

HUBwatch for Windows

DECbridge 90 Management

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Preface

Introduction

This manual is for system managers who are going to use the HUBwatch for Windows application to manage DECbridge 90 modules.

This manual contains information about selecting a bridge module; managing the configuration, performance, and faults for the bridge; and printing bridge reports.

Conventions

The following table lists the conventions used in this manual.

Convention	Meaning
Note	Contains important information.
<i>Italic type</i>	Emphasizes important information, indicates variables, and indicates complete titles of documents.
Click on	To press and release a mouse button when the pointer is positioned on an active object.
Drag	To press and hold a mouse button, move the mouse, and then release the button.
MB	Indicates a mouse button.
Mouse Button	Position
MB1	Left mouse button
MB2	Right mouse button (middle button on 3-button mouse)

Convention	Meaning
<u>Underline</u>	Indicates the underlined letter on the screen menu item, option, or button. These are designed for use if you do not have a mouse or do not want to use your mouse for accessing menu items. To access items without using a mouse, do the following:
To . . .	Press . . .
Access menu items	Alt and the underlined letter
Access options	Shift and the underlined letter
Activate buttons	Alt and the underlined letter

1

Managing DECbridge 90 Modules

Introduction

The DECbridge 90 is a network LAN bridge designed for Institute of Electrical and Electronics Engineers (IEEE) 802.3 CSMA/CD networks. The DECagent 90 proxies for the DECbridge 90 by translating SNMP to Digital's RBMS protocol. You can use HUBwatch to manage, via the DECagent 90, the configuration performance and faults related to a selected DECbridge.

Note

Prior to reading this manual, you should be familiar with the *DECbridge 90 Owner's Manual*, EK-DEWGB-OM. For ordering information, refer to Appendix A.

Selecting the DECbridge Module

To manage a specific DECbridge, you must define that bridge by selecting it:

1. Set the display to the hub view, to select a DECbridge.

or

Set the display to the network or site view to select a standalone DECbridge.

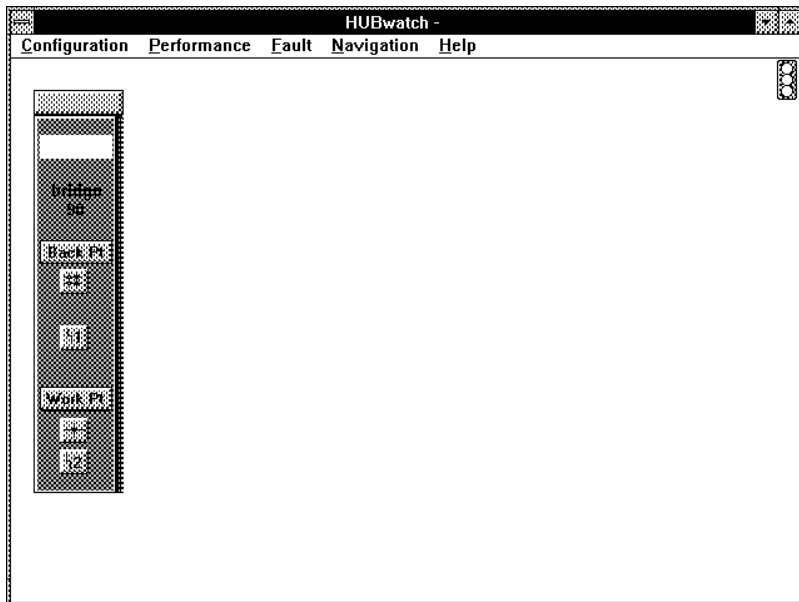
2. Choose the Navigation pull-down menu.
3. Choose the Zoom In option.
The cursor becomes a magnifying glass.
4. Position the magnifying glass on the DECbridge and click MB1.

HUBwatch displays the module view with the DECbridge module on the left side of your window (Figure 1-1).

Note

You can also access the bridge module by double clicking MB1 on the module itself.

Figure 1-1 Selecting a DECbridge Module



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Note

For managing and information gathering purposes, the DECbridge 90FL should be treated the same as the standard DECbridge 90.

To select a generic bridge, refer to the *HUBwatch for Windows User Information* manual.

Accessing DECbridge Information

You can access DECbridge information and manage the selected bridge through the following pull-down menus:

- Configuration
- Performance
- Fault
- MIB Access

Note

The MIB Access menu is available only at the device view. It is not available at the module view.

Managing the DECbridge Configuration

You can manage the configuration of either a DECbridge at the module view or a standalone DECbridge at the device view. The following table lists the options that appear at either the module or the device view when you select the Configuration menu. It also lists the tasks you can perform using these options.

Option	View	Task
Report	Module	View DECbridge configuration reports.
Protocol Filter	Module	Add, modify, or delete a protocol filter.
Modify†	Device	Modify the selected device.
Note†	Module and Device	Enables you to make an annotation about the selected device.

†This option is not module specific. For further information, refer to the *HUBwatch for Windows User Information* manual.

