a repeater and the analyzer reports a collision on one port, it does not report collisions on other ports, but it does see activity on those ports for the duration of the jam signal.

Question

On repeaters that support per-port security, what are the address limitations when security is enabled?

Answer

Different repeaters have different limitations. DECrepeater 90FS, 90TS, 900FP, 900GM, and 900TM are limited to two addresses on each port. DECrepeater 900CP, and 900TP ports are limited to four addresses. If you are running DECnet Phase IV, two addresses are required for each node. So with security enabled, a DECrepeater 90FS is limited to one node per port.

Question

Are there any per-port address limitations on repeaters that support per-port security when security is disabled?

Answer

No. With security disabled, there are no address limitations. So, with due consideration to other limitations such as the levels of traffic on the segment, any number of nodes can be connected to each port.

Question

How do the PORTswitch modules work?

Answer

Three modules support portswitching: PORTswitch 900CP, 900FP (previously named DECrepeater 900FP), and 900TP. The 900CP has 16 ports, the 900FP has 12 ports, and the 900TP has 32 ports. The 900FP allows ports to be switched in pairs while the other two modules allow ports to switched individually. Each module has six internal LANs. Using HUBwatch you can assign the ports (or port-pairs, in the case of the 900FP) to any of the six internal LANs. You can assign all the ports (or port-pairs) to one LAN or assign them in any combination to the different LANs. The only restriction is that a port (or port-pair) can only be connected to one LAN at a time. For example, the 900TP can be configured with five ports to each LAN, all the ports on one LAN, eight ports on four LANs, and so on. Each of the module's six internal LANs can be connected to a LAN segment (or flex channel) in the DEChub 900MS backplane. Each module can also be connected to the ThinWire LAN segment in the DEChub 900MS backplane.

Once configured, the ports assigned to each of the module's internal LANs act as though they are attached to a repeater independent from the other LANs. Each module can effectively function as a maximum of six independent repeaters attached to six different LAN segments on the DEChub 900MS backplane. Thus, you can use the PORTswitch modules and HUBwatch to reconfigure the network to allocate bandwidth and/or create workgroups without physically touching the hardware.

Question

Do power failures or console resets delete LAN group names on PORTswitches?

Answer

Yes. The user-assigned group names for the internal LANs on the PORTswitch 900FP are not stored in NVRAM so they are cleared when the module is reset due to a power cycle or a console reset.

Question

Is there a way to group the ports on a PORTswitch 900-series module when the module is in a standalone configuration?

The module has its own IP address and can be managed standalone using HUBwatch.

Answer

Yes. At the HUBwatch Front Panel window, double click on the module to open the Repeater Summary window. In the Configuration table, click on the Port Switching button (middle icon on bottom row) to open the Port Grouping window. Use this window to group the ports.

Question

Can two DECrepeater 900TM's be connected together?

Can two DECrepeater 900TM's installed in two separate hubs be connected together through their front panel ports so they are on the same Ethernet network span? If so, what type of cable is required?

Answer

Yes. Use Digital's crossover cable BN24F.

Question

What are the management limitations for DECrepeater 90FS and 90TS?

Can a DECrepeater 90FS or 90TS module installed in a DEChub 90 or DEChub 900MS be used to manage the other modules installed in the hub?

Answer

In the case of the DEChub 90, the answer is yes, however, the DECrepeater 90FS and 90TS can only be used to manage other repeater modules. The DECrepeater 90FS or 90TS modules cannot be used to manage other modules such as bridges, access servers, and brouters. This functionality is supported in HUBwatch V4.1, when the DECrepeater 90FS or 90TS is running firmware V2.0.0 or higher.

In the case of the DEChub 900MS, the answer is no. This is not a disadvantage, however, because the DEChub 900MS Hub Manager can manage its installed modules as long as one of its installed modules is configured to provide IP services. The DECrepeater 90FS and 90TS can be configured to provide IP services.

Question

Do Digital's repeaters work with 150-ohm STP (shielded-twisted-pair) cable?

Answer

No. This cable is not compatible with 10BaseT cable. Digital's 10BaseT repeaters are only compatible with 100-ohm STP/UTP (unshielded-twisted-pair) cabling. This is true of 10BaseT repeaters made by other vendors as well.

Question

Does HUBwatch V4.1 support the Dual-Port Redundancy Enabled LED on the DECrepeater 90FS?

Answer

No. This should be fixed in a future release.

Question

Can DECrepeater 90T and DECrepeater 90TS modules be installed in the same 8-slot or 16-slot DEChub 90?

Answer

Yes. Doing so will not cause management problems as long as these configuration requirements are met:

- To manage the DECrepeater 90T module, there must be one DECbridge 90 or DECagent 90 module in that 8-slot or 16-slot hub.
- If the hub has a DECbridge 90 module installed but does not have a DECagent 90 module to serve as the agent, then somewhere on the network there must be a DECagent 90 that can serve as the agent for the DECbridge 90. The bridge or agent module installed the hub can autodiscover the DECrepeater 90T modules in the same hub by means of the management bus.
- At least one of the DECrepeater 90TS or 90FS modules in the hub must be assigned an IP address so it can serve as the agent for other 90TS or 90FS modules in the same hub, and the 90TS or 90FS that serves as the agent must be managed directly by the NMS using SNMP. The only disadvantage to this configuration is that DECrepeater 90TS or 90FS modules that are managed by other DECrepeater 90TS or 90FS modules do not have the same level of MIB support as when managed standalone. Features not supported are security, dual-port redundancy, and performance statistics. Of course, if you assign each DECrepeater 90TS and 90FS an IP address, full MIB support is obtained.

Question

Can you use the DECrepeater 90TS with the DETAX docking station and use the AUI port, provided you do not use the ThinWire connection?

Answer

No. This configuration is not supported. Only the DECrepeater 90T-16 can use the AUI port on the DETAX.

Question

What do Frame Check Sequence Errors mean?

On a DECrepeater 900TM installed in a DEChub 900MS, there are two Alpha 3000 series systems connected to two ports and six PC's connected to other ports. Counters for the PC ports have positive values for the item "Frame Check Sequence Errors" on the ports connected to PCs only. Counts range from 100 to 200 with the Readable Frames value between 1 and 2 million. There are no operational or performance problems. What does this mean and should this be considered a problem?

Answer

Yes this is a problem. Frame Check Sequence errors indicate that there is an error somewhere in the frame, either in the data portion or the FCS portion. There is no danger of data corruption, however, because FCS errors cause the offending packet to be retransmitted. The concern here is that retransmissions of faulty packets could degrade network performance. This may only be noticeable doing periods of high usage.

Question

How do you manage DECrepeater 90FS and 90TS modules installed in the DEChub 90 that has a DECagent 90 module?

Can DECrepeater 90FS and 90TS modules installed in DEChub 90 hubs that also have a DECagent 90 and a DECbridge 90 or 90FL installed be managed using the DECagent 90's IP address or must they be managed directly using their own IP addresses?

Answer

DECrepeater 90FS and 90TS modules configured this way can be managed through the DECagent 90, however, each 90FS and 90TS repeater must be assigned its own IP address. With this configuration, the 90FS and 90TS repeaters are displayed in the hub's Front Panel view when you start up HUBwatch using the DECagent's IP address. From that view, you can click on and manage the repeaters. If you start up HUBwatch using the IP address of a DECrepeater 90FS or 90TS, the module is displayed standalone.

Question

How do you manage DECrepeater 90FS and 90TS modules installed in a DEChub 90 that does not have a DECagent 90 module?

Can DECrepeater 90FS and 90TS modules installed in a DEChub 90 hub that also has a DECbridge 90 or 90FL installed, but not a DECagent 90, be managed using the IP address of a remote DECagent 90 or must they be managed directly using their own IP addresses?

