Software Product Description

PRODUCT NAME: HUBwatch for Windows, Version 4.1 **SPD 37.87.06**

DESCRIPTION

HUBwatch for Windows™ is a layered product on Microsoft® Windows that is designed to manage Digital's DEChub and GIGAswitch product families. You can install the application in several ways:

- As an add-on application to Digital ManageWORKS
- As an add-on application to HP OpenView™
- As an add-on application to Novell® NMS
- As a standalone application

The HUBwatch application is a flexible Simple Network Management Protocol (SNMP) tool that runs in the Windows 3.1 and Windows for Workgroups 3.11 environments. The graphical user interface (GUI) allows you to configure DEChubs and GIGAswitches, and to monitor the status and activity of DEChub modules and GIGAswitch components. You can display context-sensitive help for every screen.

HUBwatch for Windows V4.1 supports:

- All DEChub modules, as detailed in this document
- Digital MultiStack System
- Software configurable virtual local area networks (VLANs), in conjunction with the DEChub 900 MultiSwitch (MS)
- GIGAswitch/FDDI (except Asynchronous Transfer Mode (ATM) access card)
- GIGAswitch/ATM

Version 4.1 of the DEChub consolidated firmware kit is required for HUBwatch Version 4.1 to operate properly with DEChubs and DEChub modules. This kit is included with HUBwatch.

USING HUBWATCH

You invoke HUBwatch as an integrated application from a network map in ManageWORKS, OpenView, or NMS, or from the icon in Program Manager when standalone. A window then displays the front panel view of the selected device.

The Front Panel window includes the hub configuration. HUBwatch incorporates both physical and logical hub front panel views. The physical view depicts an exact representation of the hub's front panel. The logical view provides the same technical data, but uses a standard module template with labels and icons to distinguish module types. Modules in a Digital MultiStack System are displayed with relative "slot" numbers; however, distance between modules is not represented. Both views provide access to hub module management windows and options. Only the physical view is available for GIGAswitches.

To access module management windows, you double click on a module in the Front Panel window. Both the graphical physical and logical views have "hot spots," such as the port connectors. When you click on hot spots, another window opens containing information and controls that are specific to that module or port.

HUBwatch uses SNMP to manage the DEChub 900 MultiSwitch, DEChub 90, DEChub ONE and GIGAswitch products. These products include:

DECrepeater 90C	DECserver 90L	DECbridge 90
DECrepeater 90T	DECserver 90L+	DECbridge 90FL
DECrepeater 90T+	DECserver 90TL	DECbridge 900MX
DECrepeater 90FA	DECserver 90M	DECswitch 900EE
DECrepeater 90T-16	DECserver 900TM	DECswitch 900EF
DECrepeater 90FS	DECserver 900GM	DECbrouter 90T1
DECrepeater 90TS	DEChub 900MS	DECbrouter 90T2
DECrepeater 900GM	GIGAswitch/FDDI	DECbrouter 90T2A
DECrepeater 900TM	PEswitch 900TX	DECconcentrator 900MX
DECrepeater 900FP	GIGAswitch/ATM	RoamAbout Access Point

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PORTswitch 900TP	PORTswitch 900CP	PORTswitch 900FP
DECmau 900TH	DECagent 90	DECconcentrator 900TH
DECrepeater 900FL	DECrepeater 900SL	DECmau 900TL
DECrepeater 900TL	RouteAbout Access TW	RouteAbout Access EW

HUBwatch uses SNMP agents to manage DEChub and GIGAswitch/FDDI products. An SNMP agent is an entity in a hardware device that executes SNMP requests. The following hardware devices contain integral SNMP agents that HUBwatch manages:

DEChub 900MS	DECrepeater 900TM	PORTswitch 900TP
DECagent 90	DECrepeater 900GM	PORTswitch 900CP
DECserver 90TL	DECrepeater 900FP	PORTswitch 900FP
DECserver 90M	DECrepeater 90FS	DECmau 900TH
DECserver 900TM	DECrepeater 90TS	DECserver 900GM
DECconcentrator 900TH	DECswitch 900EF	DECbrouter 90T1
DECbrouter 90T2	DECbrouter 90T2A	PEswitch 900TX
DECswitch 900EE	GIGAswitch/FDDI	GIGAswitch/ATM
DECbridge 900MX	RoamAbout Access Point	DECconcentrator 900MX

HUBwatch manages SNMP agents that are identified in the HUBwatch agents file. The deletion and modification of SNMP agents and communities is accomplished in the Community Table window.

