

Software Product Description

PRODUCT NAME: DECagent 90, Version 1.1

SPD 37.86.01

DESCRIPTION

The DECagent 90 module is a Simple Network Management Protocol (SNMP) proxy agent for the Workgroup family. Specifically, the DECagent 90 module provides SNMP proxy support for the DECbridge 90 bridge, the DECserver 90L and 90L+ terminal servers, and the DECrepeater 90C and 90T repeaters. As a proxy management agent, the DECagent 90 module responds to SNMP queries on behalf of those devices.

The following additional devices are supported in Version 1.1:

Full Proxy Support	Backplane Recognition only
DECbridge 90FL	DECserver 90TL
DECrepeater 90FL	DECwanrouter 90
DECrepeater 90FA	

The DECagent 90 module supports GETs, GET NEXTs, and SETs for the following Internet and Digital enterprise-specific Management Information Base (MIB) specifications:

MIB II RFC 1213

plus the new Bridge, Character, and RS232 groups

- RFC 1286 Bridge MIB
- RFC 1316 Character Device MIB
- RFC 1317 RS-232 Interface Type MIB

DEChub 90 MIB dated 3-April-1993

Version 1.1 supports the following MIB II TRAPs:

- Cold Start
- Warm Start
- Authentication Failure

It also supports one enterprise-specific TRAP to indicate a hub configuration change.

The following Request for Comments (RFC) have been implemented in order to properly provide support for SNMP:

- RFC 768 User Datagram Protocol (UDP)
- RFC 791 Internet Protocol (IP)
- RFC 792 Internet Control Message Protocol (ICMP)
- RFC 826 Address Resolution Protocol (ARP)
- RFC 951 BOOTP Protocol
- RFC 1155 Structure of Management Information (SMI)
- RFC 1156 Management Information Base I (MIB I)
- RFC 1157 Simple Network Management Protocol (SNMP)
- RFC 1158 Management Information Base II (MIB II)
- RFC 1215 Trap Definitions Conventions

Digital-specific MIB objects have been defined to provide DEChub 90 backplane slot configuration information. These objects provide data such as module-type, a user-assignable module name, number of ports on a module, the number of Medium Access Control (MAC) interfaces on a module, and the module's MAC address.

The DECagent 90 module polls the DECbridge 90 bridge and the DECserver 90L or 90L+ terminal servers in its slot table to keep the module status information as up-to-date as possible. It also asks the bridge for repeater port information. The DECserver 90 series terminal servers do not always respond on this bus and may have to be manually inserted in the DECagent 90 module's slot table either via SNMP or via the DECagent 90 module's console port.

The DECagent 90 module, like all DEChub 90 series modules, will work in a DEChub 90 or 900 backplane slot, or as a standalone module. It can proxy for multiple DEChub 90 backplanes or for standalone DECbridge 90 and 90FL bridges and DECserver 90L and 90L+ terminal servers. It does this by placing each hub or standalone device in its own SNMP community. The community strings are used like an address to index the

specific hub or standalone module among the several supported by a given DECagent 90 module. Since the DECserver 90TL and the DECwanrouter 90 have their own SNMP Agents, the DECagent 90 module does not proxy for them. It does place them in the slot table when discovered during polling of the backplane.

The DECagent 90 module contains Flash ROM, which allows it to keep its program in memory when DC power is lost or removed. Unlike ordinary ROM, Flash ROM allows new software to be loaded at any time, thus making firmware upgrades as easy as downloading a new image. The module ships from the factory with the most current firmware version preloaded. The DECagent 90 module stores the more volatile configuration data in battery-backed Static RAM (SRAM). Therefore, configuration data is immediately available once power is restored.

Proxying is accomplished by examining each MIB object request to determine what information is being requested, then choosing the best path to get that data. For some MIB objects, such as slot configuration information, the data exists in the DECagent 90 module's SRAM, so no proxying occurs. Other data may exist in a DECbridge 90 bridge or in a DECserver 90L or 90L+ terminal server, or in a DECrepeater 90C or 90T repeater. To fetch data from a DECbridge 90 bridge, the DECagent 90 module translates the MIB request to an appropriate RBMS command. When it receives the data back from the bridge, it constructs an appropriate SNMP response. The DECagent 90 module also translates DECrepeater MIB requests to Digital's RBMS protocol and polls the DECbridge 90 bridge to get repeater data in the slot that was identified in the MIB object ID. When it has the needed data, it formats an SNMP GET Response message. If the data exists in a DECserver 90L or 90L+ terminal server, then the DECagent 90 module translates the MIB request to MOP/Console Carrier (MOP/CC).

