HEWLETT
PACKARD

HP 9000 Series 700 & 800

Using the HP DTC 16RX Manager

Using the
HP DTC 16RX Manager

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About this Book

Purpose of this manual

This manual describes the use of Hewlett-Packard's Data communications and Terminal Controller (DTC) management software known as HP DTC16RX Manager. The HP DTC 16RX Manager software (version A.14.39.000 or A.14.3A.000) operates on HP 9000 Series 700 and Series 800 systems running HP-UX release 9.x or release 10.0.

The DTC 16RX Manager is an application program that resides on the HP 9000 host system and enables system administrators and operators to configure and diagnose the HP DTC 16RX Routable Communications Server.

The design and content of this book presumes that the reader is an experienced UNIX user with a good knowledge of UNIX tools and commands.

Intended audience

This manual is intended for use by:

- The HP 9000 system administrator or network administrator who manages DTC configurations and related system parameters.

- The HP 9000 system operator or network operator who may perform certain system management tasks under the guidance of the system or network administrator.

Prerequisites

To use the DTC 16RX Manager you should have:

- Advanced knowledge of the HP-UX operating system, its file structure, and tools

- A good understanding of system administration tasks

- Knowledge of networking terms and concepts such as IP address, and node

names

- Knowledge of the operation of the HP DTC 16RX and the devices connected to it.

Manual organization

This manual is organized as follows:

Chapter 1—Introduction to DTC Manager briefly describes the DTC 16RX Manager product and the DTC 16RX.

Chapter 2—Before Installing DTC Manager Software describes the hardware and software requirements.

Chapter 3—Installing the DTC Manager Software describes how to install the DTC 16RX Manager software.

Chapter 4—Adding DTCs describes how to add a DTC 16RX to your configuration and configure it with the default configuration.

Chapter 5—Deleting DTCs describes how to delete a DTC from the list of DTCs managed by DTC Manager.

Chapter 6—Modifying a Configuration describes how to modify the configuration of a DTC using the command `rdtcmodify`.

Chapter 7—Configuring a LAN Board describes how to configure the global DTC parameters.

Chapter 8—Configuring SNMP Parameters describes how to configure a DTC for Simple Network Management Protocol (SNMP) access.

Chapter 9—Changing a Port Group to Modem or Direct Connect describes how to change the port group type on the DTC Manager.

Chapter 10—Changing Port Type to Terminal, Printer or Host describes how to set the port type for connections to terminals, printers or host computers.

Chapter 11—Configuring Terminal, Printer and Host Ports describes how to configure individual ports on the DTC.

Chapter 12—Copying and Pasting Configurations describes how to copy DTC board and port configurations within a DTC and from one DTC to another.

Chapter 13—Configuring a Backup DTC Manager describes how to configure a host computer to act as a backup manager for the DTC.

Chapter 14—Configuring Connections to HP 3000 Systems describes how to configure the DTC Manager and the DTC for connections to HP 3000 systems. It describes the configuration of a front-end DTC to provide two-way connection between DTC ports and an HP 3000 Series system across a routed IP network.

Chapter 15—Configuring a DTC Printer for HP 9000 Access describes how to create a DTC device file with the DDFA utility and how to configure your DTC printer for the HP-UX spooler.

Chapter 16—Troubleshooting describes how to solve DTC communication problems.

Chapter 17—Diagnosing DTC Problems describes the DTC Manager commands for resetting the DTC, reporting DTC and port status and running simple tests of the network connections.

Chapter 18—Reprogramming a DTC describes how to reprogram the Flash EEPROM in the DTC.

Chapter 19—Listing DTC Configurations describes how to use the `rdtclist` command to list DTC configurations.

Chapter 20—Logging DTC Events describes how to retrieve and format a DTC event log file.

Chapter 21—File Management describes how to manage DTC Manager files.

Chapter 22—Modifying configurations with rdtcmodifyconfs describes how to modify multiple DTC configurations in one procedure.

Appendix A—DTC Manager Commands lists the commands available on the DTC Manager.

Appendix B—DTC Terminal Parameters and Commands describes the DTC commands that you can use at the DTC prompt when you log in at a terminal connected to a DTC.

Appendix C—DTC Manager File System contains listings of all files and directories used by DTC Manager.

Glossary—provides a glossary of the terms used in this manual.

Related HP documentation

The information in this chapter was correct when it was printed, but it is possible that some part numbers may change during the lifetime of this book.

DTC 16RX hardware manuals

- *HP J2064A DTC 16RX Routable Communications Server Installation Guide* (J2064-90001) for the DTC 16RX product

- *DTC Cabling and Racking Guide* (5961-0373) for information on installing DTCs in racks and cabinets and details of cable pinouts for the DTC.

HP-UX system manuals

- *HP-UX System Administration Tasks*
- *Installing and Updating HP-UX*

LAN/9000 and Internet Services manuals

- *Installing and Administering LAN/9000*
- *Administering Internet Services*
- *DTC Device File Access Utilities (DDFA)*
- *DTC Planning Guide* (D2355-95017)
- *DTC Technical Reference Guide* (5961-9820)

HP 3000 Series 900 documentation

Some of the following HP 3000 Series 900 manuals are cross-referenced in the DTC 16RX Manager documentation, others contain useful information and should be available for reference. For a complete list of HP 3000 system documentation, consult one of the manuals listed below.