DIGITAL MULTISTACK SYSTEM MANAGEMENT

Management of a Digital MultiStack System requires a bus master services module in slot 15 of the stack. Using bus master services, slot information can be displayed through HUBwatch. A bus master services module can be a DECagent 90 with V3.0 or later firmware, or a DECrepeater 90TS or 90FS running V2.0 or later firmware. The DECrepeater 90TS or 90FS can manage any DECrepeater 90 module in the stack, while a DECagent 90 is required to manage DECbridge 90s or 90FLs or DECserver 90Ls and 90L+s. Devices with their own IP address, such as the DECbrouter 90, can be managed directly from HUBwatch; the bus master module provides only the slot information for the device's position in the stack. In order to manage a DECrepeater 90TS or 90FS in a stack using its full MIB, the module must have its own IP address. Only partial MIB support is available when the module is proxied by a bus master module.

DECHUB 90 MANAGEMENT

Management of a DEChub 90 requires a bus master services module in the DEChub 90. Using bus master services, DEChub 90 slot information can be displayed through HUBwatch. A bus master services module can be a DECagent 90, a DECbridge 90, or a 90FL. DECbridge 90s and 90FLs are no longer being updated as bus master devices; therefore, it is recommended that DECbridge 90s or 90FLs be used only as bus master devices in hubs that contain older modules such as: DECrepeaters 90C, 90T, 90T+, 90FA, 90FL and DECservers 90L, 90L+.

To implement SNMP, HUBwatch requires that the device being managed have either an integral SNMP agent or a proxy agent. The DECagent 90 SNMP agent is required to provide the SNMP interface and management to DEChub 90 modules, which do not have integral SNMP agents in a DEChub 90 or stackable configuration. HUBwatch displays the configuration on the front panel view. HUBwatch uses the information in the bus master device's database to display hub configurations.

Basic management of the DECagent 90 is also available through its setup port. The setup port enables you to monitor and control DECrepeater 90C, 90T, 90T+, 90FA, and 90FL ports when these modules are located in the same hub as the DECagent 90 or in a remote hub containing a DECbridge 90 or 90FL. Remote maintenance operation protocol (MOP) management of DECbridge 90 and 90FL and DECserver 90L+ is also provided through the DECagent 90 setup port. MOP management is not available for the DECrepeater 90FS or 90TS, both of which can be managed directly using SNMP. The DECagent 90 proxy can also be accessed via a Serial Line Internet Protocol (SLIP) connection.

The DECagent 90, V3.0, can manage 1 to 16 communities, consisting of not more than 48 modules. One of the 16 communities always contains the DECagent 90. A community can consist of an 8-16 slot DEChub 90 configuration, a Digital MultiStack System of up to 16 devices, or a standalone DECserver 90L, 90L+, DECbridge 90, or 90FL.

DECHUB 900 MULTISWITCH MANAGEMENT

Management of the DEChub 900 MultiSwitch requires an IP services module to be installed and identified in the DEChub 900 MultiSwitch. Multiple IP services modules can be configured to operate in failover mode, using the Hub Manager (DEChub 900 MultiSwitch integral SNMP agent) V4.1. Modules that currently provide IP services are as follows:

DECrepeater 90TS	DECswitch 900EE	DECmau 900TH
DECrepeater 90FS	DECswitch 900EF	PORTswitch 900CP
DECrepeater 900TM	PEswitch 900TX	PORTswitch 900TP
DECrepeater 900FP	DECconcentrator 900MX	PORTswitch 900FP
DECrepeater 900GM	DECbridge 900MX	DECconcentrator 900TH

You can manage DECrepeater 90, 90C, 90T, 90T+, 90T-16, 90FA, and 90FL modules either 90 style or 900 style when installed in a DEChub 900 MultiSwitch. Use 900 style management unless you do not have a module that provides IP services. The 90 style management emulates a DEChub 90 and requires a DECagent 90 in the DEChub 900 MultiSwitch. The 900 style management uses the Internet Engineering Task Force (IETF) repeater management information base (MIB) and the DEChub 900 MultiSwitch Hub Manager, which requires an IP services module. HUBwatch screens supporting the IETF-compliant MIBs are displayed, but the non-applicable functions for the particular DEChub 90 repeater module are disabled. No additional management features are available for the DEChub 90 repeater modules when managed 900 style.