DECbridge Configuration Reports

Through the Configuration menu, at the module view, you can access information about the configuration of the selected DECbridge. The configuration reports include the following:

- Bridge Information
- Bridge Ports
- Bridge Port Information
- Bridge Forwarding
- Bridge Spanning Tree

Bridge Information Report

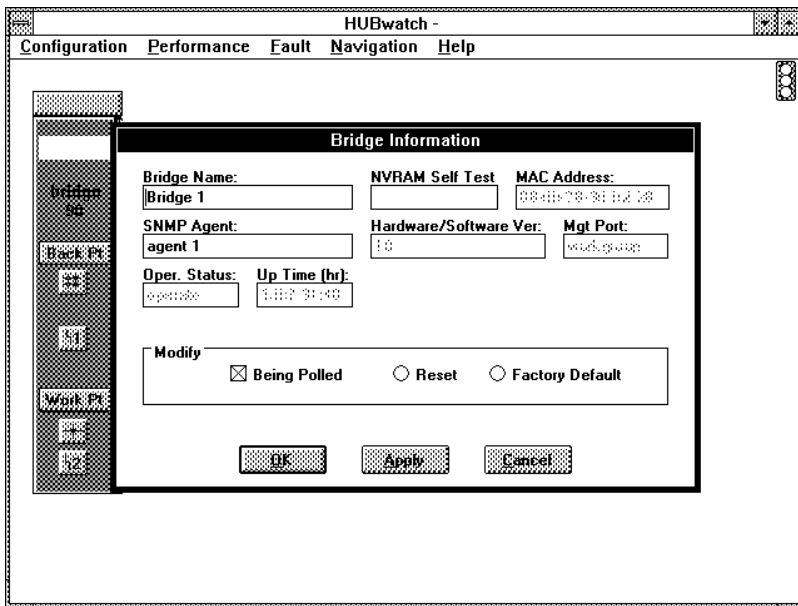
The Bridge Information Report (Figure 1–2) is accessed from the Bridge Info option. It displays the following high-level configuration information for the selected bridge. You can change any of the fields displayed in bold type.

Field Name MIB Object	Description
Bridge Name dh90SlotModuleName	A user-assigned name for the selected bridge. It can be up to 16 alphanumeric characters in length.
NVRAM Self Test dbSysNvramFailed	Reports whether the self-test of the NVRAM passed successfully.
MAC Address dh90SlotPhysicalAddress	The Medium Access Control (MAC) address for the selected bridge. This address is often referred to as the Ethernet or the Physical address.
SNMP Agent dh90SlotModuleName	The user-assigned name for the DECagent 90 that is proxying for this bridge. The bridge must be in the slot table of one of the communities that the agent is supporting.
Hardware/Software Ver dh90SlotModuleVersion	A textual description of the hardware and the firmware of the bridge.
Mgt Port db90MgmtHeardPort	The bridge port where the management packet was heard.
Oper Status db90SlotModuleVersion	The operating status of the selected bridge.

Field Name MIB Object	Description
Up Time (hr) dh90SlotCounterTime	The time in hours since the bridge's counters were last zeroed.
Modify	
Being Polled No MIB Object	Controls whether the management station is polling this agent. For a given hub, you either poll all modules or no modules.
Reset db90Maintenance	If selected, causes the agent to cease existing operations and perform its self test. If the self test passes, the agent is ready to accept new SNMP packets. The agent's counters are cleared by this action, but no previously scored MIB objects are affected.
Set to Factory Defaults da90Maintenance	Causes the bridge to go through its power up self test. When this happens, all settings stored in NVRAM are lost and the learned entries in the forwarding table are erased.

When you are finished viewing the information and making the necessary changes, choose the Apply button to accept the changes or choose the OK button to accept the changes and remove the window.

Figure 1-2 Bridge Information Report



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Bridge Ports Report

The Bridge Ports report (Figure 1–3) is accessed through the Bridge Ports option. It displays the following high-level port information for each of the ports on the selected bridge. You can change any of the fields in bold type.

Field Name MIB Object	Description
Root Bridge dot1dStpDesignatedRoot	The MAC address of the root bridge as calculated by the Spanning Tree algorithm.
Lowest Cost Port dot1dStpRootPort	The port on this bridge that is closer to the root as determined by the Spanning Tree algorithm. For the DECbridge 90, this should always be port 1 on the backbone side.
Fields for Each Port	
Enable ifAdminStatus	A check in the box causes the port to be operational provided there are no faults detected on the port.
MAC Address ifPhysicalAddress	The Medium Access Control (MAC) address for the port. This is often referred to as the physical or Ethernet address.
Oper Status ifOperStatus	The operating status for the port.
Priority dot1dStpPort	You can change the priority value for this bridge in the Spanning Tree calculation. However, the change will not affect the resulting Spanning Tree, since there are no other bridges on the workgroup side.
Destination Bridge dot1dStpPort	The MAC address of the bridge that the Spanning Tree calculation designated as the active bridge for the segment to which this port is attached. It matches the MAC address of this port if this is the designated bridge on the backbone segment. On the workgroup side, port 2, the designated bridge is always this bridge.
Bad Hello Count db90IfSpBadHelloCount	A count of the number of Hello intervals during which at least one faulty Spanning Tree hello has been heard from another bridge on this port.
Forward Delay Timer (sec) db90IfSpForwardDelayTimer	The time remaining before the bridge leaves the learning state of Preforwarding and enters the operational state of Forwarding.
Root Age (sec) db90IfSpRootAge	The elapsed time since a Hello was heard from the designated bridge on this port.

When you are finished viewing the information and making the necessary changes, choose the Apply button to accept the changes or choose the OK button to accept the changes and remove the window.

