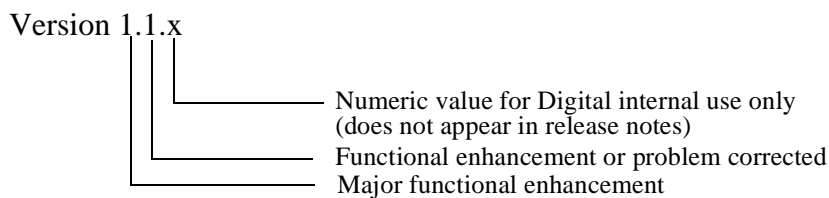




DECpacketprobe 90 Release Notes
Version 2.7
October 1996

As warranted, Digital changes the firmware of this device to make functional enhancements or to correct reported problems. These release notes identify enhancements and changes to the firmware that affect end-user operations. They explain how to quickly set up and configure your DECpacketprobe 90 for use with your PROBEwatch application, and how to configure your DECpacketprobe 90 for use with Serial Line Internet Protocol (SLIP) and modem configuration commands. They also list updates in this release as well as known conditions and restrictions that apply to the operation of the DECpacketprobe 90.

The following example describes the firmware version number:



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Setup

To set up and configure your DECpacketprobe 90 for use with your PROBEwatch application, perform these steps:

- 1 Power up the DECpacketprobe and verify that the device LED states correspond to the descriptions in the user's manual.
NOTE: When connecting the terminal to a DECpacketprobe 90, make sure that smooth scrolling is turned off.
- 2 Configure the following fields in the DECpacketprobe agent, using the front panel console and menu selections:
 - Addresses
 - System Contact Variable
 - System Location Variable
 - System Name Variable

NOTE: When using a VT300/400 series terminal to connect the DECpacketprobe console, verify that the XOFF speed is set to a rate greater than 64 bytes.

Addresses

Configure the following items (see the corresponding example):

<u>Item</u>	<u>Example</u>
IP Address	16.20.20.20
Gateway Address	16.20.0.50
Net Mask	255.255.255.0
TFTP_Server_Address	16.20.50.18

System Contact Variable

To set the variable for this field, do the following:

- 1 From the console main menu, select option [11] to put the DECpacketprobe 90 into Command_line mode.
- 2 Enter the name of the person who is responsible for maintaining the DECpacketprobe 90 agent as follows:

```
% SET AGENT_CONTACT contact_name
```

where `contact_name` is the name of the responsible person.

System Location Variable

To set the variable for this field (in Command_line mode), enter the location of the DECpacketprobe 90 as follows:

```
% SET AGENT_LOCATION agent_location
```

where `agent_location` is the chosen location for the DECpacketprobe 90.

System Name Variable

To set the variable for this field (in Command_line mode), enter the name of the DECpacketprobe 90 as follows:

```
% SET AGENT_NAME agent_name
```

where agent_name is the symbolic name you have chosen for the DECpacketprobe 90.

Verifying Operations

After you complete all the required operations, reset the DECpacketprobe 90 agent and verify operation as follows:

- 1 Exit Command_line mode and return to the console main menu by entering the following command:

```
% quit
```
- 2 Reset the agent (select option [12] from the console main menu).
- 3 Verify that the DECpacketprobe 90 agent is now Executing from Flash (see the heading on the screen, above the menu).
- 4 Verify that you can communicate with the DECpacketprobe 90 agent.

Flash Upgrade Operation

To upgrade the image in Flash from Version 1.0 to Version 2.7, complete the following steps:

- 1 Before upgrading Flash, the following items should be verified and/or changed:
 - **TFTP_TIMEOUT** - The default value for TFTP_TIMEOUT is 10. On a busy network, increase the TFTP_TIMEOUT to 60. If the image is loaded across a WAN, you may want to increase the TFTP_TIMEOUT to 100. To verify the TFTP_TIMEOUT, do the following:
 - a. Enter Command_line mode (select option [11] from the console main menu).
 - b. To display the TFTP_TIMEOUT value, enter the following command:

```
% get TFTP_TIMEOUT
```
 - c. To change the TFTP_TIMEOUT value, enter the following command:

```
% set TFTP_TIMEOUT XXX
```

where XXX is the new value that you specify. (Repeat step b if you want to verify the new value.)
 - d. To exit Command_line mode and return to the console main menu, enter the following command:

```
% quit
```
 - **TFTP Server Address** - Verify that the DECpacketprobe 90 knows the boot (TFTP) server address. Ensure that option [9] on the console main menu indicates the correct address. If the address is incorrect, select option [9] and change as necessary.