DEChub ONE and standalone management are limited to those products with integral SNMP management agents; and to the DECbridge 90, 90FL and DECserver 90L, 90L+, providing there is a DECagent 90 on the same LAN.

The following modules are displayed with a front bezel only. No module management is available for these products:

- DECwanrouter 90, 90EW
- MUXserver 90
- DECpacketprobe 90, 900RR

If you double click on a DECpacketprobe, HUBwatch passes control to PROBEwatch, when PROBEwatch is present on the system.

HUBwatch manages the DECbrouter 90 by displaying a Module Summary screen and giving you the ability to create a TELNET session to the device. For DECswitch modules with routing software and RouteAbout Access modules, the backplane connections can be made in the LAN Interconnect screen, while clicking on the module's bezel will open a TELNET window. HUBwatch also supplements DECserver SNMP management with TELNET access for the DECservers that support TELNET.

The Module Summary and associated detail level screens provide full management of modules. In general, DEChub module management incorporates a Module Summary screen, and one or more detail level screens. The Summary screen displays administrative information and summary operational status of the module. You can enter some customized descriptive information, such as location. Some modules display summary operations data, such as traffic summary data. To access detail level screens, double click on the appropriate port or button.

Full graphical management of the DEChub 900 MultiSwitch is also available through its out-of-band port. The out-of-band management port on the DEChub 900 MultiSwitch requires SNMP to run over a SLIP connection. HUBwatch can communicate out-of-band through a serial port on the HUBwatch management system. Alternatively, a SLIP connection can be established by connecting an access server that supports SLIP, such as the DECserver 900TM, to the DEChub 900 MultiSwitch. A SLIP connection from the access server port to the out-of-band port on the DEChub 900 MultiSwitch provides the necessary communications path.

The DEChub 900 MultiSwitch Hub Manager restricts communities to the local DEChub 900 MultiSwitch backplane. A single hub can have 1-9 communities. Each slot uses the Hub Manager's community name followed by the slot number.

The DEChub 900 MultiSwitch has multiple flexible channels that can be used to create independent LAN segments. HUBwatch allows you to create and delete the LAN segments from the LAN Interconnect window. When you create LAN segments, you use a menu to assign a name and technology type. HUBwatch supports the creation and deletion of additional Ethernet, Token Ring and FDDI LAN segments.

Each port on a PORTswitch 900TP, 900FP, or 900CP can be assigned to any of six Ethernet LAN segments. This feature provides software LAN configuration at the repeater port level.

Modules or ports can be connected to different LAN segments by dragging (using the mouse) the desired connection to the appropriate LAN segment. Safeguards are implemented to prevent inappropriate LAN connections. Modules with the capability to interconnect more than four ports (for example, DECswitches and PORTswitches) have an associated LAN Interconnect Expanded View screen to display and connect all ports. The station configuration view can configure ports between the front panel and the DEChub backplane. The grouping view is used with the DECrepeater 900FP and PORTswitches to group ports onto different LANs.

Find Address and Find Duplicate Addresses are functions that search across all agents defined in the

HUBwatch agents file for stations connected to a managed Ethernet repeater. In V4.1, HUBwatch now interrogates hubs and standalone repeaters for the last source address seen on each port, in addition to looking in the address database table for each module.

DECrepeaters implementing port level security functions are as follows:

DECrepeater 900TM	PORTswitch 900TP
DECrepeater 900GM	PORTswitch 900CP
DECrepeater 90TS	PORTswitch 900FP
DECrepeater 90FS	DECrepeater 900FP

On the PORTswitch 900CP and 900TP, MAC addresses of devices attached to ports are learned and can be entered into the authorized stations list automatically.

DECbridge 900MX, DECswitch 900EF, DECswitch 900EE and PEswitch 900TX MAC address and protocol filtering and forwarding management are performed on detail views available from the Bridge Summary screen.

FDDI with HUBwatch consists of the ability to manage the DECconcentrator 900MX, 900TH and the FDDI port of the DECswitch 900EF and PEswitch 900TX. FDDI management functions include FDDI ligo (FDDI building blocks as implemented by HUBwatch) management, FDDI ring and tree network management on the DEChub 900 MultiSwitch backplane, and FDDI port assignment and operational management.