Figure 1-3 Bridge Ports Report

The screenshot shows a 'Bridge Ports' configuration window. On the left, a 'Configuration' sidebar contains a tree view with 'Bridge Ports' selected. The main window has a title bar 'Bridge Ports' and a close button. Below the title bar, there are two input fields: 'Root Bridge: 01:00:00:00:00:00' and 'Lowest Cost Port: 1'. The main area is divided into two sections, 'Port 1' and 'Port 2'. Each section contains a grid of fields: 'Enable' (checked), 'MAC Address' (00:00:00:00:00:00), 'Oper. Status' (ready), 'Priority' (0), 'Destination Bridge' (00:00:00:00:00:00), 'Bad Hello Count' (0), 'Forward Delay Timer (sec.)' (0), and 'Root Age (sec.)' (0). At the bottom, there are three buttons: 'OK', 'Apply' (highlighted), and 'Cancel'.

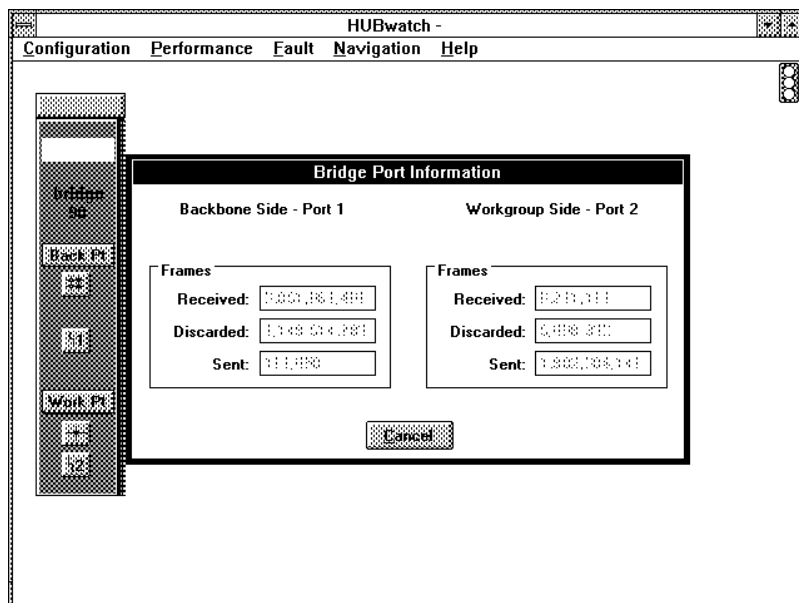
LJ-02729-SIX.PS

Bridge Port Information Report

The Bridge Port Information report (Figure 1-4) is accessed through the Bridge Port Info option. The report displays the following interactive port information on the number of frames received, discarded, and sent for both the backbone side of the bridge and the workgroup side. This report is only for viewing; the fields cannot be changed.

Field Name MIB Object	Description
Received dot1dTpPortInFrames	The number of frames received by the backbone and the workgroup.
Discarded dot1dTpPortInDiscards	The number of frames discarded by the backbone and the workgroup.
Sent dot1dTpPortOutFrames	The number of frames sent to its destination by both the backbone and the workgroup.

Figure 1-4 Bridge Port Information Report



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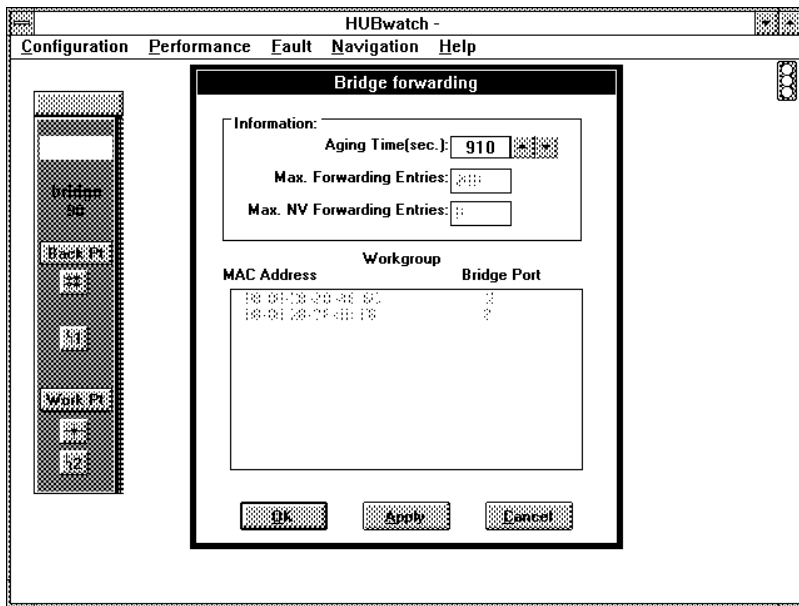
Bridge Forwarding Report

The Bridge Forwarding report (Figure 1–5) is accessed through the Bridge Forwarding option. It provides the following information for the bridge. You can change any of the fields in bold type.