Using the Node Management Services (32022-61005) for detailed information about the NMS utilities, including NMMGR.

Configuring Systems for Terminals, Printers and Other Serial Devices (32022-61001) for information on how to prepare devices for operation, and how to configure the system to include asynchronous device connections.

Asynchronous Serial Communication Programmer's Reference Manual (32022-61001) for an introduction to asynchronous serial communications, the Distributed Terminal Subsystem (DTS) and basic data communications concepts. It also describes how to use internal function of the file system to control asynchronous devices programmatically.

Customizing Terminal and Printer Type Files Using the Workstation Configurator (5959-2870) for information on how to create or modify terminal type or printer type files.

Troubleshooting Terminal, Printer and Serial Device Connections (32022-61002) for more information on solving problems with connections to MPE/iX systems.

The following manuals may also be useful.

MPE/iX Commands Reference Manual Volume 1 (32650-90003)

MPE/iX Commands Reference Manual Volume 2 (32650-90003)

System Startup, Configuration and Shutdown (32650-90042)

HP 3000/iX Network Planning and Configuration Guide (36922-61023)

HP 36923A LAN 3000/XL Link and Terminal LAN Link Hardware Reference Manual (36921-90001)

LAN Cable and Accessories Installation Manual (5955-7680)

Central Bus Programmable Serial Interface Installation and Reference Manual (30263-90001)

HP 28684A EtherTwist Hub & HP 28688A EtherTwist Hub Plus Installation Steps (5090-2637)

Conventions

Throughout this book:

the DTC 16RX unit is referred to as a DTC.

the DTC 16RX Manager software is referred to as the DTC Manager.

The following typographic conventions are used in this book.

Bold text
Bold text is used for emphasis.

`type text`
Type text is used to represent user input to screen, all text appearing on a screen, and command names.

Conventions

Italic text
Italic text is used for emphasis and for the titles of documents.

The following conventions are used for commands which must be entered at the DTC user interface as well as in the syntax of DTC 16RX Manager commands.

`[optional]`
Text in square brackets is optional, and need not be typed. For example, in the `[connect]`command, you can type `connect` or just `c`.

`<variable>`
Text in chevrons represents a variable which must be entered, for example, the name of a system. You do not type the chevrons.

`either|or`
A pipe | is used to separate two items, one of which must be entered. For example, in `<node name | IP address>` you must enter either a node name or an IP address.

The following example explains this.

`[connect] <node name | IP addess>`

In this example, to connect to a system, you must type either `c` or `connect` followed by either a node name or an IP address.

1

Introduction to DTC Manager

This chapter provides a brief description of the HP's Data communications and Terminal Controller management software: the DTC 16RX Manager (referred to as the "DTC Manager" throughout this book). Information on various configurations is also provided.

DTC Manager

DTC Manager is a versatile communications server for connecting systems to terminals, printers, and other asynchronous devices. The types of connections available through a DTC are determined by the options purchased.

The DTC Manager is a DTC management system that operates on HP 9000 Series 700 and 800 systems running either HP-UX 9.X or HP-UX 10.0. It is used to create and maintain the DTC configuration files. For the purposes of this book, HP 9000 Series 700 or 800 systems are referred to as the *host system*.

The DTC Manager consists of a set of commands for configuring and troubleshooting DTCs. The firmware of the DTC itself contains the code for self-test and self-diagnostics, the DTC code and the management protocol. The DTC's configuration is loaded when the DTC is first switched on through a process referred to as configuration download. The configuration to be downloaded to each DTC resides permanently on the computer that is responsible for managing and controlling the operations of that DTC.

The **tftp** (trivial file transfer program) protocol is used for communication between the DTC and the DTC Manager. **tftp** is a standard part of HP-UX and must be installed and operational on the HP 9000 Series 700 or 800 host computer for the configuration information to be downloaded to the DTC.

DTC Manager in a routed network
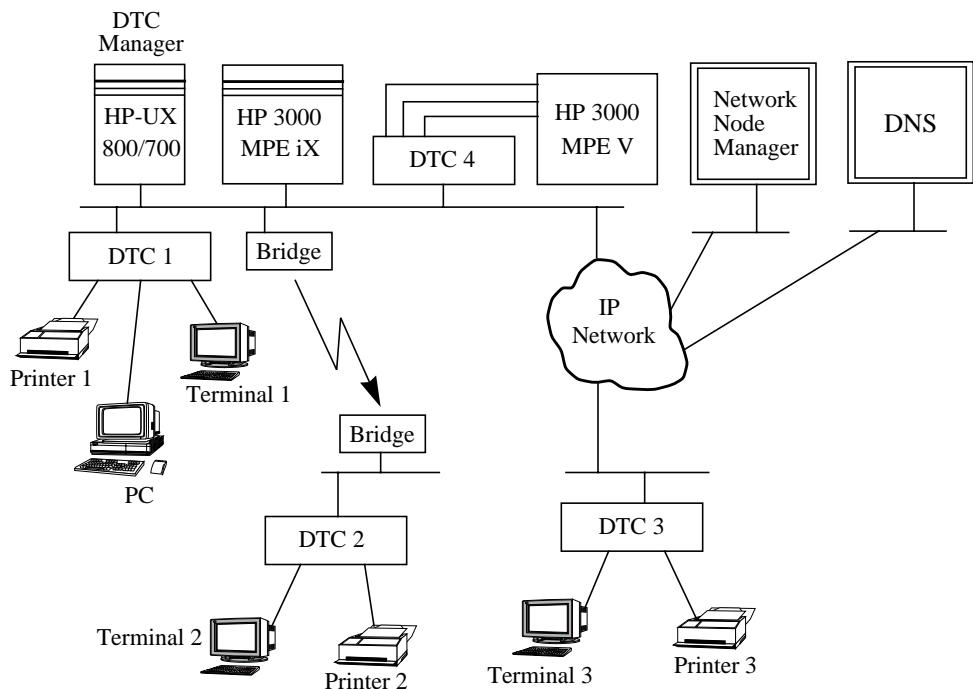
Figure 1. DTC Manager in a simple routed network