- **Loadable Image** - Verify that the loadable image is located in the BootP area of the TFTP server.
- 2 Start the Flash upgrade process by selecting option [10] from the console main menu.
NOTE: If, during the upgrade, you receive an "Unsuccessful" message, quit the upgrade, increase the TFTP_TIMEOUT, and start over. **DO NOT RESET** the DECpacketprobe 90.
- 3 Upon successful completion, exit the upgrade process by pressing Return. Restart the DECpacketprobe 90 by selecting option [12] from the console main menu. Verify that the DECpacketprobe 90 is running from Flash by reading the banner at the top of the screen.

New Features

The DECpacketprobe 90 has the following new features:

- **BootP** - The DECpacketprobe 90 supports getting its IP address through BootP.
- **SLIP** - Selecting option [8] from the console main menu and then selecting interface option [2] SERIAL allows you to use out-of-band management (OBM) using the Serial Line Internet Protocol (SLIP). Once you switch to this mode, you can manage the DECpacketprobe 90 by using any SNMP-compliant Network Management Station (NMS) that supports a SLIP connection.
- **Remote Console** - The DECpacketprobe 90 accepts remote console sessions from a PROBEwatch station.
- **Auto-Configure** - This feature is used to download configuration into the agent from the PROBEwatch station automatically on booting.

When the agent is booted and has reached a steady state (that is, it has an IP address, and so on), it sends out a NETCP request. NETCP uses the UDP port #395 that is assigned to Frontier Software. The server responds with an acknowledgment packet. When the agent receives this response, it stops sending out NETCP requests. If the agent does not receive a response from the station, then the agent retries four times at intervals of 1, 2, 4, and 8 minutes.

When the server receives a NETCP request, it first sends out a NETCP response and, if an autoinstall batch file was inserted when adding the agent list, it starts executing that batch file, which provides configurations to the agent.

Known Conditions and Restrictions

If the number of stations connected to the monitored network segment is greater than the `max_node` default value (256 max nodes) set in the DECpacketprobe 90 agent, increase the `max_node` default value to an acceptable level, as required.

Factory Default Agent_options

The `Agent_options` factory default settings are set to operate with PROBEwatch and not a generic SNMP client. To use a generic SNMP client or an RMON client other than PROBEwatch with the DECpacketprobe 90, you need to change the `Agent_options` settings. To change the `Agent_options` settings, complete the following steps:

- 1 Enter Command_line mode (select option [11] from the console main menu).
- 2 Verify the Agent_options current status by entering the following command:

```
% Get Agent_options
```

A list of options and status such as the following is displayed:

```

                                options = 0x21
mib_checks                      on
mib_defaults                    off
default_groups                  off
prom_boot                      off
flash_boot                      off
router_discovery                on
slip_port                       off
rip                             off
modem_log                       off
slip_ip                         off

```

- 3 Set Agent_options to new settings by entering a command in the following syntax:

```
% Set Agent_options [option_name] on/off
```

where option_name is the option you want to change and on/off indicates where you type either the on or off setting. For example, to change the mib_checks setting from on to off, enter the following command:

```
% Set Agent_options mib_checks off
```

- 4 Enter the Get Agent_options command again to verify the new settings.