Field Name MIB Object	Description
Information	
Aging Time (sec) dot1dTpAgingTime	The amount of time (in seconds) that the bridge holds an address in its database if it does not receive any activity from that address.
Max. Forwarding Entries db90MaxForwardingDBEntries	The maximum number of forwarding addresses the bridge can hold at one time. If the maximum number is exceeded, HUBwatch displays an alarm for the bridge.
Max NV Forwarding Entries db90MaxNVForwardingDBEntries	The maximum number of entries put in a non-volatile area.
Workgroup	
MAC Address dot1dTpFdbTable	A list of all MAC addresses in the DECbridge 90's forwarding table. The DECbridge 90 learns the addresses for the workgroup side only (port 2). There can be up to 200 entries in the table.
Repeater Slot/Port dot1dTpFdbTable	An association is made between repeater ports and the MAC address of devices attached to those ports, when possible. The slot and the port information will only appear when the DECbridge 90 is installed in a hub with DECrepeaters. Since the slot/port information is associated only with repeater ports, there will be no slot/port information given when the MAC address belongs to the Terminal Server or other module occupying another slot in the hub. The slot/port number given is arrived at by multiplying 100 times the slot number and adding the port number. Thus, 101 represents slot 1, port 1, and 507 would be slot 5, port 7.

Change the Aging Time (sec), if necessary, then choose the Apply button to accept the change or choose the OK button to accept the change and remove the window.

Figure 1-5 Bridge Forwarding Report



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Bridge Spanning Tree Report

The Bridge Spanning Tree report (Figure 1–6) is accessed through the Bridge Spanningtree option. It displays the most commonly needed information related to the Spanning Tree protocol. You can change any of the fields in bold type.

Field Name MIB Object	Description
Spanning Tree Mode	
Compatibility db90LB100SpanningTreeCompat	Displays either 1 for autoselect or 2 for ieee802. If autoselect, the bridge switches to LB100 mode if a Hello is heard from an LB100. If ieee802, the bridge stays in that mode even if an LB100 is detected.
Mode Changes db90SpanningTreeModeChanges	The number of times this bridge has switched from ieee802 mode to LB100 mode or vice versa.
LB100 Version db90LB100SpanningTreeVer	The version number of the Spanning Tree algorithm used when the bridge is in the LB100 Spanning Tree mode.
802 Version db90802SpanningTreeVer	The version number of the Spanning Tree algorithm used when this bridge is in the ieee802 Spanning Tree mode.
LB100 Polling	
Currently Changing db90TopologyChangFlag	This displays 1 if the extended LAN is presently changing to a new Spanning Tree topology or 2 if it is not changing.
Time Since Last Change (hr) dot1dStpTimeSinceTopologyChange	Elapsed time since a topology change was last detected by this bridge.
Number of Changes dot1dStpTopChanges	Total number of topology changes detected by this bridge since it was last reset.
Tell Parent db90TellParentFlag	A flag that indicates if the bridge is attempting to propagate a topology change toward the root.

Field Name MIB Object	Description
Hello	
Last Hello (hrs:sec) db90TimeSinceLastHello	The number of seconds since this bridge last sent a Spanning Tree Hello message.
Bad Limit db90BadHelloLimit	The number of Hello intervals during which this bridge receives one or more bad Hellos on one of its ports. This happens before this bridge performs a test on the link.
Reset Timer db90BadHelloResetTimer	The number of Hello intervals without bad Hellos that the bridge will wait for before it resets its bad Hello count to zero.
Aging	
Time (sec) db90ForwardDBShortAgingTime	The number of seconds that this bridge will keep learned entries active while a topology change is in effect.
Best Root Age (hrs:sec) db90BestRootAge	The elapsed time since the Hello message was received that established the best root.

Change the Reset Timer field, if necessary, then choose the Apply button to accept the change or choose the OK button to accept the change and remove the window.

Figure 1-6 Bridge Spanning Tree Report

HUBwatch -
 Configuration Performance Fault Navigation Help

Bridge Spanning Tree

Spanning Tree Mode

Compatibility:	Mode Changes:	LB100 Version:	802 Version:
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

LB100 Polling

Currently Changing:	Time Since Last Change(hr.):	Number of Changes:	Tell Parent:
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

Hello

Last Hello (hrs. sec):	Bad Limit:	Reset Timer:
<input type="text"/>	<input type="text"/>	0

Aging

Time (hrs. sec):	Best Root Age (hrs. sec):
<input type="text"/>	<input type="text"/>

OK Apply Cancel

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Managing the Bridge's Protocol Filtering

From the Configuration menu, at the module view, you can also effect the following four protocols of a selected DECbridge:

- Add protocols
- Modify a protocol ID or name
- Change a protocol filter
- Delete a protocol

Adding a Bridge Protocol Filter

To add a protocol filter to a selected bridge, do the following:

1. Choose the Protocol Filter option from the Configuration menu.

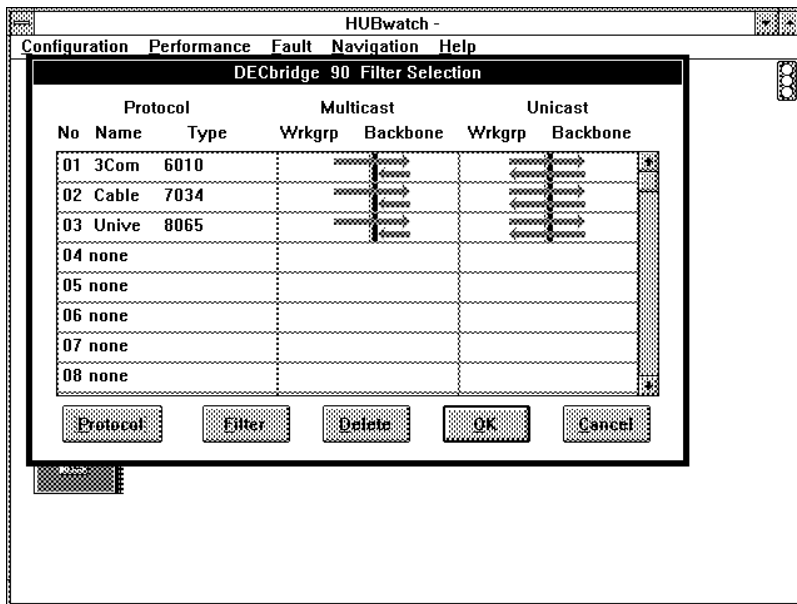
The DECbridge 90 Filter Selection window appears (Figure 1–7). It lists the following for each of the existing filters:

Field Name MIB Object	Description
Protocol No No MIB Object	The entry number in the protocol filter table. It is used for reference only. A maximum of 16 entries are allowed on the DECbridge 90.
Protocol Name No MIB Object	A character string that is normally used to refer to this instance of the protocol type.
Protocol Type db90ProtoFilterPortMask db90ProtoFilterMulticastFlag db90ProtoFilterStatus	The Ethernet or 802 type for the protocol.
Multicast Wrkgrp Backbone db90ProtoFilterPortMask db90ProtoFilterMulticastFlag db90ProtoFilterStatus	Determines the action of the DECbridge 90 upon receiving a Multicast packet on the workgroup side. The possible actions are filter (block) or forward. If the arrow passes through the barrier, then Multicast packets with this protocol type are forwarded. If the point of the arrow touches the barrier, then Multicast packets with this protocol type are not forwarded. Choosing the Modify button brings up a screen where you can change the filtering operations on this protocol type.

Field Name MIB Object	Description
Multicast Backbone db90ProtoFilterPortMask db90ProtoFilterMulticastFlag db90ProtoFilterStatus	Determines the action of the DECbridge 90 upon receiving a Multicast packet on the backbone side. If the arrow passes through the barrier, then Multicast packets with this protocol type are forwarded. If the point of the arrow touches the barrier, then Multicast packets with this protocol type are not forwarded to the backbone side. Choosing the Modify button brings up a screen where you can change the filtering operations on this protocol type.
Unicast Wrkgrp Backbone db90ProtoFilterPortMask db90ProtoFilterMulticastFlag db90ProtoFilterStatus	Determines the action of the DECbridge 90 upon receiving a unicast packet on the workgroup side. The possible actions are filter (block) or forward. If the arrow passes through the barrier, then unicast packets with this protocol type are forwarded. If the point of the arrow touches the barrier, then unicast packets with this protocol type are not forwarded. Choosing the Modify button brings up a screen where you can change the filtering operations on this protocol type.
Unicast Backbone Backbone db90ProtoFilterPortMask db90ProtoFilterMulticastFlag db90ProtoFilterStatus	Determines the action of the DECbridge 90 upon receiving a unicast packet on the backbone side. The possible actions are filter (block) or forward. If the arrow passes through the barrier, then unicast packets with this protocol type are forwarded. If the point of the arrow touches the barrier, then unicast packets with this protocol type are not forwarded to the backbone side. Choosing the Modify button brings up a screen where you can change the filtering operations on this protocol type.

2. Select the lowest unused row to enter the protocol.
The row is highlighted.
3. Choose the Protocol button.
The Select Protocol window appears, listing many common protocols.
4. Scroll through the listing until you find the protocol you need.
5. Select the protocol and choose the OK button.
The selected protocol appears in the selected row.

Figure 1-7 DECbridge 90 Filter Selection



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Modifying a Selected Protocol

To modify an existing protocol for the bridge, do the following:

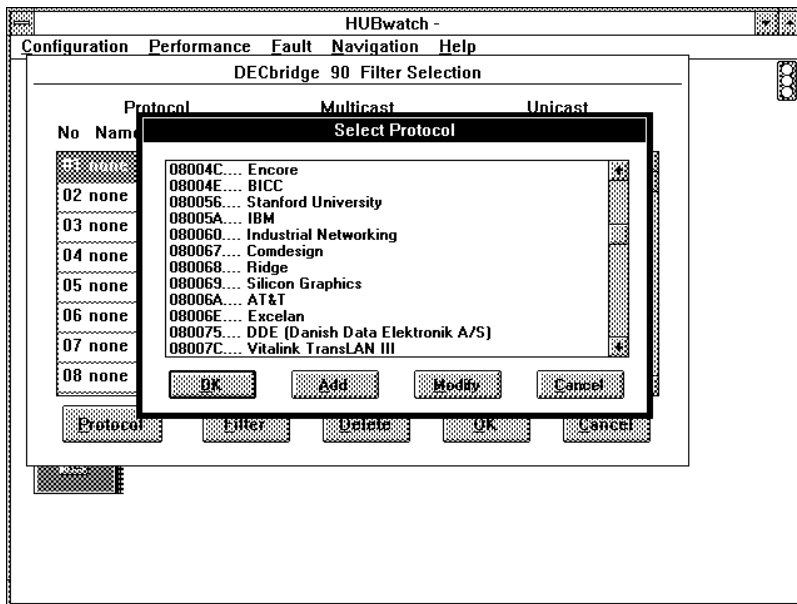
1. Choose the Protocol Filter option from the Configuration menu.
The DECbridge 90 Filter Selection window appears (Figure 1-8). It shows the existing protocols for the selected bridge.
2. Select the protocol you want to change and choose the Protocol button.
The Select Protocol window appears with the selected protocol highlighted.
3. Choose the Modify button.
The Replace Protocol window appears with the present Protocol ID and the name for the selected protocol.
4. Change the Protocol ID and the Protocol name as needed and choose the OK button.