- The DTC Manager manages all the DTCs in this network.

- Terminal 1 and Terminal 2 can access all systems in the network.

- Terminal 3 can access all systems in the network including the HP 3000 system (with software version 14.3 installed and DTC 1 configured for front-end operation).

- The DTC supports low-speed links (minimum 9600 bits/s) between it and the systems it accesses or its DTC Manager.

The DTC Routable Communications Server

A DTC Routable Communications Server controls the transfer of data between the devices connected to it and the computer systems which those devices can access. The DTC controls communications that would otherwise need to be controlled by the computer system. Therefore, the DTC frees system resources and can improve the processing performance of the Hewlett-Packard computers that use the DTC as their communications controller.

Only the DTC 16RX can be managed by the DTC 16RX Manager. Refer to the DTC hardware installation manual (part number: J2064-90001) for a more detailed description of the DTC.

The DTC consists logically of two boards: a LAN (or processor) board, and a connector board with 16 asynchronous ports. You cannot add boards to the DTC.

Extended switching configurations (back-to-back)

The DTC must be connected to the LAN. It can also be connected directly to systems other than HP 3000 Series 900 or systems running Internet Services. This is called extended switching, or back-to-back switching.

Port groups

On the DTC the ports are grouped into two port groups. Each port group has eight ports and can be attached to a modem or direct-connect connection accessory. A port group corresponds to a connector on a DTC.

LAN board

A DTC has a LAN board that handles the overall management of the DTC. The LAN board is the central processing unit (CPU) of the DTC and contains the firmware responsible for much of the data communications processing. It also provides the DTC with its connection point to the LAN via an Attachment Unit Interface (AUI) cable and a Medium Attachment Unit (MAU) for ThickLAN connection, or a BNC T-Connector for ThinLAN connection.

2

Before Installing DTC Manager Software

This chapter provides information on the hardware and software requirements for DTC 16RX Manager. It also includes information on supported terminal types and how to get information on low-speed link configurations.

Hardware requirements

Ensure that you have the following hardware:

- An HP 9000 Series 700 or 800.

- LAN/9000 LINK hardware components including the LAN interface card (LANIC).

- A terminal connected to a MUX on your system (you can run DTC Manager from a terminal, a workstation or a remote X terminal).

- At least 24 Mbytes of free disk space to install the DTC 16RX Manager software.

- Additional disk space depending on the number of DTC 16RXs, and how much room you want for upload files during troubleshooting (you can run DTC Manager from a terminal, a workstation or a remote X terminal).

- You will need 1.5 Mbytes for each DTC 16RX managed. You will need 2.2 Mbytes to upload a file from a DTC 16RX (you can run DTC Manager from a terminal, a workstation or a remote X terminal).

Software requirements

Ensure that you have the following software installed and operational on your HP 9000 Series 700 or 800:

- HP-UX. release 9.X or 10.0
- Internet Services
- tftp (see chapter 3)

Supported terminals

The following terminals are supported with the DTC 16RX Manager:

- HP compatible terminals with programmable function keys and on-screen display of function key labels

- HP terminals with ASCII mode

- Wyse-30, Wyse-50 and Wyse-60 terminals

- VT100 and VT200 terminals

  (The function keys are obtained by pressing the **Control** and **F** keys simultaneously, followed by the appropriate key in the range 1 through 8.)

- You can also use an HP 9000 Series 700 Workstation or an X terminal.

Configurations supported over low-speed links

Low-speed links considerably reduce the number of simultaneous connections possible using a DTC 16RX. Consult your HP representative for more information on supported configurations.

2   **Configurations supported over low-speed links**

3

Installing the DTC Manager Software

This chapter describes procedures to install the DTC 16RX Manager software in systems that run release 9.x or 10.0 of the HP-UX operating system. It also provides information about DTC Manager version upgrades.

Make sure you read all of the installation information in this chapter *before* you attempt to install the software.

About upgrades

The installation utility automatically performs all tasks related to upgrading your system to the new version. Once the installation procedure is finished, the new version of DTC Manager software will be operational on your server and you can use it to manage your DTCs. This is true even if your DTCs are currently running a previous version of the DTC code software.