Answer

No. DECrepeater 90FS and 90TS modules configured this way CANNOT be managed using the IP address of the remote DECagent 90. If you start up HUBwatch using the IP address of a remote DECagent 90, the hub will be displayed, but the slots containing 90FS and 90TS repeaters are displayed as empty slots. To manage any of the 90FS or 90TS repeaters, you must assign them IP addresses and startup HUBwatch for a specific repeater using the assigned address. Optionally, you can assign one 90FS or 90TS repeater an IP address and use it as a proxy agent to manage the other repeaters in the hub. For instructions on how to configure a DECrepeater 90FS or 90TS as a proxy agent, refer to the repeater's hardware installation and configuration manual and the *HUBwatch Installation and Configuration* manual.

Question

Which repeaters support redundant link configurations?

Answer

The following repeaters and portswitches support dual-port redundancy:

- DECrepeater 90FS and 900FP
- PORTswitch 900FP and 900TP

Question

Do PORTswitch modules lose their backplane connections when removed from the hub?

Do DECrepeater 900FP and PORTswitch 900CP, 900FP and 900TP modules that are installed in a DEChub 900MS lose their backplane LAN connections when they are removed and re-inserted in the same slot?

Answer

Yes. That is how the DEChub 900 Hub Manager works. When you remove a repeater, or a portswitch, or any other non-FDDI module while the hub is powered up, the module's backplane port configuration information for that slot is lost.

With Hub Manager firmware V4.0 and V4.1, the FDDI Auto Healing function will re-connect an FDDI module to its ring or tree if it is removed and re-inserted. If the FDDI module also has Ethernet ports (for example DECswitch 900EF), those ports will also be connected to the same backplane LANs as they were before. However, the Auto Healing function only applies to FDDI modules that are connected to an FDDI LAN when they are removed; if they are not connected to an FDDI LAN, when they are re-inserted, the Ethernet backplane port configurations are lost. FDDI Auto Healing is a ring/tree healing feature, not a feature for saving module backplane connection configurations. This feature may be enhanced in a future release of the firmware so that functionality similar to FDDI Auto Healing will be extended to all hub devices, not just FDDI devices.

Question

What happens to PORTswitch internal LAN configurations on power failure or removal from the hub?

If a DECrepeater 900FP or PORTswitch 900CP, 900FP, or 900TP module is installed in a DEChub 900MS, what happens to the internal LAN configurations (port groupings) on the module when the module is removed or power is lost to the DEChub 900MS?

Answer

If power is lost to the DEChub 900MS, the module's internal LAN configurations should survive. When power is restored, the Port Groups and their mapping to the hub backplane LAN segments should remain intact.

If you remove a PORTswitch from a hub, the Port Groups will be saved on the module, but the mapping, or connections, of those Port Groups to the hub backplane LAN segments will be lost.

Question

What is the maximum length of the Digital MultiStack System management bus?

Answer

The management bus must not exceed a total length of 420 meters.

Question

What are some management limitations for the DECagent 90?

Is a single DECagent 90 sufficient to manage the following DEChub hardware?

- Three DEChub 90's that have DECrepeater 90FA's and 90FL's installed
- Eight standalone DECrepeater 90FA's

Answer

No. For the three DEChub 90s, as a minimum, you must have a DECagent 90 or DECrepeater 90FS or 90TS in one hub and a DECbridge 90 in each of the other hubs.

For the eight standalone repeaters, you should configure them in a Digital MultiStack System and use one DECagent 90 or DECrepeater 90FS or 90TS to manage them.

Question

How are community names mapped to relevant hub?

Given a LAN segment with 10 DEChub 90s connected and a bridge in every hub except the one with the DECagent 90, how are the community names generated in the DECagent mapped to the relevant hubs? For example, if you set up a community with the community name of "hub10," how does the DECagent know which hub is being addressed?

Answer

The agent really does NOT know which hub you are addressing. Think of it as giving the agent a nonsense random ASCII string of "HUB10" to identify a different memory location. The DECagent then assigns an empty hub picture for you to populate. Once you populate the first DECbridge 90 into the hub, (in either slot 7 or 8) then the DECagent polls that bridge and populates it with the modules installed in that hub.

Question

What is the mechanism for displaying connected stations?

Inconsistent connected station information is being displayed on a DECrepeater 90T with DECagent 90 V2.1 while running HUBwatch for OpenVMS V3.1. What is the mechanism for displaying connected stations? Does the repeater tell the agent what addresses it has ever seen, or only addresses it has recently seen? If the latter is true, how many addresses can be held by the agent and is there a time period when not seeing a certain address will cause the agent to purge that address out? Also, is this information reliable?

Answer

The way the address data is collected depends on where the repeater is physically located. If it is in the same hub as the DECagent 90, then the agent gets the information directly from the repeater (through the backplane serial channel). If the repeater is in a remote hub, the agent must request the address information from the DECbridge 90 that services that hub.

- **Example 1: Repeater located in the same hub as the DECagent 90.**
  The agent periodically polls the repeaters in the hub, asking them for the last address seen on a per port basis. Polling is every 30 seconds. The agent can hold up to 256 addresses in its database, each address associated with a particular repeater port. Addresses are aged out every seven minutes by default, but this number can be changed through the dechub90 mib object da90BackplaneAddr-DbAgingTime. This is not a foolproof scheme, however, because the repeater only reports the last address seen on a port since it was last asked. Other addresses may exist on that port, and the hope is that through constant polling, all of them are picked up, but it is a matter of statistics. So it is possible that a station can be active on a port and its address not be picked up. This limitation exists because the agent cannot see addresses on the Ethernet. In any case, there should not be a bad address on a port unless the station has just moved and the entry has not yet aged out.

- **Example 2: Repeater located in a remote hub.**
  In this case, it is the DECbridge 90 that accumulates the address information. The DECagent 90 does this differently. The DECbridge 90 amasses a table of addresses seen on the workgroup side of the bridge. It then polls the repeaters, asking each one "Have you seen this address on a port?" So the bridge already knows which addresses to look for and is more likely to find all known addresses. The bridge has a limit of 200 addresses.

Question

What is required to connect a PORTswitch 900TP to H3117-MA inserts on a H3108-PA patch panel?

Answer

Use a BN26R cable. This is the same cable that is used with the DECrepeater 900TM.

Chapter 5

Access Server Problems

Introduction

This chapter lists and describes problems that you may encounter with installing or using Access Server modules. It includes the following topics.

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Cabling Requirements

If you do not use the correct cables when you connect the Access Server module to the network or to user stations (such as PCs and workstation), the Access Server will not work.

For a complete listing of the correct cables for each type of Access Server and a cabling diagram of a typical installation, refer to the *OPEN DECconnect Applications Guide*.

Configuration Problems

Problem

Awarning message is displayed when attempting to open the Terminal Server Summary window for a DECserver 90L or 90L+.

You added an Access Server to your hub configuration, but when you try to open the HUBwatch Terminal Server Summary window, you get a message warning that the module is being polled or managed by another user.

Solution

You need to verify the MAC address of the Access Server. An incorrect MAC address can cause this condition. If the MAC address is incorrect, reload or update the device firmware.

Problem

DECserver 90TL disappears from hub Front Panel window.

You added a DECserver 90TL to the hub configuration. At first it appeared on the HUBwatch Front Panel window as though it were in the hub, but then it disappeared.

Solution

When a DECserver 90TL first boots, it operates using its own PROMs, and it responds to DECagent 90 backplane identification commands. The DECserver 90TL then receives a downline load image, and control is transferred to the new image. The new image does not respond to the backplane identification commands from the DECagent 90 making it seem to the DECagent 90 that the DECserver 90TL has been removed. Although the DECserver does not display in the front panel window, it is functional.