For the DECPacketProbe 90 to work with PROBEwatch for Windows, the following Agent_options must be set as shown:

<u>Option</u>	<u>State</u>
mib_checks	off
mib_defaults	on
default_groups	off

For the DECPacketProbe 90 to work with a generic SNMP manager, the following Agent_options must be set as shown:

<u>Option</u>	<u>State</u>
mib_checks	on
mib_defaults	on
default_groups	on

To get more information on how to display or change Agent_options settings, enter the following command:

```
% help Agent_options
```

To exit Command_line mode and return to the console main menu, enter the following command:

```
% quit
```

SLIP Support and Modem Configuration Commands

All DECpacketprobe agents support out-of-band communications via Serial Line Internet Protocol (SLIP). The serial port on the DECpacketprobe 90 can be used as a secondary connection through which the user can access all network statistics. Normally, the SLIP link is used as a backup link when the network is not operational or the agent is not accessible. The SLIP function in the DECpacketprobe 90 has additional capabilities, which are summarized as follows:

- Provide SNMP communications over a serial link.
- Route IP packets from the SLIP port to other devices on the network, and vice versa.
- Forward trap packets on the SLIP port. When using a modem, this function may require the agent to dial the remote node in order to forward the trap packet.

The serial connection can be direct RS232C or through telephone lines using dial-up modems. External Hayes-compatible modems should be used for telephone-line connections. Communications over the serial line are the same as those over the LAN, except that the serial line packets are encapsulated using the SLIP protocol as specified in RFC 1055.

SLIP Network/Subnet

The DECpacketprobe 90 uses a standard IP routing algorithm to route packets to different interfaces. Therefore, the agent should be configured using an IP address that is not on the same subnet as the LAN IP address. The IP address that appears in the SLIP interface should reside on a subnet that is different from the LAN interface; otherwise, the agent cannot route the packets correctly.

Invoking SLIP

SLIP can be invoked from two locations:

- A terminal physically connected to the console port of the module.
- A remote console login screen through the clearVISN RMON Manager.

If the console screen is selected, note that, after SLIP is enabled, the terminal port can no longer communicate with the terminal correctly. It is expecting to be connected to a workstation that is running SLIP.

NOTE: The workstation can be connected directly or through two modems.

To invoke SLIP, complete the following steps:

- 1 From the physical console port, select option [8] from the console main menu. Two interface selection options are displayed.
- 2 Select interface option [2] SERIAL. The Serial Interface screen (out-of-band) is displayed.
- 3 Enter the required information:
 - IP address
 - Netmask address
 - Read/write community

— Port speed

- 4 Select option [12] from the console main menu to reset the module.

NOTE: During the reset process, you will lose communication with the module. After reinitialization, a workstation running SLIP will be required to communicate with the module.

From the remote login screen of PROBEwatch, invoke the same procedure. After reinitialization, connect a workstation running SLIP to the physical console port.

Modem Configuration

A Hayes-compatible modem can be connected to the agent's serial port to support SLIP connections with remote access. The agent should be configured through the agent's console port or by using the Remote Login utility in the DECpacketprobe 90. The modem parameters that should be configured by the user are shown below:

init_string	hangup_string	connect_string
phone_number1	phone_number2	connect_protocol
connect_time	connect_retry	disconnect_time

The modem control strings are ASCII strings that are used to initialize and communicate with the modem. The ASCII strings may contain control characters, which are two-character combinations of the type ^M (which stands for carriage return). The control characters are entered as ASCII characters by the user. For example, to enter ^M, type the character ^ followed by the alphabetic character M. The strings may also contain the following characters:

^1	delay 1 second
^9	delay 9 seconds
^s	send the string
^w	wait for the string

The character # can be used as a delimiter for strings. All strings having blank spaces between characters should be enclosed in quotes (" ") on the command line. The AT prefix is required for strings except those using A/ and +++. All modem command strings are limited to 40 characters excluding quotes, spaces, and control characters. If the maximum length is exceeded, the string will not be accepted.

init_string

This is an initialization string used for the modem. This string controls the general operation of the modem.

```
"^1AT S0=1 E1 Q0 X4 &D2 &C1 S10=20^M^2AT\N6|Q3\J0 %C1 \A0^M"
```

The agent will interpret the above string as:

- delay 1 second
- send the string "AT S0=1 E1 Q0 X4 &D2 &C1 S10=20" followed by the carriage return
- delay 2 seconds
- send the string "AT\N6|Q3\J0 %C1 \A0" followed by the carriage return

hangup_string

This string is used to disconnect a telephone connection.

```
"^2+++^2ATH0^M"
```

If a connection is made and the agent needs to disconnect, then this string is sent to the modem. The agent will interpret the above string as:

- delay 2 seconds
- send the string "+++"
- delay 2 seconds
- send the string "ATH0" followed by the carriage return

connect_string

The agent looks for the following string to check if a connection is made:

```
"#CONNECT#CONNECT 9600#CONNECT 9600/V42BIS#"
```

If a telephone connection is made, the modem will send one of the following ASCII strings to the agent:

- CONNECT
- CONNECT 9600
- CONNECT 9600/V42BIS

noconnect_string

This string is sent by the modem to the agent to indicate that the requested connection failed.

```
"#NO DIALTONE#NO CARRIER#BUSY#"
```

If the connection fails, the modem will send one of the following ASCII strings to the agent:

- NO DIALTONE
- NO CARRIER
- BUSY

phone_number1

This is a complete telephone number used by the modem to dial out to make a connection. This is the primary telephone number. The user should enter the dial prefix as well as the dial suffix. For example:

```
"ATDT 15088515700^M"
```

The dial prefix is ATDT, the telephone number is 15088515700, and the dial suffix is ^M.

phone_number2

This is a secondary telephone number used by the agent in case the primary telephone number fails. The primary telephone number is retried the number of times specified by the `connect_retry` parameter. The user should specify the secondary telephone number in the same syntax as the primary telephone number (see the example for the `phone_number1` parameter).

connect_protocol

The agent uses this protocol after the modem has made a connection:

```
"^1^s^M^wlogin:^sf^o^r^i^e^r^M^w^p^a^s^s^e^c^r^e^t^M^"
```

The agent will interpret the above string as:

- delay 1 second
- send the carriage return
- wait for the string "login"
- send the login string "frontier" followed by the carriage return
- wait for the string "password"
- send the password string "secret" followed by the carriage return

connect_time

After the agent dials out a number, it waits for `connect_time`, in seconds, before it retries the number. The default value is 30.

connect_retry

The agent retries the primary telephone number for the specified number of times. The default value is 10.

disconnect_time

The agent, after making a connection, will disconnect if no data is sent by the agent for `disconnect_time` in seconds. The default value is 30.

Configuration Commands

To configure the modem parameters described in the previous section, use the following commands at the agent console or through the Remote Login screen.

You can access configuration commands to support modem operations through the Configuration utility by selecting option [11] from the console main menu.

% help

Typing **help** and pressing Return in Command_line mode displays a complete set of the supported command line functions.

% help modem

This command displays the modem configuration commands, syntax, and parameters.

% set modem var value

% get modem var

These modem configuration commands change (set) or display (get) modem parameters, where var (variable) is any of the following parameter names and value is a parameter value (such as a timeout value in seconds or a string) that you specify only with the set command:

```
init_string          hangup_string    connect_string
noconnect_string    phone_number1  phone_number2
connect_protocol    connect_time    connect_retry
disconnect_time
```

Examples

- 1 Set the modem initialization string.

NOTE: Make sure that strings having blank spaces between characters are enclosed in quotes (" ") on the command line. Also make sure that strings do not exceed the maximum length of 40 characters (excluding quotes, spaces, and control characters); otherwise, the string will not be accepted.

```
% set modem init_string "^!ATS0=1 E1 Q0 X4 &D2 &C1 ^M^2AT \N6 \Q3 \J0 %C1 ^M"
```

- 2 Display the modem initialization string.

```
% get modem init_string
^!ATS0=1 E1 Q0 X4 &D2 &C1 ^M^2AT \N6 \Q3 \J0 %C1 ^M
```

- 3 Set the timeout for connecting the modem to 10 seconds.