To take full advantage of new software functionality (on a DTC that runs a previous version of the DTC code) you must reprogram the DTC with the `rdtcreprog` command.

Note   You can display the list of currently managed DTCs with the `rdtclist -d` command.

For more information about upgrades refer to *Upgrading from HP-UX 9.x to 10.0* (order number B2355-90050).

Installing the software on HP-UX 9.X systems

These instructions assume that an HP-UX 9.X operating system, LAN/9000, and Internet Services are installed and operational on your system.

Verify tftp values before you run update

You should verify certain **tftp** values *before* you run the installation utility.

Make sure that the following three files contain lines with the exact values shown below:

/etc/services

```
tftp 69/udp #Trivial File Transfer Protocol
```
/etc/inetd.conf

```
tftp dgram udp wait root tftpd tftpd
```
/etc/passwd

```
tftp:*:510:1:Trivial_tftp_user:/usr/tftpdir:/bin/false
```

Note   If you modified the `inetd.conf` file you must restart the Internet daemon with the command: `inetd -c`.

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Running update

The software is installed using the `update` utility. Refer to *Installing and Updating HP-UX* before you use this utility.

1 Ensure that you are logged in as root in single-user mode and that you are at the root directory.

2 Read the media labels and ensure that your fileset version matches the version of your HP-UX operating system.

3 Load the DTC 16RX Manager product files on the tape drive attached to your system.

4 Note the device file name of that tape drive. You will need this information later to identify the source location.

5 To install the software, run the `update` utility in interactive mode by typing:

   `update`

6 Look at the source device file name displayed in the upper left portion of the Main Menu. If your source is different than the one displayed, continue to the next step. If your source is the same, go to step 11.

7 Highlight **Change Source or Destination** and click on **Select Item**.

8 Highlight **From Tape Device to Local System** (highlighted by default) and click on **Select Item**.

9 Follow the instructions on the screen to enter the name of the tape drive (device) that contains the product software in the **Source** field.

   The **Destination Directory** field contains a / (slash) and should be left as it is.

10 Select **Done** when the source information is complete.

11 Highlight **Select All Filesets on the Source Media** from the Main Menu and click on **Select Item**.

12 Highlight **Start loading now** and select **Select Item**.

   The `update` utility checks available disk space and then asks you to confirm that you want to install the filesets.

   The `update` utility loads the software and runs installation scripts to create all the required, directories, files and system variables. Proceed to the next section to verify the installation.

3 **Installing the software on HP-UX 9.X systems**

Verifying your software installation

After update has terminated, the system displays a message that requests you to check the `update.log` file. This file contains information on the status of the installation (successful or unsuccessful).

Go to this file and look for the following message which should appear near the end of the file:

```
* Customize script for fileset RDTCMGR succeeded.
```

This indicates that the software was correctly installed.

This completes the installation of the DTC 16RX Manager.

Checking the current software version

At the prompt, type:

```
rdtcver
```

The name of each of the DTC Manager files is listed followed by its software version. This should correspond to the software version printed on the media labels.

Automatic backup of DTC Manager files

If there is a previous version of DTC Manager software installed on your system, it will be automatically backed up by the installation utility. Complete installation details are recorded in `update.log` file.

If there are problems

If the installation is not successful, verify that your system has all of the required hardware and software components as described in chapter 2. If, after having done this, you are still experience difficulties, review the `update` utility procedures in *Installing and Updating HP-UX*, and then try to install the software again.

Installing the software on systems running HP-UX 10.0

This section applies to systems running the HP-UX 10.0 operating system. You install DTC Manager software using the `swinstall` utility. Refer to your man pages for instructions on how to use `swinstall`.

Verify tftp values before you run swinstall

You should verify certain **tftp** values *before* you run the installation utility.

Make sure that the following three files contain lines with the exact values shown below:

/etc/services

```
tftp 69/udp #Trivial File Transfer Protocol
```

/etc/inetd.conf

```
tftp dgram udp wait root tftpd tftpd
```

In addition, your **/etc/passwd** file must contain the line:

```
tftp:*:510:1:Trivial_tftp_user:<home_directory>:/bin/false
```

where values may vary according to your particular system.

Note   If you modified the `inetd.conf` file you must restart the Internet daemon with the command: `inetd -c`.

About swinstall

HP software is delivered in bundle form (bundles contain one or more software products, subproducts and related filesets). The product number of the DTC 16RX Manager bundle is J2496A. This bundle contains the product RDTCMGR which is organized into three subproducts:

- Manuals
- Minimum Runtime
- Runtime

You can view a detailed description of the filesets that make up each of these subproducts with `swinstall` functions.

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3 **Installing the software on systems running HP-UX 10.0**

Running swinstall

Follow the steps below to install the software. You can use `swinstall`'s online help facility to get information about various options and functions.

1 Log in as `root`.

2 Start the installation utility by entering `swinstall`.

Note You may need to select the target system from the **Target Selection** screen (depending on your configuration).

3 At the **Specify Source** screen, enter the name of the host system (or its IP address) where the loading device is mounted.

4 Enter the path to the source depot in the field provided or choose **Source depot path...** and select the path from the list of available paths.