Do the following to correct this problem.

Step	Action
1	Add the DECserver 90TL module to the hub using the Add Module window, being sure to set Polling status to Disabled.
2	Add the DECserver 90TL to the Agents file.

Problem

A Warning message displays when attempting to disconnect a port.

You added an Access Server, but when you attempt to use HUBwatch to disconnect a port, you get a message warning that the server is being polled or managed by another user.

Solution

To correct this problem, check the following:

- Make sure the DECserver 90L or 90L+ module is not in the Authorize/Manage mode.
- You may not have the correct module installed. Ensure that the module is a 90L or 90L+.

Problem

Sometimes set parameters do not take effect.

Sometimes, when you use HUBwatch to set parameters on your Access Server, they do not take effect.

Solution

Do the following to correct the problem.

If the Module is a...	Remember That...	So Do This...
DECserver 90L or 90L+	It is possible to issue a SET request followed closely by a GET request. When using Access Servers, these two commands generate a large amount of communications activity. The GETs may happen faster than the SETs in the Access Server, giving the appearance of a set failure.	Wait a few seconds and reissue the GET; you will probably find that your SET will work. Also, remember to click on Apply to execute any change or OK to execute the change and close the window.
DECserver 90M, 90TL, 900GM, or 900TM	Changes to port parameters do not take effect until the next port Logout or port Reset.	To have the changes take effect immediately, click on Reset Port on the Port Details window. Also, remember to click on Apply to execute any change or OK to execute the change and close the window.

Problem

All efforts to set parameters fail.

When you use HUBwatch to set parameters on your Access Server, none of them take effect.

Solution

This problem develops if you entered the device's current password incorrectly or did not enter it at all when you used the Add Module window to add any of the following modules:

- DECserver 90L and 90L+

Or, you do not have the WRITE community enabled on the following modules:

- DECserver 90M, 90TL, 900GM, and 900TM

Do the following to correct this problem.

Step	Action
1	Use HUBwatch to delete the module from the hub.
2	Use the Add Module window to add it again being sure to enter the current password correctly.

Problem

Cannot manage 90-series access servers.

You added a 90-series Access Server module to your hub, but you cannot use HUBwatch to manage it.

Solution

When adding 90-series Access Server modules to your hub, give consideration to the following:

- If a MOP connection has been made to a DECserver 90L or 90L+ module, the module cannot be managed using HUBwatch software.
- To manage a DECserver 90L or 90L+ you must have a DECagent 90 on the LAN. If the DECagent 90 is not the hub manager for the hub containing the DECserver 90L or 90L+, a new community must be created in the DECagent 90 for the DECserver. Refer to the *DECagent 90 Installation and Configuration* manual for information on setting up a community for a DECserver 90L and 90L+ modules.
- For the DECserver 90L and 90L+, if you forgot the management password and it is necessary to reset it, do the following:

Step	Action
1	Disable Authorize and Manage mode through a Access Server port.
2	Open the HUBwatch Access Server Summary window for the Access Server module and click on Factory. The Access Server password is reset to the default.

If you want to set a new management password on the Access Server, do the following:

Step	Action
1	Set the password at an Access Server port.
2	Use the HUBwatch Add Module window to add the module to the hub, being sure to use the same password at the Current Password field as was entered at the Access Server port.
3	If you are adding a DECserver 90L+ Access Server that is autodiscovered, temporarily disable Hub Management in the DECbridge 90, then use the HUBwatch Add Module window to add the DECserver module with polling Disabled, then re-enable Hub Management in the bridge.

- DECserver 90TL Access Servers running MNENG1 software will not communicate with the DEChub 900MS Hub Manager. After a DEChub 900MS Hub Manager is reset, these servers will show up as Unknown. To correct this, add these modules to the hub using the HUBwatch Add Module window.

Problem

Traps not being received (HUBwatch for OpenVMS only).

You used HUBwatch to add a DECserver 90M, 90TL, or 900TM to the Alarmed Agents file and enabled traps but no traps are being received.

Solution

This problem develops if you entered the Access Server's Current Password incorrectly or did not enter it at all when you used the Add Module window to add any of the following modules:

- DECserver 90L and 90L+

To correct this problem:

Step	Action
1	Use HUBwatch to delete the module from the hub.
2	Use the Add Module window to add it again being sure to enter the Current Password correctly.

Frequently Asked Questions

Question

Does clearVISN Resilience (the backup and restore utility) support Access Server network modules?

Answer

No.

Question

Are there multiple ways to reload 900-series access servers?

Is there a way to reload a 900-series Access Server modules other than initializing them through a Telnet window or manually removing them from the hub and then re-inserting them? For example, is there a way to do a power cycle on a single hub slot?

Answer

The Telnet window is the only way to reload an Access Server module remotely. However, you can do it locally by pressing and holding the reset-to-factory button on the server's front panel for approximately 10 seconds. This button is located next to the D bulk connector on the 900GM and next to the NVRAM slot on the 900TM.

Question

Is there an option available that makes the DECserver 90TL self-bootable?

Answer

No.

Question

What does a crash code of 0111 mean for a DECserver 900TM?

Answer

Crash code of 0111 means there is an overtemperature condition on the module. This indicates that either the module's environment is very hot and/or the module fan has failed.

Question

What is easiest way to configure access servers?

What is the easiest way to set-up ports on a large number of Access Server modules? Can this be done using HUBwatch?

Answer

You can do some, but not all, Access Server setup through HUBwatch. However, the easiest way to set up an Access Server is to use TSM (Terminal Server Manager) which was designed for just this task.

Question

What would cause printing problems when replacing DECserver 300s with DECserver 900TMs?

You are replacing DECserver 300 access servers with DEChub 900MS hubs and DECserver 900TMs. You have no problems printing from OpenVMS to HP laser printers, but when you try to print an Microsoft Word or Excel document, it comes out corrupted. The first few lines seem fine then it starts to overprint lines and the font size goes to something like one point. You are running the latest firmware on the hubs and the DECserver 900TMs, and you have checked the settings on the servers using TSM. The Microsoft Word and Excel documents print fine on the DECserver 300s.

Answer

Try disabling input flow control on each port of the DECserver 900TM that has an HP laser printer attached. This should fix the problem.

Chapter 6

FDDI Bridge, Switch, and Concentrator Problems

Introduction

Proper configuration of bridges and switches is critical to the proper performance any extended LAN network. Therefore, it is very important that you understand how bridges and switches work together, the potential problems that may result when they are not configured properly, and how you can avoid or solve those problems. For a comprehensive discussion of this subject, refer to the *Bridge and Extended LAN Reference* manual. The chapter entitled Configuration lists key considerations for configuring a network, discusses packet filtering and forwarding, illustrates some of the potential problems that you may encounter in configuring extended LANs, and provides guidelines to help you solve those problems and optimize the operation of your network. For additional information, refer to the *DEChub Network Modules 900-Series Switch Reference.*

Additionally, when configuring FDDI networks, configuration rules must be followed or the FDDI stations will not achieve connectivity. For a comprehensive discussion of FDDI configuration rules, refer the FDDI appendices in the *DEChub Network Modules Configuration Guide.*

This chapter lists and describes problems that you may encounter while installing or using FDDI bridge, switch, and concentrator modules.

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Cabling Requirements

If you do not use the correct cables when you connect the module to the network or to user stations such as PCs and workstations, the module will not work.

For a complete listing of the correct cables for each type of module and a cabling diagram of a typical installation, refer to the *OPEN DECconnect Applications Guide.*

Configuration Problems

Problem

Redirect of Port 4 on PEswitch 900TX to AUI on DEChub ONE-MX fails.