The protocol changes are made only to the selected protocol.

Note

If the protocol you changed is also listed on the DECbridge 90 Filter Selection window, you have to go into this window and make the changes manually. To make a change, highlight the filter you want to change by choosing the newly changed protocol to replace that filter.

Figure 1-8 Select Protocol Window



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Changing a Protocol Filter

To modify the filter of an existing entry, do the following:

1. Choose the Protocol Filter option from the Configuration menu.
The DECbridge 90 Filter Selection window appears.
2. Select the protocol for which you want to change the filtering.
3. Repeatedly click MB1 on the Filter button until the filtering information for both Multicast and unicast appears as necessary.

Deleting a Protocol

To delete a protocol from the DECbridge 90 Filter Selection window, do the following:

1. Choose the Protocol Filter option from the Configuration menu.
The DECbridge 90 Filter Selection window appears.
2. Highlight the protocol you want to delete.
3. Click MB1 on the Delete button.

Note

If you choose the Cancel button on the DECbridge 90 Filter Selection window, all the protocols will be deleted.

Managing DECbridge Performance

You can manage the performance for either a DECbridge at the module view or a standalone DECbridge at the device view. The following table lists the options that appear at either the module or the device view when you select the Performance menu. It also lists the tasks you can perform using these options.

Option	View	Task
Statistics	Module	View DECbridge performance reports.
Graph†	Module and Device	Display an interactive graph of the overtime count for a selected MIB node and object.
Ping†	Device	Test the IP level connectivity of selected devices.

†This option is not module specific. For further information, refer to the *HUBwatch for Windows User Information* manual.

DECbridge Performance Reports

Through the Performance menu, at the module view, you can access information about the performance of the selected DECbridge. The performance reports for the bridge include the following:

- DECbridge Performance
- MIB Object Graph

DECbridge Performance Report

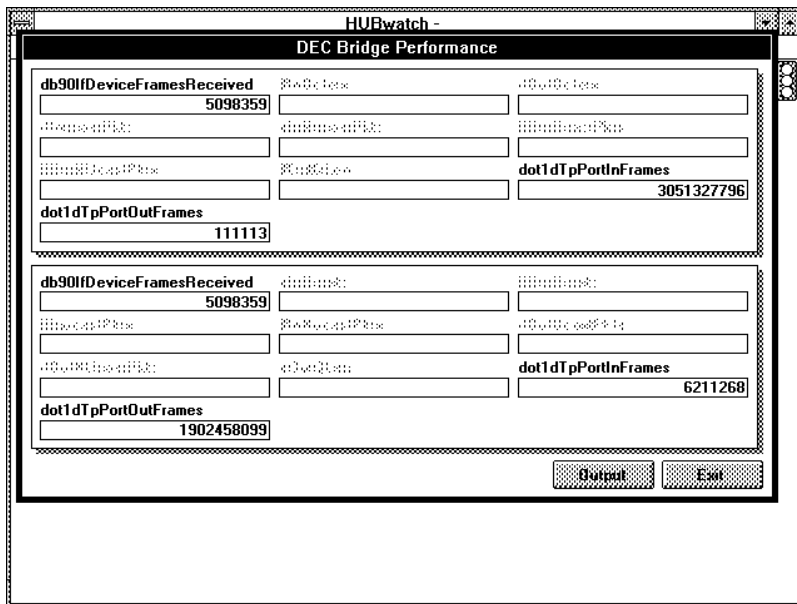
The DECbridge Performance Report (Figure 1–9) displays MIB information about the selected bridge. For detailed information on each of the MIB objects, refer to the MIB Appendix in the *HUBwatch for Windows User Information* manual.

You can only view or print the information on the DECbridge Performance report. For information on printing reports, see *Printing DECbridge Reports*.

MIB Object Graph Report - Bridge

The MIB Object Graph Report displays an interactive graph of the overtime count for a selected MIB node and object. The report is accessed through the Graph option. For further information, refer to the *HUBwatch for Windows User Information* manual.

Figure 1–9 DECbridge Performance Report



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Managing DECbridge Faults

You can manage the faults for either a DECbridge at the module view or a standalone DECbridge at the device view. The following table lists the options that appear at either the module or the device view when you select the Fault menu. It also lists the tasks you can perform using these options.

Option	View	Task
Error Statistics	Module	Look at the DECbridge Error Reports.
Set Thresholds	Module	Set threshold counters for the selected module.
Audible Alarms†	Module and Device	Set alarms so they are audible or inaudible.
Alarms†	Module and Device	Access the Current Alarms Network report.
Report†	Module and Device	Access the Alarm Log.

†This option is not module specific. For further information, refer to the *HUBwatch for Windows User Information* manual.