5 Select **OK** when the information is complete.

The system displays product information in the **Software Selection** screen.

Note If you want to select certain subproducts and/or filesets for a partial installation of the software, use the **Actions** menu **Show description** and **Description** commands to display the desired components. You can then mark them for installation as described in the next step. If you make this choice, read "Automatic backup of DTC Manager files" on page 27 before continuing.

6 Highlight the product and then select **Mark For Install** from the **Actions** menu.

A screen appears with information about various dependencies required for the operation of the DTC Manager software. The messages are for information only. Click on **OK** to close this screen.

7 Select **OK**.

Yes appears to the left of the product name.

8 Select **Install (analysis)...** from the **Actions** menu.

The Install Analysis screen appears. The system verifies the suitability of the target environment and displays a **Ready** status when this task is completed.

9 Select the **Logfile** option and verify that no errors were recorded during the analysis phase. Select **OK** to exit the **Logfile** screen.

If you encounter errors check the hardware and software requirements described in chapter 2 and make sure that you have the correct **tftp** values as described in "Verify tftp values before you run swinstall" on page 25.

If you did not encounter errors, select **OK** at the **Install Analysis** screen.

A confirmation screen prompts you to confirm your intention to install the selected product(s).

10 Select **Yes** to proceed with the installation.

The **Install** screen appears with a display of installation information.

11 Select **Logfile...** again and verify that no errors were recorded during the installation process

12 Select **Done** to return to the **Software Selection** screen and then select **Exit** from the **File** menu.

13 Log out of your current session and then log back into a new session.

DTC 16RX Manager software is now installed.

Checking the current software version

At the prompt, type the following command:

```
rdtcver
```

The name of each of the DTC Manager files is listed followed by its software version. This should correspond to the software version printed on the media labels.

Automatic backup of DTC Manager files

If there is a previous version of DTC Manager software installed on your system, it will be automatically backed up by the installation utility. Complete installation details are recorded in swagent.log file.

Note   A complete backup only occurs when you select "Runtime" or "Minimum Runtime" filesets during software installation. If you later install other DTC Manager software components there will be no backup of the DTC Manager files that were created in the interval between the previous installation and next installation of selected filesets.

HP recommends that you make a copy of the backup file (RDTCMGR.tar) after each installation and that you store this file in a directory that is not in the DTC Manager file system. You should do this because subsequent installations may overwrite this backup file.

3   **Installing the software on systems running HP-UX 10.0**

4

Adding DTCs

This chapter describes procedures to add a DTC to the set of DTCs that are currently managed by the DTC Manager. Details are also provided on how to configure DTC parameters and check terminal connections.

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About DTC code versions

You can add a DTC even if the DTC is not physically present. This allows you to install the DTC unit later at your convenience.

DTC Manager can manage DTCs that run different DTC code versions. Before you add a DTC you should verify the DTC code versions that are available on your server *and* the DTC code version that is running on the DTC you want to add.

Checking DTC code versions

On the DTC unit

To check the current DTC code version (that runs on the DTC unit): connect the display terminal to the DTC's diagnostics port and go to the Network Management screen. The DTC code version number is displayed at the top of this screen.

On the server

Use the `rdtcver` command to display the list of available DTC code versions.

Determining which DTC code version to use

Since DTC Manager can manage DTCs that run a different DTC code versions you can use either:

- the default DTC code version that runs on the server—this allows you to use the latest functionalities,

  OR

- another DTC code version—this allows you to use the previous (14.1) code version.

Adding a DTC

Before you add a DTC you must:

- decide which DTC code version to use (see above)
- get the name of the DTC, its IP address and the DTC code version—this information is displayed on the DTC's Network Management screen.

1   Type:

    `rdtcadd <dtcname> <DTC_IP_address> [-v DTC_code_version]`

    If you want to add the DTC with the latest (default) DTC code version, the `-v` option is not mandatory.

    DTC Manager displays the **Rear Panel Configuration** screen for the newly added DTC.

2   Use DTC Manager to enter appropriate DTC configuration parameters as described in chapter 6.

3   Check if the DTC needs to be reprogrammed

    •   If the DTC unit's code version is the same on the server (the code version given for `DTC_code_version` with the `rdtcadd` command), there is no need to reprogram the DTC.

    •   If the code versions are different, you must reprogram the DTC with the `rdtcreprog` command as shown below:

        `rdtcreprog <dtc> -v <dtc_code_version>`

        Refer to chapter 18 for more information on this command.

    If the DTC is on, it will request a configuration download. If the DTC is off, switch it on. Wait a few minutes for the configuration to be downloaded.

    The newly added DTC should now be operational.

4   Verify that the DTC is operational

Use the command `rdtcstat <dtcname>` to check the DTC's status.

Adding DTC by copying an existing configuration

Follow the steps below to use an existing DTC configuration to create a new DTC. This will copy all of the parameters (except the DTC name, node name, and IP address) and the DTC code version from another DTC configuration.

Note   The newly created (added) DTC will have the same DTC code version as the DTC that you copy the configuration from. Be sure that the DTC unit runs the same code version as the DTC you are copying from.