The hardware is a PEswitch 900TX and a DEChub ONE MX in a stand-alone configuration. According to the PEswitch 900TX manual, you should be able to redirect Ethernet port 4 from the front panel 10BaseT connector to the DEChub ONE AUI port on the backplane. When so doing, the Network Activity LED for port 4 should show yellow. This does not happen. If you connect directly to port 4 with 10BaseT connection and have the front panel port enabled, you can ping the PEswitch without any problems. If you redirect port 4 to the DEChub one AUI connector and move the 10BaseT connection to the MAU on the DEChub ONE, you get no connection, nor do you see the Network Activity LED for port 4 show yellow. A MILAN 10BaseT-to-AUI MAU is being used for the AUI connection.

Solution

There is probably nothing wrong with the PEswitch or DEChub ONE. The problem is most likely the number of crossovers involved when switching cables back and forth. The PEswitch 900TX has embedded crossover connections. Whatever type of cable you are using on the front panel port 4 connection has the right number of crossovers. When you move that same cable to the MAU connected to the AUI port on the back of the DEChub ONE, you may have neglected to take into account the lack of a crossover occurring in the MAU. Change the cable type used to make the 10BaseT connection to the MAU.

Problem

No response from agent when PC is connected directly to DECswitch 900EF.

You have a DEChub 900MS with a DECswitch 900EF, DECserver 900TM, and a DECrepeater 90C installed. You designate the DECswitch 900EF as the IP services module, but when you try to make a connection from your PC to the DECswitch 900EF and manage it with HUBwatch, you get the message: "No response from the agent." The PC is cabled directly to a DECswitch 900EF port. If you install a DECrepeater 900TM in the hub and connect the PC to it, the connection works.

Solution

This is cabling problem. You are using the wrong cable to connect the PC to the DECswitch 900EF. The repeater has an internal crossover, but the DECswitch 900EF does not. Therefore, use a crossover cable, such as a BN24F, to connect the PC to the DECswitch 900EF.

Problem

Error Message: "Connection Add Failed" when making FDDI backplane connection.

The configuration consists of a DEChub 900MS with two DECconcentrator 900MX modules installed. You use HUBwatch to configure one port of the first concentrator to A-front/B-back and the other B-front/A-back. You then use HUBwatch to create an FDDI LAN segment on the hub backplane. You connect the first concentrator to the backplane LAN, but when you try to connect the second concentrator to the LAN, it fails, and you get the error message: "Connection Add Failed."

Solution

Try removing and re-inserting the concentrators in the hub with FDDI Auto Healing disabled. If the concentrators still cannot be connected, try resetting the Hub Manager to factory defaults. Resetting the Hub Manager usually clears this problem, but it also causes all configurations in the hub to be lost.

Problem

Stations connected to DECrepeater 900TM installed in a DEChub 900MS cannot access the network.

On a DEChub 900MS with a DECswitch 900EE and DECrepeater 900TM installed, the Ethernet backbone is connected to the AUI port of DECswitch 900EE with an H4005 transceiver and a transceiver drop cable. However, stations connected to the repeater cannot connect to the network backbone. You try to fix the problem by using HUBwatch to connect the DECswitch AUI port to the hub backplane, but there is still no connectivity.

Solution

This connectivity problem is due to the fact that the DECswitch does not connect to any of the hub backplane LANs by default, nor are any of the DECswitch ports switched to the module backplane. Open the HUBwatch LAN Interconnect window and check for network connections to the hub backplane LANs. To achieve connectivity, you must use HUBwatch to switch DECswitch ports to the backplane and connect at least one port to the same LAN as the repeater. By default the repeater connects to the backplane ThinWire LAN. So one solution is to connect port 3 of the DECswitch to that LAN. Another solution would be connect the DECswitch to a flexible LAN segment and then connect the repeater to the same LAN. Also, make sure the DECswitch AUI port is switched to the module's front panel; otherwise, the connection to the backbone is broken.

Management Problems

Problem

Modules connected to the FDDI backplane cannot achieve connectivity.

The LAN Interconnect window shows FDDI modules connected to the hub backplane LAN segment, but FDDI stations connected to the module cannot achieve connectivity on the FDDI network.

Solution

Most FDDI connectivity problems are the result of improperly configuring the FDDI modules in dual-ring or tree configurations. To ensure that the FDDI modules are configured correctly, refer to the FDDI appendices in the *DEChub Network Modules Configuration Guide* and apply the guidelines presented there.

Problem

Change to DECconcentrator backplane port does not take effect.

After using the LAN Interconnect window to change a DECconcentrator backplane port, the error message: "No response from agent" appears.

Solution

The SNMP Set command may have failed. Click on the Refresh button on the LAN Interconnect window. The change should then be displayed correctly. If the change is not displayed, make the change again.

Problem

Switching port on bridge or switch module between front panel and back panel does not take effect.

After using the LAN Interconnect window to switch a port on an FDDI bridge or switch module from front to back or back or front, the error message: "No response from agent" appears.

Solution

When ports are switched from front to back on bridge or switch modules or vice versa, the module goes into a listening/learning mode that lasts for 30 (default) to 60 seconds. Therefore, wait 60 seconds and click on the Refresh button on the LAN Interconnect window. The change should then be displayed correctly.

Frequently Asked Questions

Question

Is it possible to reset the PEswitch 900TX and DECswitch 900EF and 900EE counters without resetting or power cycling the module?

Answer

No. These switches are designed this way to minimize network management confusion in the event that a particular switch is being managed by more than one network manager. The proper way to use the counters is to take periodic snapshots and examine the differences to obtain absolute values so as to see the trends in the rate of change of specific counter values.

Question

Is it possible to use HUBwatch to enable or disable port traps on FDDI ports on DECbridge, DECswitch and DECconcentrator modules?

Answer

No. HUBwatch does not support enabling and disabling traps. However, you can use the module setup port to control where the module sends traps. You do this by setting SNMP trap addresses, that is, IP addresses of devices or stations that will receive the traps. Refer to the installation manual for the particular module for instructions on how to set trap addresses.

Question

Will this Kalpana switch/PEswitch 900TX configuration work?

Can a standalone PEswitch 900TX module be configured as follows:

Ports 1,2,3,4 - workstations
Port 5 - Kalpana switch
Port 6 - 3COM switch connected to the network backbone

The FDDI port on the PEswitch will be hooked up at a later time. The objective is to have the backbone and the systems connected to the Kalpana switch talk to the workstations on the PEswitch. Does this configuration violate the 64 address rule?

Answer

The only problem here is the forwarding database for all six Ethernet ports combined is limited to 64 addresses. If there are more than 64 addresses on the Ethernet side, the bridge will essentially be flooding. The PEswitch is designed to serve limited numbers of stations per Ethernet port. The DECswitch 900EF is the recommended device for this configuration.

Question

Can spanning tree be disabled on individual DECswitch 900EF ports?

With two separate networks connected by a DECswitch 900EF, is it possible to turn off spanning tree on the bridge so that bridge PDU's are not passed. The advantage of this configuration is that when one network is going through spanning tree changes the other network would not be affected. This in effect segregates the two networks so both networks can have separate root bridges.

Answer

If the DECswitch 900EF or DECbridge 900MX module is running firmware V1.5.2 or later, you can use HUBwatch V4.0 or later to disable spanning tree on individual bridge ports.

Question

What are the address table sizes for the following repeater and switch modules?

DECbridge 900MX
DECswitch 900EE and 900EF
DECrepeater 900TM
PEswitch 900TX
PORTswitch 900CP and 900TP

Answer

The PEswitch 900TX, DECbridge 900MX, and DECswitch 900EF and 900EF modules are store and forward bridges. They have a filter and forward table that can hold up to 8,000 nodes (the PEswitch is limited to 64 Ethernet stations per port). The portswitch and repeater modules are not bridges so they do not have a filter and forward table. These modules only store security information, that is, information about which stations can send and/or receive on each port.