NOTE: The modem connect time must be set before the modem retries the primary telephone number.

```
% set modem connect_time 10
```

- 4 Display the modem connect time.

```
% get modem connect_time
10
```

- 5 Set the number of times to retry the primary telephone number to 5.

```
% set modem connect_retry 5
```

- 6 Display the number of retries.

```
% get modem connect_retry
5
```

- 7 Set the timeout for disconnecting the modem to 30 seconds.

```
% set modem disconnect_time 30
```

- 8 Display the disconnect time.

```
% get modem disconnect_time
30
```

- 9 To display all the modem parameters, enter the following command:

```
% get modem
```

The modem returns a display similar to the following example:

```
init_string          ^1AT S0=1 E1 Q0 X4 &D2 &C1 S10=20^M
hangup_string        ^2+++^2ATH0^M
connect_string       #CONNECT#CONNECT 9600#CONNECT 9600/VBIS#
noconnect_string     #NO DIALTONE#NO CARRIER#BUSY#
phone_number1        15088518872
phone_number2        15088518393
connect_protocol     ^1^s^Mwlogin:^sf^frontier^Mwpassword:^ss^secret^M
connect_time         10
connect_retry        5
disconnect_time      30
```

% do modem connect

This command allows you to make a modem connection from the command line. The string connection made is returned to indicate a successful connection.

```
% do modem connect
connection made
```

% quit

Use this command to exit from Command_line mode and return to the console main menu.

Modem Log

All messages to and from the modem are logged. This is to aid debugging, but may not be necessary at a later time. If the user wants to see the exchange of messages between the modem and the agent, then the agent option bit # 10 should be set to a 1.

To display modem options, enter the following command:

```
% get modem options
          AT S0=1 Q0 S10=20^M
```

To enable the modem log, enter the following command:

```
% set Agent_options modem_log on
```

To disable the modem log, enter the following command:

```
% set Agent_options modem_log off
```

Accessing Online Information

Network Product Business Web Site

Further information on this network product or topic is available on Digital's Network Product Business (NPB) Web Site as well as its Bulletin Board System. Both systems maintain a common, rich set of up-to-date information on NPB's products, technologies, and programs.

The Web Site can be reached at geographic locations via the following URLs:

Americas Network Product Business Home Page	http://www.networks.digital.com/
Europe Network Product Business Home Page	http://www.networks.europe.digital.com/
Australia Network Product Business Home Page	http://www.digital.com.au/networks/
Digital Equipment Corporation Home Page	http://www.digital.com/

To get firmware and MIB information, please choose the "Products and Technology" link, and from there choose the "Technical Data" link.

To connect to the Network Product Business Bulletin Board System, you need a PC and a modem. Dial 508-486-5777 (U.S.A.). Set your modem to 8 bits, no parity, 1 stop bit.

Using Electronic Mail

The DDN Network Information Center (NIC) of SRI International provides automated access to NIC documents and information through electronic mail. This is especially useful for people who do not have access to the NIC from a direct Internet link, such as BITNET, CSNET, or UUCP sites.

To use the mail service, follow these instructions:

- 1 Send a mail message to **SERVICE@NIC.DDN.MIL**.
- 2 In the SUBJECT field, request the type of service that you want, followed by any needed arguments.

Normally the message body is ignored, but if the SUBJECT field is empty, the first line of the message body is taken as the request.

The following are examples of SUBJECT lines that you use to obtain DDN NIC documents:

```
HELP
RFC 822
RFC INDEX
RFC 1119.PS
FYI 1
IETF 1IETF-DESCRIPTION.TXT
INTERNET-DRAFTS 1ID-ABSTRACTS.TXT
NETINFO DOMAIN-TEMPLATE.TXT
SEND RFC: RFC-BY-AUTHOR.TXT
SEND IETF/1WG-SUMMARY.TXT
SEND INTERNET-DRAFTS/DRAFT-IETF-NETDATA-NETDATA-00.TXT
HOST DIIS
```

Requests are processed automatically once a day. Large files are broken into separate messages.

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