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4   **Adding a DTC**

1 Type:

```
rdtcadd <name_of_new_dtc> <DTC_IP_address> <name_of_dtc_to_copy>
```

DTC Manager displays the **Rear Panel Configuration** screen for the newly added DTC.

2 Use DTC Manager to modify the DTC's configuration as described in chapter 6.

Note   The following parameters must be unique for each DTC. They will not be copied to the new DTC:

```
DTC IP address
DTC name
DTC node name
```

Note   To find out if you need to reprogram the DTC, refer to "About DTC code versions" above.

Examples

To add a DTC called `claudia` in the latest default DTC code version when the DTC unit already runs the same code version:

```
rdtcadd claudia 15.128.25.122
```

To add a DTC called `mydtc1` in the latest default DTC code version when the DTC unit runs a different code version:

```
rdtcadd mydtc1 15.128.25.120
rdtcreprog mydtc1
```

To add a DTC called `mydtc2` in the A1410G00 DTC code version when the DTC unit already runs this version:

```
rdtcadd mydtc2 15.128.25.125 -v A1410G00
```

To add a DTC called `newdtc` by copying the configuration parameters and the DTC code version of an existing DTC called `olddtc`.

```
rdtcadd newdtc 15.128.23.78 olddtc
```

DTC parameters

The following parameters are configured when you add a DTC. They must be unique for each DTC in your network.

DTC Name

Enter a name consisting of up to 8 alphanumeric characters. You can include hyphens (-) and underscores (_) but the first character **must** be alphabetic. The **DTC Name** field must not be left blank and must be identical to the DTC Name entered in the Network Management screen on the DTC. The DTC name is *case sensitive*.

The DTC Name is a unique name used by the DTC manager to identify a particular DTC. For simplicity, the DTC name and the `nodename` portion of the DTC node name are often the same name. However, they are used for separate tasks by the DTC Manager and the system.

DTC IP Address

Enter a value in the form `x.x.x.x` where `x` is a decimal number from 0 through 255. The address cannot be 0.0.0.0 or 255.255.255.255 which are reserved addresses. Assign a unique IP address to each DTC. The DTC IP address must be identical to the DTC IP address entered in the **Network Information** screen on the DTC.

Each DTC's IP address must also be added to your name database, for example the `hosts` file or the DNS (Domain Name System) server. To use a DNS server you must configure the DTC for DNS ("Configuring IP and DNS parameters"). The `hosts` file is documented in the *Installing and Administering LAN/9000 Software Manual.*

This parameter is the IP address of the DTC itself. **Do not** confuse it with the IP address of the host system, or with the IP address of a port (see page 83).

DTC Node Name

When a new DTC called `dtcname` is added, it is configured with a default DTC node name `DTCNAME.DOMAIN.ORGANIZATION`. This field must be filled for the DTC Manager to operate correctly. For connections to HP 3000 systems, you must set this field to a value appropriate for your network ("Configuring IP and DNS parameters"). If you only use this DTC for connections to HP 9000 and other Telnet systems, this field is not used and can be left at the default value.

Checking terminal connections

Follow these steps for each terminal connected to the DTC.

1 On the terminal, press the **Return** key. The DTC prompt, usually `DTC>`, should appear. Use one of the following connect commands:

```
DTC>connect IP_address
DTC> c name
```

The parameter `IP address`* is the IP address of the system you want to connect to. The parameter name can be an HP 3000 node name, a DTC host port name or an Internet Service name.

You are then connected to the specified system and see the message.

```
Connection #1 established to mysystem.mygroup.mycorp
To return to DTC interface, type <CTRL>K
```

2 If you are not successful, try to modify the configuration of the DTC ("Modifying a Configuration"). If the DTC does not respond, it probably means that the `dtcname` or `DTC IP address` does not correspond exactly to the information entered in the **Network Information** screen of the DTC. See page 46 to change the `DTC IP address`.

3 Check the **Rear Panel Configuration** screen to see the DTC name, for example on page 43 the DTC name is `claudia`. If the DTC name does not correspond to the DTC name you entered on the DTC itself, delete the DTC, then add it again. For more information, "Deleting DTCs" .

4 If you still cannot establish a connection, go to the troubleshooting section starting on page 113, to obtain more help.

---

*   You can only use a system name to connect to a Telnet system if you have configured the system name in the DNS server.

5

Deleting DTCs

Take the following steps to delete a DTC:

1 At the system prompt, type:

   ```
   rdtcdelete dtcname
   ```

   or

   ```
   rdtcdelete DTC_IP_address
   ```

2 Enter **y** to confirm that you want to delete the DTC.

3 To verify the DTCs currently managed by this DTC Manager, type:

   ```
   rdtclist -d
   ```

5

6

Modifying a Configuration

This chapter describes the initial steps in modifying a DTC's configuration.

Note

The procedures described in this chapter are accessed from the DTC Rear Panel Configuration screen. This screen is opened when you execute the commands `rdtcadd` or `rdtcmodify`.

`rdtcadd` adds a single DTC to your network and opens the Rear Panel Configuration screen to let you modify the configuration.

`rdtcmodify` opens the Rear Panel Configuration screen of the DTC you specified.