Question

Why is the IP radio button grayed out on the Create Address Filter window?

For the DECswitch and DECbridge modules, the IP radio button grayed out on the Create Address Filter window on the Add Filter Entry window in HUBwatch for Windows. Is this feature supported?

Answer

No. HUBwatch for Windows does not support this feature. It is supported for UNIX and OpenVMS platforms only. Whenever a button or label is grayed out on a window, it means that the function is not supported.

Question

Does the bridge/switch learning mode affect IP services?

Under the heading DECbridge/DECswitch/PEswitch issues, the HUBwatch V4.0 and V4.1 Release Notes state:

"Be cautious when using the DECbridge 900MX to provide IP services for the hub. If the bridge is in learning mode when it receives SNMP requests from HUBwatch, the requests may be lost and HUBwatch may encounter SNMP timeouts without any real indication of the problem to the user. Because of these timeouts, the HUBwatch windows that made the requests may be corrupted. If you determine that the window is corrupted, a refresh will bring the window up to date."

Why does this happen? Also, does this apply to the DECbridge 900MX only, or to any bridge or switch, for example, the DECswitch 900EF? And finally, does the bridge enter the learning mode only when it is powered on or reset?

Answer

On power up or reset, it is normal for a bridge or switch to be in a pre-forwarding and learning state prior to entering the forwarding state. Any Digital bridge or switch will have a pre-forwarding state before entering the forwarding state. The pre-forwarding state lasts 30 seconds. After the bridge goes into the forwarding state, there should be normal management dialog between a host making SNMP requests and the bridge. So if you are doing warm resets or restarts to a bridge or making connection changes such as plugging a cable into a port, you have to wait until the bridge goes back into the forwarding state. The release note is simply advising the user of the normal behavior of a bridge so you can take this into account before conversing with it via SNMP requests. Further, a store and forward bridge is always learning addresses. However, normal learning operations of a bridge should not affect communication between Hubwatch and the Hub Manager when the bridge is used for IP services.

Question

Is HUBwatch the only way to reconfigure ports on FDDI modules?

Do you have to use HUBwatch to reconfigure the front panel ports on the DECswitch 900EF and DECconcentrator 900MX or is there another way? For example, how would you change an A-B port to an M-S port?

Answer

If the modules are installed in a DEChub 900MS, you have to use HUBwatch, but if they are installed in a DEChub ONE or DEChub ONE-MX, you can also use the Setup Port menu to reconfigure ports.

Question

Is the Network Utilization meter on the HUBwatch FDDI Summary window accurate?

Answer

No. This meter only approximates network utilization. This is due to the way HUBwatch samples the MIB objects. The accuracy of this meter may be improved in a future firmware release.

Question

Does the PEswitch 900TX support full-duplex configuration on its front ports?

Answer

No. The PEswitch 900TX does not support full-duplex mode.

Question

Can a stand-alone DECswitch 900EF be configured to support two UNIX ports?

With the DECswitch 900EF installed in a DEChub ONE, can you connect two UNIX UTP (unshielded-twisted-pair) ports on the switch so that they can communicate with each other? Also, can you set up this configuration without using HUBwatch?

Answer

Yes, if you use the correct cable to connect the UNIX stations to the DECswitch. You must have a crossover cable because the DECswitch does not have internal crossover UTP ports. HUBwatch is not needed because the default conifiguration of a switch module is to have its front panel ports enabled.

Question

Can you connect a DAS device to a DECswitch 900EF?

With a DECswitch 900EF installed in a DEChub 900MS, can you connect an FDDI DAS device to the front panel FDDI ports? If so, do you still need a DECswitch backplane port connection to an FDDI LAN on the hub backplane to bridge or switch between the Ethernet channels and the FDDI DAS device?

Answer

In answer to the first question: Yes. This is a proper DAS connection to a DECswitch 900EF.

In answer the second question: No. You do not need an FDDI backplane connection from the DECswitch to an FDDI LAN. Just switch (re-direct) one of the unused front panel Ethernet ports to the backplane and connect it to a backplane Ethernet LAN. The DECswitch 900EF will take care of forwarding traffic from the front panel DAS connection to the backplane via the Ethernet port. Remember, the DECswitch 900EF is an FDDI to Ethernet switch.

If you want to have a front panel FDDI connection and a backplane FDDI connection on the DECswitch 900EF, you must split the FDDI port 1A and 1B front and back, but in that configuration you lose the ability to make a DAS connection to the front panel.

Question

Can the PEswitch 900TX that is installed in a DEChub ONE-MX be connected to two SAS stations?

Answer

Yes, if you configure the DEChub ONE-MX with the correct mod-PMD's.

Question

Can the DECswitch 900EF handle Ethernet V2.0, IEEE 802.2, and IEEE 802.3 traffic simultaneously?

Currently, you are using a vendor's switch that links Ethernet segments to FDDI servers using Digital FDDI network interface cards. The network is running Ethernet V2.0, IEEE 802.2, and raw IEEE 802.3 (IPX) simultaneously. The switch converts incoming Ethernet packets to FDDI SNAP format, and for outgoing packets, it converts the IEEE 802.2 packets back but cannot determine what to do with the other packets. Can the DECswitch 900EF handle this configuration?

Answer

No. On the DECswitch 900EF, you can enable IEEE 802.3 translation using HUBwatch or SNMP. This feature applies to all the ports, but it cannot be enabled on a per-port basis. The following tables show the frame translation for both directions.

Table 6-1: Translation of Ethernet Frames Received

Ethernet Frame Received	FDDI Frame Sent (Raw 802.3 IPX Disabled)	FDDI Frame Sent (Raw 802.3 IPX Enabled)
Ethernet V2.0	FDDI SNAP	FDDI SNAP
IEEE 802.3 (IPX)	FDDI IEEE 802.3	FDDI SNAP
IEEE 802.2	FDDI 802.2	FDDI 802.2

Table 6-2: Translation of FDDI Frames Received

FDDI Frame Received in response	Ethernet Frame Sent (Raw 802.3 IPX Disabled)	Ethernet Frame Sent (Raw 802.3 IPX Enabled)
FDDI SNAP	Ethernet V2.0	IEEE 802.3
FDDI 802.2	IEEE 802.2	IEEE 802.2

As the previous tables show, the DECswitch 900EF can handle IEEE 802.3 and IEEE 802.2 simultaneously, but not Ethernet V2.0. If **Raw 802.3 IPX** is enabled on the DECswitch 900EF Switch Configuration window, both Ethernet V2.0 and IEEE 802.3 get translated to FDDI SNAP. However, when the switch receives a FDDI SNAP frame in response, it cannot distinguish on a per-address or even a per-port basis which frame should be translated to Ethernet V2.0 and which to IEEE 802.3. If **Raw 802.3 IPX** is enabled, all FDDI SNAP frames are translated to IEEE 802.3. If **Raw 802.3 IPX** is disabled, all FDDI SNAP frames get translated to Ethernet V2.0.

Question

Is there way to check the port configurations on the DECswitch 900EE and 900EF modules that are running with routing firmware?

Answer

HUBwatch V4.1 allows you to view and change the backplane/front panel port configurations on DECswitch 900 modules running IP or MP routing firmware. A future release will provide additional router management features.

Question

Is the following configuration of DEChub 900MS hubs valid?

The configuration described below, if it works, will provide 400 information points in one big building. Is this a valid configuration?