Token Ring management is available in the DEChub 900 MultiSwitch with a DECmau 900TH as the Token Ring management agent. In addition to the management of the following Token Ring devices, Token Ring network mapping and beaconing management features have been implemented. A ring map listing of connected lobes can be created. In the event of a beaconing condition, the offending port is isolated and partitioned. The DECmau 900TH has an integral SNMP agent. The module can be managed as a stackable standalone device. The module also provides proxy management for these devices, when all devices are installed in the same DEChub 900 MultiSwitch:

- DECmau 900TL
- DECrepeater 900TL
- DECrepeater 900SL
- DECrepeater 900FL

GIGASWITCH/FDDI

HUBwatch manages the GIGAswitch/FDDI in a similar manner to DEChubs. From the community table, you select a GIGAswitch/FDDI agent to display the front panel. Note that there is only a physical front panel view for the GIGAswitch/FDDI products. There are eight screens that allow you to manage the switch. In addition to the summary front panel and system summary views, detail screens let you manage line cards, MAC information and port details. Other screens enable filtering, and management of line card and bridge functions. Using SNMP, setting filters can be a complex and time consuming task. HUBwatch simplifies this task through an innovative GUI. HUBwatch V4.1 adds support for the 4-port FGL4 card.

GIGASWITCH/ATM

For the GIGAswitch/ATM, HUBwatch displays a front panel view showing the line cards and their slot positions. You can click on a module to display the Switch Summary window. For each port on the switch, HUBwatch displays the port status and allows you to enable or disable the port. The neighbor ID and port utilization are also shown. From the Switch Summary window, you can open a TELNET session with the GIGAswitch/ATM or display a PVC Summary window. The total PVC count is shown, and you can choose to list all of the PVCs, or just point-to-point or point-to-multipoint PVCs. For each PVC in the list, the virtual circuit status, port, virtual path identifier, and virtual channel identifier appear.

HUBLOADER

HUBwatch includes HUBloader, a utility with a graphical interface for upgrading device firmware over the network. HUBloader provides for discovering SNMP agents from the HUBwatch agents file, as well as a provision for manually specifying agents. HUBloader retrieves the current firmware revision from a device and shows how it compares to the most recent firmware revision from the DEChub consolidated firmware kit. You can choose to update devices one at a time or in batch mode using an edited list of devices. A log file indicating success or failure is kept for reference. HUBloader uses the trivial file transfer protocol (TFTP) application for downloading devices.

HARDWARE REQUIREMENTS

- Intel® 80386, 33 MHz or higher performance IBM®-compatible PC
- Color VGA or SVGA monitor

- Minimum 8 MB RAM; 16 MB for high port density DEChubs
- 3.5-inch diskette drive
- Minimum 8 MB of disk space
- Mouse or other pointing device supported by Windows 3.1
- 16-bit Ethernet Network Interface Card (NIC) unless you plan to manage exclusively via SLIP

Other Hardware Required

For DEChub 90 and Digital MultiStack System: DECagent 90 or other bus master and proxy agent.

This list comprises the requirements for running HUBwatch standalone. Refer to your documentation for ManageWORKS, OpenView, or NMS for the hardware requirements of those applications. Information on ManageWORKS can be found in SPD 63.70.

SOFTWARE REQUIREMENTS

Microsoft Windows V3.1 or Windows for Workgroups V3.11

OPTIONAL SOFTWARE

ManageWORKS Workgroup Administrator Version 2.0 or later - SPD 63.70

GROWTH CONSIDERATIONS

The minimum hardware/software requirements for any future version of this product may be different from the requirements for the current version.

DISTRIBUTION MEDIA

1.44 MB diskettes

ORDERING INFORMATION

QB-MQDAW-AA HUBwatch for Windows license, media, documentation and DEChub and GIGAswitch firmware kit.

A consolidated DEChub firmware kit (only) is available separately as part number: QB-32TAD-SA MS-Windows.

Software Documentation: QA-MQDAA-GZ HUBwatch Manual only. (Order QA-32TAA-GZ to obtain a set of DEChub product manuals corresponding to the consolidated firmware kit.)

SOFTWARE PRODUCT SERVICES

- Layered Product Service: QT-MQDAW-L9
- MDDS: QT-MQDAA-EC
- Installation: QT-MQDAW-I9
- Documentation update: QT-MQDAA-KZ

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