Accessing and using the Rear Panel Configuration screen

1 Type either of the followings command at the system prompt:

```
rdtcmodify <dtcname>
```

or

```
rdtcmodify <IP_address>
```

The DTC **Rear Panel Configuration** screen appears. This screen represents the rear of the DTC and is the starting point for all DTC configuration procedures. The DTC **Rear Panel Configuration** screen is shown in figure 2 and shows a DTC named claudia that was created in DTC version A143000.

```
                          Rear Panel Configuration
                             claudia    A1430000

      Fill in the DTC 16RX board and port fields and then press "Action Menu" (F5).




              ┌──────────────────────────────────────────┬──────────┐
              │  0 T   1 T   2 T   3 T   4 T   5 T   6 T   7 T │ DIRECT   │
              │                                                │          │
              │  8 T   9 T  10 T  11 T  12 T  13 T  14 T  15 T │ DIRECT   │
              ├────────────────────────────────────────────┼──────────┤
              │                      LAN                       │          │
              └──────────────────────────────────────────────┴──────────┘



           Board (L = LAN, or B = board):  ▊          Port (0 - 15):  __


      ┌────────┬────────┬──────────┬─────────┬─────────┬──────────┐
      │ Help   │ Shell  │  hpterm  │ Action  │         │  Exit    │
      │        │        │          │ Menu    │         │  Task    │
      └────────┴────────┴──────────┴─────────┴─────────┴──────────┘
```
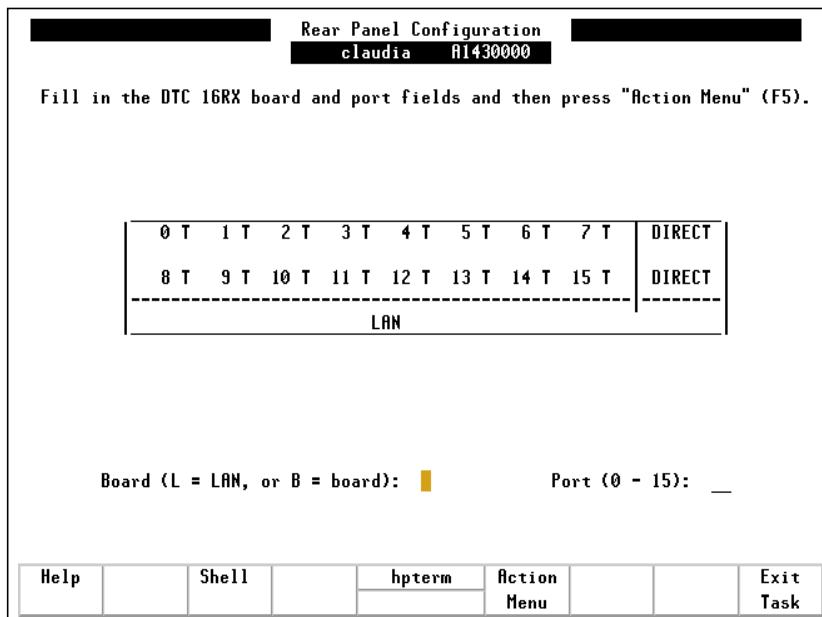
Figure 2. Rear Panel Configuration screen

The following tasks can be performed at the **Rear Panel Configuration** screen:

• Configuring global DTC parameters on the LAN board.

• Changing a port group to modem or direct connect.

• Copying and pasting the configuration of all the ports of a DTC simultaneously.

• Changing port type and configuring ports.

• Copying port configurations within a DTC or to another DTC.

Entering values in the Board and Port fields

This section explains what you should enter in the board and port fields of the **Rear Panel Configuration** screen. Note that although a DTC has no separate boards, it is often considered as having one board of 16 ports and a LAN board.

Configuring global DTC parameters

1 In the **Board** field, enter **L** or **l**, for the LAN board.

2 Press the **Action Menu** (**F5**) function key.

3 Choose the menu item corresponding to the DTC parameter you want to change.

Refer to chapter 7, "Configuring a Lan Board" to configure global DTC parameters.

Changing a port group to Modem or Direct

1 Enter **B** or **b** in the **Board** field.

2 Press the **Action Menu** (**F5**) function key.

Refer to chapter 9, "Changing a Port Group to Modem or Direct Connect" for more information.

Changing a port type

You can change a port to a terminal port, to a printer port or to a host port using the **Change Port Type** option from the **Action Menu** in the **Rear Panel Configuration** screen. Refer to chapter 10, "Changing Port Type to Terminal, Printer or Host" for more details.

Configuring port parameters

1 Enter **B** or **b** in the **Board** field. You cannot go to the port field if you specify **L** or **l**.

2 Use the arrow key to go to the **Port** field. Enter a port number in the range 0 through 15.

3 Press the **Action Menu** (**F5**) function key.

4 Choose the menu item corresponding to the parameter you want to change.

See chapter 11, "Configuring Terminal, Printer and Host Ports".

Resetting a DTC

Most of the DTC parameters are *dynamic*—they can be changed while the DTC is operational. However, if you change any of the parameters described below, you must reset the DTC. This is because the parameters are *static.* Changes to the parameters can not be activated while the DTC is operating. A reset is disruptive and breaks any active sessions.