Configuration: Eleven DEChub 900MS hubs, each with one DECconcentrator 900TH (equipped with two multi-mode fiber) and seven PEswitch 900TX modules installed. The eleven hubs will be connected together in an FDDI tree configuration.

Answer

This configuration will work provided you are running V4.0 or later firmware on the Hub Manager and the corresponding firmware on the concentrators. With the V4.0 firmware, a new Network Building Block has been defined to allow a concentrator to be the root of a tree. Using this capability, you can connect your 10 hubs together using a dual-ring, however, you will not have a dual-ring within the hubs since the PEswitch 900TX modules will be connected in a tree configuration off the concentrator.

Question

Is it possible to dump or send the bridge address tables to a file?

Can this be done using an SNMP manager other than HUBwatch?

Answer

HUBwatch provides a forwarding database dump function in the DECswitch 900 Forwarding Database window. You can dump the database to a file. HUBwatch does it solely through SNMP. For each element in the forwarding database dump, three MIB variables are examined:

dot1dTpFdbAddress
dot1dTpFdbPort
dot1dTpFdbStatus

The instance is the MAC address. If you have an SNMP tool that lets you do generic MIB GETs, the above MIB variables are the ones you want.

Chapter 7

DECbrouter Problems

Introduction

This chapter lists and describes problems that you may encounter while installing or using brouter modules.

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Cabling Problems

If you do not use the correct cables when you connect the brouter module to the network or other devices, the brouter will not work.

For a complete listing of the correct cables for each type of brouter and a cabling diagram of a typical installation, refer to the *OPEN DECconnect Applications Guide.*

Management Problems

Problem

Double clicking on a DECbrouter module installed in a DEChub 900MS hub produces this error message:

```
" No agent specified for the MAC slot address."
```

Solution

Add an entry for the brouter to the HUBwatch agents file and include the MAC address of the brouter in the entry. To add an entry, open the Manage Table window using the Community pull-down on the HUBwatch menubar. Then click on the Agent File Add push button to open the Add Agent to Agent File window and enter the brouter information being sure to include the MAC address. Also be sure that the brouter is properly configured with an IP address and that the brouter has SNMP is enabled.

Problem

DECnet traffic works across an X25 link, but LAT services do not.

The network consists of two LANs linked by an X25 Frame Relay. The link between LAN1 and LAN2 consists of a DECbrouter 90 with a 56KB link to a X25 Frame Relay which in turn links via another 56KB link to another DECbrouter 90. So the brouters serve as links between the LANs and the X25 Frame Relay.

Solution

Check the following:

1. Make sure bridging is enabled on all interfaces (bridge-group command 1).
2. Check that the LAT service announcement is being bridged properly. You can use a LAN analyzer such as Sniffer to do this.
3. Check that the frame relay switch supports "multicast DLCI facility."

Chapter 8

DECbridge 90 Problems

Introduction

This chapter lists and describes problems that you may encounter when installing or using DECbridge 90-series modules.

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Cabling Requirements

If you do not use the correct cable to connect the bridge module to the network or other devices, you will not achieve connectivity.

For a complete listing of the correct cables for each type of 90-series bridge and a cabling diagram of a typical installation, refer to the *OPEN DECconnect Applications Guide*

Configuration Problem

Problem

Software and firmware upgrade causes problems.

You just installed a new version of HUBwatch (4.0.0) and the V4.0 Firmware distribution kit. Now you have a problem getting the DEChub 900MS to show the bridge when you double click on the DECbridge 90FL in the Hub Front Panel window. This pop-up window error message is displayed:

```
"NO AGENT SPECIFIED FOR SLOT MAC ADDRESS
PLEASE CHECK LOG MESSAGES IN THE HUBWATCH MESSAGE BOX
WINDOW"
```

The message box window displays this message:

```
(E) NO AGENT FOUND FOR MODULE IN SLOT 1,
(W) PLEASE ADD ENTRY FOR MAC 08-00-2B-91-ED-4E TO THE AGENT
TABLE.
(E) snmp: request has no agent defined (slot=1)
(E) snmp: invalid request agent
```

You had no a problem managing DECbridge 90 or 90FL in Version 3.1 of HUBwatch.

Solution

Configuration Problem

Refer to the *HUBwatch Installation and Configuration* manual and follow the instructions for configuring a 90-series bridge in a DEChub 900MS or refer HUBwatch online help and perform the following tasks:

Step	Action
1	Make sure there is a DECagent 90 on the same LAN as the hub that can serve as the management agent.
2	Select ADD from the Hub Front Panel menu Configuration pull-down and add the DECbridge 90 to the DEChub 900.
3	Select Community from the Hub Front Panel view Community pull-down menu and use the Community Table window to create a new community for the DECagent 90.
4	Click on the Add button in the Agent Table on the Community Table window and use the Add Agent window to add the new community to the Agents file being sure to use the MAC address of the bridge and IP address of the DECagent 90.
5	Use the Add Module window to add the DECbridge 90 to the new community.
6	If necessary, click on the bridge module in the Hub Front panel view to open the Bridge Summary window and turn Hub Management On.

Frequently Asked Questions

Question

When does the DECbridge 90 poll with XID packets?

Answer

The bridge sends the XID packets whenever the bridge Hub Management function is turned on. You can use HUBwatch to open the Bridge Summary window and turn Hub Management on or off. There is no need to use any other management tool to accomplish this.

Question

Do 90-series bridges support ELMS (Extended LAN Management Software) protocol?

Answer

ELMS is not a protocol. ELMS uses RBMS (Remote Bridge Management Software) protocol. DECbridge 90s are compatible with RBMS protocol.

Question

Is it possible to open the Bridge Summary window for a DECbridge 90 that is installed in DEChub 900MS by clicking on the module in the hub Front Panel window?

Answer

Yes, provided the bridge module is configured properly in the hub and there is a DECagent 90 on the LAN with a community that contains the DECbridge.

Chapter 9

HUBloader Problems

Introduction

This chapter lists and describes problems that you may encounter when installing or using the HUBloader software.

In This Chapter

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Management Problems

Problem

The LOAD button in the HUBloader window is grayed out after a successful connection is made to a DEChub 900MS.

Solution

Do the following things to correct this problem:

Step	Action
1	Start the TFTP Server before you run HUBloader.
2	The path name might be wrong. Re-enter the "Load File" name or edit any of the Device Data fields.
3	Try using a different IP stack.

Problem

Error message displays when using HUBloader

When using HUBloader V1.1.0 to upgrade a DEChub 900MS Hub Manager firmware from V4.0.0 to V4.0.4, you get this error message:

```
TFTP: File Transfer Started
[ERROR] DEChub 900: FAILED_PAD_IN_USE
```

Solution

This error message indicates that the "landing pad" where images are temporarily stored during downline load is marked as in use. Normally the landing pad is free after the load is complete. However, when there is an error in the loading process, the landing pad can sometimes remain locked. To correct this problem, reset the Hub Manager. An effort will be made to correct this problem in next major release.

Problem

Attempts to upgrade the GIGAswitch SCP modules fail.

After upgrading one SCP module in a GIGAswitch via the latest version of HUBwatch and Hubloader you are unable to upgrade the other SCP in the same GIGAswitch and four other SCPs in two other GIGAswitches. You are upgrading to V2.2 of the firmware from V2.10 DL 1.00 BB0.00. The TFTP Server is started, the community string is correct, and you are able to show the version. You click on load and the transfer begins. However, shortly after that, HUBloader fails with the following error messages.

```
Load Agent Name: Myagent;   Agent Address:  00.00.00.00.00
Slot Number: 4
Community String: XXXXXXX
[GIGAswitch] Setting TFTP Server IP Address.
[GIGAswitch] Setting firmware image file name.
[GIGAswitch] Triggering image file transfer.
Community String: public
[GIGAswitch] Polling for file transfer completion.
[INFO] Return code: -6090
[ERROR] Problem initializing socket (get)
[ERROR] Return code: -6090
[ERROR] FILE TRANSFER FAILED
```

Solution

The error message "[ERROR] Problem initializing socket (get)" points to a IP stack problem. If you are using the HUBwatch or PATHWORKS V5.x IP stack, increase the UDPMaxSock and TCPMaxSock in the [TCPIP] section of the C:\PW or C:\HUBWATCH\IPSTACK PWTCP.INI file. This is usually the cause of socket(s) not initializing. If you are using another IP stack, increase these attributes accordingly.