Viewing DECbridge Error Report

The DECbridge error report lists specific MIB objects for the selected bridge and the associated errors. To access the report, do the following:

1. Set the view to the bridge you need to effect.
2. Pull down the Fault menu.
3. Choose the Error Statistics option.
The DECbridge error report appears (Figure 1–10).

Figure 1–10 DECbridge Error Report

DEC Bridge Error		
Interface 1		
ifInPktsReceived	ifInPacketsReceived	ifInPktsReceived
<input type="text"/>	<input type="text"/>	<input type="text"/>
ifOutPktsTransmitted	ifOutPacketsTransmitted	ifOutPktsTransmitted
<input type="text"/>	<input type="text"/>	<input type="text"/>
ifInErrors	ifInErrors	ifInErrors
<input type="text"/>	<input type="text"/>	<input type="text"/>
ifOutErrors	ifOutErrors	ifOutErrors
<input type="text"/>	<input type="text"/>	<input type="text"/>
dot1dBasePortDelayExcdDisc	dot1dBasePortMtuExcdDisc	dot1dTpPortInDiscards
<input type="text" value="0"/>	<input type="text" value="96"/>	<input type="text" value="1149651282"/>
Interface 2		
ifInPktsReceived	ifInPacketsReceived	ifInPktsReceived
<input type="text"/>	<input type="text"/>	<input type="text"/>
ifOutPktsTransmitted	ifOutPacketsTransmitted	ifOutPktsTransmitted
<input type="text"/>	<input type="text"/>	<input type="text"/>
ifInErrors	ifInErrors	ifInErrors
<input type="text"/>	<input type="text"/>	<input type="text"/>
ifOutErrors	ifOutErrors	ifOutErrors
<input type="text" value="208086"/>	<input type="text" value="0"/>	<input type="text" value="0"/>
dot1dBasePortDelayExcdDisc	dot1dBasePortMtuExcdDisc	dot1dTpPortInDiscards
<input type="text" value="0"/>	<input type="text" value="96"/>	<input type="text" value="1149651282"/>
<input type="button" value="Output"/>		<input type="button" value="Exit"/>

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The DECbridge error report is comprised of information for Interface 1 and Interface 2. Both contain the same entries. Interface 1 is for the backbone side of the bridge. Interface 2 is for the workgroup side of the bridge.

You can either view or print the DECbridge error report. You cannot change any of the fields. For detailed information on each of the MIBs displayed in the DECbridge error report, refer to the MIB Descriptions appendix in the *HUBwatch for Windows User Information* manual. To print the report, refer to Printing DECbridge Reports.

Setting Thresholds - DECbridge

The Set Thresholds - Bridge window displays the thresholds for either Interface 1 or Interface 2 of the selected bridge.

To access the Set Thresholds - Bridge window, do the following:

1. Select the bridge for which you want to view the threshold settings.
2. Choose the Set Threshold option from the Fault menu.

A submenu appears with the following options appears:

- Interface 1
- Interface 2

3. Select whichever one you need to effect.

The Set Thresholds window for the selected bridge appears (Figure 1–11).

You can do any of the following to the threshold counters for the selected bridge.

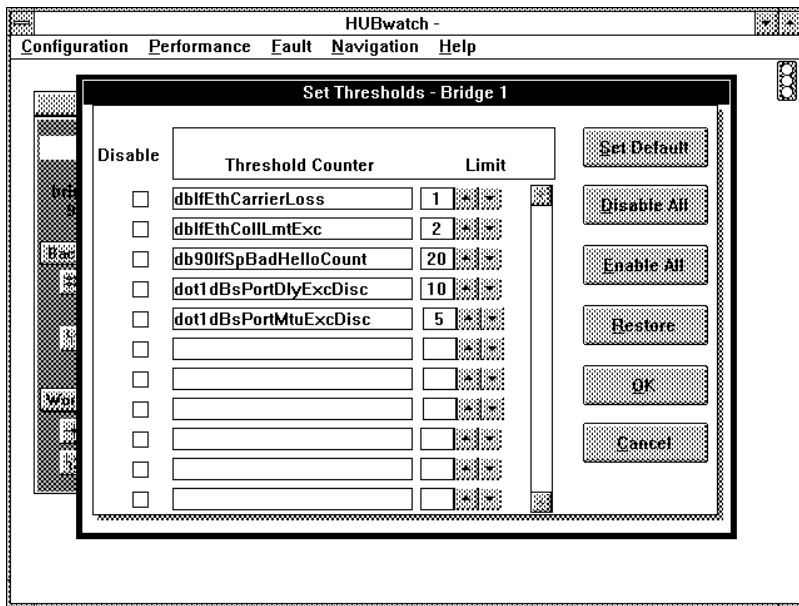
To perform this task . . .	Do this... . . .
Set the thresholds to their default.	Choose the <u>S</u> et Default button.
Disable all the threshold counters.	Choose the <u>D</u> isable All button.
Enable all the threshold counters.	Choose the <u>E</u> nable All button.
Restore the threshold counters to their original setting.	Choose the <u>R</u> estore button.
Change specific threshold counter limits.	Choose ↑ or ↓ for the setting you need to change.

4. Make the necessary changes to the threshold counters and choose the OK button to accept the changes and remove the window.

Accessing the MIB

The MIB Access menu is not module specific. You can only access the MIB for a generic or standalone device at the device view. For a DEChub module, you must be at the hub view. For further information, refer to the *HUBwatch for Windows User Information* manual.