The DECagent 90 module is able to queue outstanding GET or SET requests and handle additional SNMP requests while waiting for a response back from any of the proxied modules. If too many SNMP requests come in rapidly, the DECagent 90 module eventually runs out of buffer space and starts dropping SNMP packets as they arrive. One of two things can be done to alleviate this situation: either reduce the SNMP packet rate at the management station, or else allocate more DECagent 90 modules for the number of hubs or standalone devices being managed. However, one DECagent 90 should handle 8 single hubs, or 8 standalone modules, or 4 double hubs with no performance degradation; a double hub is two DEChub 90s daisy-chained together as a virtual 16 slot configuration.

The DECagent 90 module also features an EIA-232-D asynchronous console port. This may be used for local

or remote "out-of-band" configuration or monitoring of the DECagent 90 module. A VT100 compatible terminal or terminal emulation software can be connected to do out-of-band management. The port also supports asynchronous modems with auto answer capability to allow remote dial-in management. The console interface is menu driven for ease of use by the occasional user. This interface provides an outgoing MOP connection via the Ethernet port, which allows the user to remotely manage any of Digital's terminal server products or the DECbridge 90 bridge, as long as those devices are reachable on the same LAN (Local Area Network).

COMPANION PRODUCTS

The DECagent 90 module provides an SNMP service to a requesting Network Management Station (NMS). Three graphical network management applications have been developed to manage the DEChub 90 backplane via the DECagent 90 module using SNMP as the management protocol. These are:

- HUBwatch for ULTRIX V1.1 (refer to SPD 40.64.xx)
- HUBwatch for OpenVMS V1.1 (refer to SPD 45.74.xx)
- HUBwatch for Windows V1.0 (refer to SPD 37.87.xx)

HARDWARE REQUIREMENTS

The DECagent 90 software will only run on the DECagent 90 module.

A DECbridge 90 with firmware revision 3.1 or higher is required to interoperate with the DECagent 90.

SOFTWARE REQUIREMENTS

The DECagent 90 module ships with the software preloaded.

ORDERING INFORMATION

DECagent 90 module:

DENMA-**, where ** is one of the following:

- MA= module with no power supply for installation in the DEChub 90
- AA= module with power supply and North American power cord
- AD= module with power supply and Danish power cord
- AE= module with power supply and UK power cord
- AI= module with power supply and Italian power cord
- AK= module with power supply and Swiss power cord

- AT= module with power supply and Israeli power cord
- AX= module with power supply and Central European power cord
- AZ= module with power supply and Australian power cord
- BJ= module with power supply and Indian/South African power cord

DH-DENMA-MA includes the DECagent 90 and the DECbridge 90 with no power supplies

DH-DENMA-FL includes the DECagent 90 and the DECbridge 90FL with no power supplies

Software License: QL-MQEA9-AA included with module DECagent 90 TRAD License (included with hardware)

Software Update Kit:

Both a license and a media/documentation kit must be ordered.

DECagent 90 TRAD Update License QL-MQEA9-RA
A software media and documentation kit is required for upgrading DECagent 90 modules from Version 1.0 to Version 1.1. The following kits are available:

Operating System	Media	Order number
OpenVMS VAX	TK50 tape	QA-MQEAH5
ULTRIX/RISC	TK50 tape	QA-MQEAC-H5

Documentation: EK-DENMA-UI

The above information is valid at time of release. Please contact your local Digital office for the most up-to-date information.

SOFTWARE LICENSING

This software is furnished under the licensing provisions of Digital Equipment Corporation's Standard Terms and Conditions. For more information about Digital's licensing terms and policies, contact your local Digital office.

The DECagent 90 software license applies to the DECagent 90 module on which the software runs, not to service host node CPUs in the network.

This product does not provide support for the VMS* License Management Facility. A Product Authorization Key (PAK) is not required for installation or use of this version of the product.

SOFTWARE PRODUCT SERVICES

Maintenance and installation services are available. Software update installation: *QT-MQEA9-19*
For more information, contact your local Digital office.

SOFTWARE WARRANTY

Warranty for this software product is provided by Digital with the purchase of a license for the product as defined in the Software Warranty Addendum of this SPD.

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* The terms VMS and OpenVMS refer to the OpenVMS Operating System.