Frequently Asked Questions

Question

Does HUBloader V1.1.0 support Hub Manager assisted loads of all types modules?

Answer

No. HUBloader does not support Hub Manager assisted loads of the DECrepeater 900TM, 900GM, 900FP, 90TS or 90FS or PORTswitch 900FP. These module must be loaded directly. This problem is not caused by HUBloader. It is due to the hardware implementation of these modules. To load these module, assign an IP address to each of them and perform a direct load.

HUBloader does support Hub Manager assisted loads of the PORTswitch 900TP and 900CP. However, you should be very careful about doing Hub Manager loads. The time required for a Hub Manager assisted load is at least twice that of a direct load. The whole image is copied to the Hub Manager, where it is checked, and then it is copied to the module to update the flash. If at any time during this flash write the power goes off or you reset the module, the image may be corrupted resulting in a dead module.

Refer to the HUBloader READ_ME.TXT file for other HUBloader limitations.

Question

Is it possible to upgrade the firmware for the DEChub ONE or DEChub ONE-MX?

Answer

There is no firmware for either of these devices. Firmware is only provided for individual modules and the Hub Manager. However, you can upgrade the firmware in modules that are installed in the DEChub ONE or DEChub ONE-MX.

Appendix A

HUBwatch Error Messages

Introduction

This appendix lists and explains the HUBwatch messages. The messages are listed in alphabetical order.

NOTE

This appendix only contains a subset of HUBwatch error messages.

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Informational, Warning, and Error messages

A

```
(W) Address is already being filtered on the
following port(s): %s
Replace the old entry?
```

Explanation: This message is used in the bridge/switch Address Filtering window. It displays if you attempt to change an existing filter entry or if you try to add an entry that already exists. The message shows the present state of the filter matrix and asks you to confirm the change to existing entry.

```
An error may have occurred while attempting to add this
module.
```

Explanation: A generic error message for any error occurring during a module add operation. It displays if any of the SNMP set requests for the fields relevant in adding a module produce an error. This error does not necessarily mean that the module to be added was not added because some of the information on the Add Module window that is provided by the user is not required for the module to be added to the hub.

```
An error occurred while attempting to delete this module.
```

Explanation: This message displays in the Delete Module window in the following cases:

- Unable to allocate memory for SNMP set requests to accomplish the delete.
- Unable to translate the names of MIB objects necessary to accomplish the delete (MIB master file problem).

```
At least one community string must be filled in.
The new community string(s) must be unique when compared
to existing community strings of the same agent.
```

Explanation: This message displays in the Community Table window if you attempt to add a community to an agent that either has both community strings blank or the community strings are not unique when compared to other community strings for that agent.

```
(I) Auto Healing has been disabled.
```

```
The information in the LAN interconnect view has been
refreshed; any connections that were patched-out have been
permanently deleted.
```

Explanation: When you disable FDDI Auto Healing in the LAN Interconnect Summary window, the Hub Manager clears its memory of any patched-out modules and refreshes the LAN Interconnect Summary window. Therefore, any modules that were patched out are deleted and are no longer indicated in the window by a dashed double line.

B

```
Bad port path cost value %s.
Please enter a value in interval 1 to 255.
```

Explanation: This message displays in the Bridge/Switch Summary window if you enter a port path cost value that is less than 1 or greater than 255.

```
Bad parameter to log function.
```

Explanation: UNIX only message. This message indicates a bad parameter to a function that logs messages. This message is for software developers only.

C

```
Cannot resolve IP address - station does not respond to
ping.
```

Explanation: The IP address specified in the Find Address window cannot be resolved. HUBwatch first pings the IP address, then looks in the ARP table to retrieve a station's MAC address. Try pinging the IP address from the command line to see if it is alive.

Cannot find *<filename>*.

Explanation: HUBwatch required the specified file but could not find it. If the file is an executable file, be sure it is in one of the directories specified in the PATH environment variable. This error can occur if the Find Address by IP address cannot find the ping.exe or arp.exe executables.

```
Can't create file.
```

Explanation: This message displays when you attempt to create a file and you do not have write privileges in the destination directory.

```
Can't open Forwarding Database dump file.
```

Explanation: This message displays when you attempt to dump data to the file and you do not have write privileges in the destination directory.

```
Can't open Map List dump file.
```

Explanation: This message displays when you attempt to dump data to the file and you do not have write privileges in the destination directory.

```
Can't open Ring Error Monitor dump file.
```

Explanation: This message displays when you attempt to dump data to the file and you do not have write privileges in the destination directory.

```
Can't open system file: hw_mib.dat
```

Explanation: The file hw_mib.dat must be in the HUBwatch directory or, if defined, in the directory specified by the HUBWATCH_SYSTEM environment variable.

```
Connection Add failed.
```

Explanation: This message displays in the LAN Interconnect window when you attempt to make a connection between a module and a backplane LAN segment and the add operation fails.

```
Connection Delete failed.
```

Explanation: This message displays in the LAN Interconnect window when you attempt to delete a connection between a module and a backplane LAN segment and the delete operation fails.

```
Connection Move failed.
```

Explanation: This message displays when you attempt to move a connection in the LAN Interconnect window from one LAN segment to another but the move operation fails.

```
Connections exist to LAN.
Please delete all connections before attempting delete.
```

Explanation: This message displays when you attempt to delete a LAN segment in the LAN Interconnect window that currently has modules connected to it.

```
(W) Could not translate DECnet into MAC address.
Address filter entry has not been added.
```

Explanation: This message displays when you enter a DECnet name or address in the bridge/switch Address Filter window that HUBwatch cannot translate into a MAC address. Verify that the name or address is correct.

```
(W) Could not translate IP into MAC address.
Address filter entry has not been added.
```

Explanation: This message displays when you enter a IP name or address in the bridge/switch Address Filter window that HUBwatch cannot translate into a MAC address. Verify that the name or address is correct.

D

`Duplicate name specified.`

Explanation: This message displays in the LAN Interconnect window if you try to add an internal LAN with a name identical to one that already exists.

F

`Failed to get bridge management information.`

Explanation: UNIX only message. This message displays if the hub_mgmt_vw_init call fails in the 90-series Bridge Summary window or Bridge Port Summary window. This routine only fails if view enrollment information cannot be accessed. This situation could occur if a dll is not available, but the system message stating this is shown before this message displays.

`Forward Delay data field has invalid data in it.`

Explanation: This message displays in the bridge/switch Configuration window if you enter a forward delay value that is less than 5 or greater than 30.

```
Forwarding Aging time data field has
invalid data in it.
```

Explanation: Message is displayed in the bridge/switch Configuration window if you enter a forward database aging time value that is less than 10 or greater than 1,000,000.

```
Forwarding Short Aging time data field has
invalid data in it.
```

Explanation: Message is displayed in the bridge/switch Configuration window if you enter a forward database short aging time value that is less than 5 or greater than 250.

H

`Hello Time data field has invalid data in it.`

Explanation: Message is displayed in the bridge/switch Configuration window if you enter a forward database hello time value that is less than 1 or greater than 9.