Figure 1–11 Set Thresholds - Bridge Window



LJ-02748-SIX

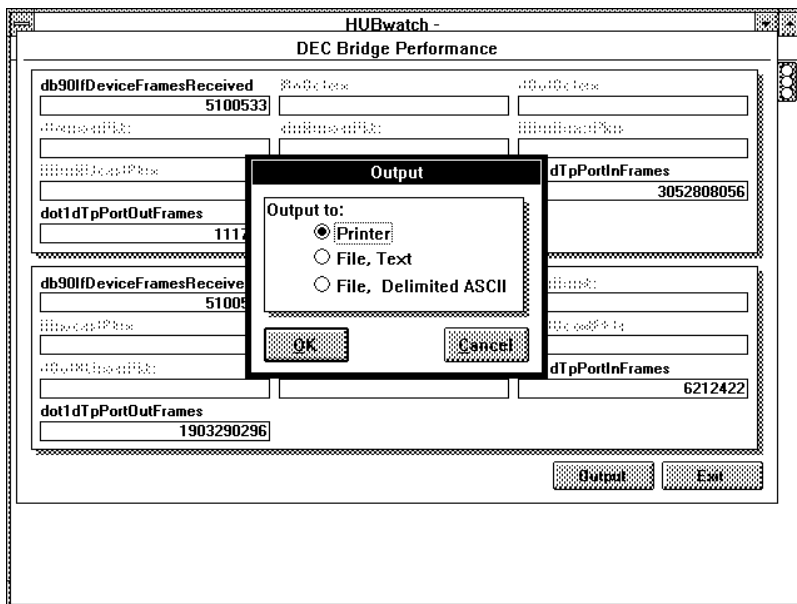
Printing DECbridge Reports

Several of the report windows provide an option for printing the report. This is indicated by an Output button at the bottom of the window.

To print a report, do the following:

1. Choose the Output button.
The Output dialog box appears (Figure 1–12).
2. Choose one of the following options for output:
 - Printer
 - File, Text
 - File, Delimited ASCII
3. Choose the OK button.

Figure 1–12 Output Dialog Box



LJ-02910-SIX

A

Documentation and Ordering

Introduction

This appendix lists documentation that is related to the HUBwatch for Windows application. It also includes ordering information.

Related Documentation

You can order the following documents from Digital:

Document Title	Order Number
DEChub 90 Owner's Manual	EK-DEHUB-OM
Open DECconnect Building Wiring Components and Application Catalog	EB-K2407-42
DECconnect System Planning and Configuration Guide	EK-DECSY-CG
DECagent 90 User Information	EK-DENMA-UI
DECbridge 90 Owner's Manual	EK-DEWGB-OM
DECrepeater 90C Owner's Manual	EK-DECMR-OM
DECrepeater 90T Owner's Manual	EK-DETMR-OM
DECserver 90L Owner's Manual	EK-DSRVD-OM
DECserver 90L+ Owner's Manual	EK-DSRVG-OM
HUBwatch Installation & Use for DECMcc	AA-PW4BA-TE
HUBwatch for Windows (Kit)	EK-478AA-DK
HUBwatch for Windows User Information	EK-487AA-UI
HUBwatch for Windows DECserver 90 Management	EK-489AA-UI
HUBwatch for Windows DECrepeater 90 Management	EK-490AA-UI

Ordering Information

You can order options and documentation by mail, phone, or electronically.

Need Help?

If you need help deciding which documentation best meets your needs, please call 800-DIGITAL (800-344-4825) and press 2 for technical assistance.

Electronic Orders

To place an order through your account at the Electronic Store, dial 800-234-1998, using a modem set to 2400 or 9600 baud. You must use a VT terminal or terminal emulator set at 8 bits, no parity. If you need help, call 800-DIGITAL (800-344-4825) and ask for an Electronic Store specialist.

Telephone or Direct Mail Orders

You can order documentation by phone or direct mail.

If You Are From . . .	Call . . .	Or Write . . .
U.S.A.	DECdirect Phone: 800-DIGITAL (800-344-4825) FAX: (603) 884-5597	Digital Equipment Corporation P.O. Box CS2008 Nashua, NH 03061
Puerto Rico	Phone: (809) 781-0505 FAX: (809) 749-8377	Digital Equipment Caribbean, Inc. 3 Digital Plaza, 1st Street Suite 200 Metro Office Park San Juan, Puerto Rico 00920
Canada	Phone: 800-267-6215 FAX: (613) 592-1946	Digital Equipment of Canada Ltd. 100 Herzberg Road Kanata, Ontario, Canada K2K 2A6 Attn: DECdirect Sales
International	—	Local Digital subsidiary or approved distributor

Digital Personnel

You can order documentation by electronic mail. Contact the following organizations for instructions:

If You Need . . .	Call . . .	Contact . . .
Software documentation ¹	DTN: 241-3023 (508) 874-3023	Software Supply Business Digital Equipment Corporation 1 Digital Drive Westminster, MA 01473
Hardware documentation	DTN: 234-4325 (508) 351-4325 FAX: (508) 351-4467	Publishing & Circulation Services Digital Equipment Corporation NRO2-2/I5 444 Whitney Street Northboro, MA 01532

¹Call to request an Internal Software Order Form (EN-01740-07).

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