I

`Invalid community name %s.`

Explanation: UNIX only message. This message displays for the Community Table (Manage Table) window when you attempt to add an agent with an invalid community string. A community string must include at least one non-blank character and a space.

`Invalid decnet name %s`.

Explanation: This message displays if you enter a DECnet name that is less than one or greater than six characters in length.

`Invalid read only community name %s.`

Explanation: UNIX only message. This message displays in the Community Table window if you attempt to add an agent without supplying a valid read-only community string.

`Invalid read write community name %s.`

Explanation: UNIX only message. This message displays in the Community Table window if you attempt to add an agent without supplying a valid read/write community string.

`Invalid Slot.`

Explanation: UNIX only message. This message displays in the Add Module window when you attempt to add a module with a bad slot number, that is, the slot number is blank, zero, or greater than the maximum slot number allowed for the hub type.

L

`Low Mgmt Memory. Rewrite memory?`

Explanation: This message is produced only when you request a rewrite of the GIGAswitch/FDDI management memory. It displays if HUBwatch detects that the management memory is low. If the you answer yes, then a management memory rewrite is performed on the GIGAswitch/FDDI. This operation allows the GIGAswitch/FDDI to possibly clear duplicate entries in its internal memory structures, thus freeing up memory and possibly relieving the low memory condition.

M

`MAC address is not in forwarding database.`

Explanation: This message displays when you attempt to use the bridge/switch Forwarding Database window to find a device in the bridge/switch forwarding database and the device cannot be found. The message means that the device with the designated MAC address is either not on a LAN that is connected to the bridge/switch or the MAC address has aged out of the database.

`MAC address translation failed.`
`Can't access ARP cache.`

Explanation: HUBwatch is unable to translate an IP address and/or name to a MAC address.

`MAC address translation failed.`
`Can't access NCP database.`

Explanation: HUBwatch is unable to translate a DECnet address and/or name to a MAC address.

`Max Age data field has invalid data in it.`

Explanation: This message displays in the bridge/switch Configuration window if you enter a forward delay value that is less than 7 or greater than 40.

`Message successfully logged.`

Explanation: This message indicates that the message has been sent to the Message log.

`MIB data not available (NoSuch).`

Explanation: The device does not recognize the requested MIB data item.

`Missing DLL...the dialog template cannot be found.`

Explanation: A device-specific DLL is missing from the installation. The message occurs when the user attempts to open a view for the device. In HUBwatch version 4.1 this message will occur if the hwtr.dll or hwan3.dll file is missing.

`Modify Failed.`

Explanation: This message displays in the LAN Interconnect window when a modify operation fails.

N

`No response from the agent.`

Explanation: This message displays when you attempt to access an SMNP agent over the network and you are unsuccessful, that is, the target device does not respond to the SNMP request. These are the possible reasons: the specified IP address is incorrect, the agent is down, the network connection to the agent is down.

`Normal successful completion.`

Explanation: This is a generic success message.

P

`Please select a filter to delete.`

Explanation: This message displays when you click on the Delete button on a bridge/switch protocol or Address Filtering window before a filter entry has been selected from the list.

`Please select a filter to modify.`

Explanation: This message displays when you click on the Modify button on a bridge/switch protocol or Address Filtering window before a filter entry has been selected from the list.

```
(W) Protocol is already being filtered on the
following port(s): %s.
Replace the old entry?
```

Explanation: This message is used in the bridge/switch Protocol window. It displays if you attempt to change an existing filter entry or if you try to add an entry that already exists. The message shows the present state of the filter matrix and asks you to confirm the change to existing entry.

S

`SNMP Set operation failed.`

Explanation: This message displays when you attempt to execute an SNMP Set operation on a device but the operation fails either because the device does not support the particular operation or does not respond to the operation.

`System error.`

Explanation: This is a catch-all message which may indicate a problem in HUBwatch management initialization or SNMP initialization.

`System Resources are low. Close some windows before proceeding.`

Explanation: The Microsoft Windows software has encountered a problem opening a window's dialog box. Closing some windows usually solves this problem.

T

```
This error occurred for the following ports: %s.
```

Explanation: A generic message for reporting errors on multiple ports. This message enables the programmer to output a list of ports along with an appropriate error message.

```
This Operation will DELETE ALL Address filters.
```

Explanation: This message displays when you select the Delete All button on the bridge/switch Address Filtering window.

```
This Operation will DELETE ALL protocol filters.
```

Explanation: This message displays when you select the Delete All button on the bridge/switch Protocol Filtering window.

```
This Operation Will Time Out in <x> Seconds.
Time Out!
```

Explanation: The last operation was not completed.

```
Timed out while waiting for SET response from %s.
The SET may have failed.
```

Explanation: This message displays when there is no response from an SNMP agent after a Set command is issued.

U

```
Unable to close catalog file.
```

Explanation: UNIX only message. This error occurs if the message catalog cannot be closed. The message catalog is used to map a message tag with a message string. This eases internationalization by allowing all messages to be changed in one file. The PC does not use the same method of access to the message catalog and does not use this tag. This error occurs on a error from the catclose(3) call. For more information regarding catclose, see man pages.

```
Unable to communicate with agent...
Unable to complete check for possible repeater
loop if current operation is completed.
Aborting current operation...
```

Explanation: This message displays when you try to make a new connection to a LAN segment on the hub backplane and HUBwatch attempts to analyze a hub's backplane LAN configuration in order to check for a potential loop for a new connection but is unable to communicate with that hub. Thus the warning message informs you that because HUBwatch cannot get all the data it needs from the hub, it is unable to guarantee that the proposed new connection will not result in a loop. HUBwatch then aborts the current new connection.

`Unable to open catalog file.`

Explanation: UNIX only message. This error occurs if the message catalog cannot be opened. The message catalog is used to map a message tag with a message string. This eases internationalization by allowing all messages to be changed in one file. The PC does not use the same method of access to the message catalog and does not use this tag. This error occurs on a error from the catopen(3) call. For more information regarding catopen see man pages.

`Unable to open logfile.`

Explanation: UNIX only message. This message indicates that the `fopen` call to open logfile failed.

`Unable to resolve network address to physical address. Search aborted.`

Explanation: This message displays in the Find Address window if the network address (IP, DECnet) could not be translated to a MAC address. The Find function uses the following sources of information to translate addresses.

- Network name database, which maps an IP or DECnet name to an IP or DECnet address.
- MAC address calculated from the DECnet address.
- ARP cache for IP address to MAC address translation.
- PING – if the IP address is not in the ARP cache, HUBwatch pings, then rereads the ARP cache.

`Use disconnect+connect to move connection between different segment types.`

Explanation: This message displays when you attempt to move a connection in the LAN Interconnect window but the move is not supported. To move such a connection, you must first delete the existing connection to the hub backplane LAN segment, and then reconnect it to the desired LAN segment. Refer to HUBwatch online help for instructions on how to connect and disconnect modules from LAN segments.

Y

```
You are about to RESET the Repeater's Ethernet state
machine.
Are you sure that you want to do this?
```

Explanation: This message displays when you click on the Reset button in the 900-series Repeater Summary window.

System Errors

```
(E) %s

(W) %s

(I) %s
```

Explanation: These messages refer to local system error conditions or error conditions that originate at SNMP target devices. These error conditions are usually not directly related to HUBwatch. Here are some examples:

- Out-of-a-resource condition: Memory allocation errors, Group definition failures, IP socket creation errors, Max number of LI segments/connections/subtypes exceeded, Max # of PVCs exceeded, etc.
- Unexpected SNMP information originated from a target device: Illegal module LED state, illegal TR trunk type, etc.
- Unexpected system condition in HUBwatch: No agent for SNMP request, Default agent not defined, SNMP send request errors, etc.

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