You can modify any of the following parameters:

- DTC node name
- DTC IP address
- TCP timers
- AFCP timers
- SNMP parameters
- Port group settings (modem or direct connect)
- RAFCP Front End capability.

If you modify either of the following two parameters you must also modify them on DTC (at the DTC's console).

- DTC node name
- DTC IP address

When you modify DTC parameters, at the end of the configuration process you are prompted to activate your changes immediately. You can also choose to reset the DTC later and activate your changes at a more convenient time for you.

Resetting a DTC

There are two ways to reset the DTC and start a configuration download:

- Turn off and turn on the DTC

  or

- Run the `rdtcreset dtcname` command.

7

Configuring a Lan Board

This chapter describes how to configure the LAN board of a DTC (global DTC parameters). Before using the information provided in this chapter, you should add at least one DTC to the list of managed DTCs.

Note   The procedures described in this chapter are accessed from the **Rear Panel Configuration** screen. This screen is opened when you execute the commands `rdtcadd` or `rdtcmodify`.

`rdtcadd` adds a single DTC to your network and opens the Rear Panel Configuration screen to let you modify the configuration.

`rdtcmodify` opens the Rear Panel Configuration screen of the DTC you specified.

Configuring the LAN board parameters

You must configure the LAN Board if you want to change any of the following parameters:

- **IP and DNS Parameters**, which include:

- DTC IP Address
- DTC Node Name
- DNS server addresses

- **Global Parameters**, which include:

  - DTC user interface timeout, user prompt and welcome message

  - Parameters related to DTC uploads and formatting upload information

  - RAFCP Front End capability

- **TCP Parameters**: TCP timers that may need to be altered for extended LAN configurations

- **AFCP Parameters**: timers that may need to be adjusted for extended LAN configurations with HP 3000 systems.

- **SNMP Authorization Filters** which identify your network's SNMP management nodes, the information that these nodes can request and the rights of access to the SNMP MIB data (see "Configuring SNMP Parameters" on page 57).

- **SNMP Parameters** which define the SNMP-specific data to be stored on the DTC (see "Configuring SNMP Parameters" on page 57).

Configuring a DTC LAN board

The steps for configuring the LAN board from the **Rear Panel Configuration** screen are explained below.

1 Type the following command at the system prompt:

```
rdtcmodify dtcname
```

The **Rear Panel Configuration** screen appears. This screen represents the rear of the DTC and is the starting point for all DTC configuration procedures. The DTC Rear Panel Configuration screen is shown in figure 2.

2 Enter **L** or **l** in the board field of the **Rear Panel Configuration** screen.

3 Press the **Action Menu** (**F5**) function key for a list of action options. See figure 3.
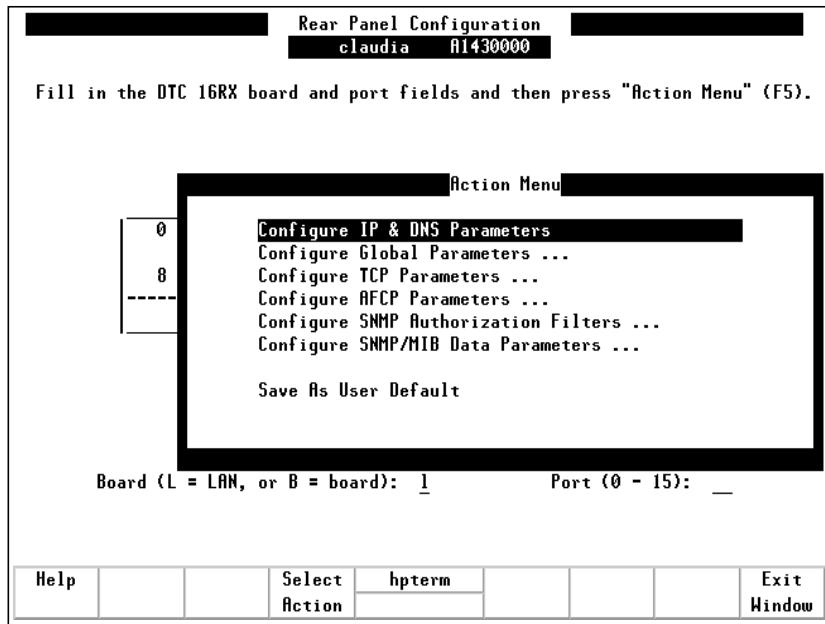
Figure 3. DTC LAN Board Action Menu

Note

If you change the IP address, you must make the same modification on the DTC (with the DTC's console).

4 To choose one of these menu items, which are explained in the following sections, highlight it and press the **Select Action** (**F4**) function key.

5 A screen appears displaying the current values. In some screens, you can choose HP defaults, user-defined defaults, or enter other values. Press the **Default Values** (**F6**) function key to access the HP defaults or user-defined defaults.

6 When you have finished entering values, press the **Perform Task** (**F4**) function key. The **Rear Panel Configuration** screen appears again.

7 Press the **Action Menu** (**F5**) if you want to choose another menu item.

8 To exit from the configuration screens, press the **Exit Task** (**F8**) function key. When you modify DTC parameters, at the end of the configuration process you are prompted to activate your changes immediately. You can also choose to reset the DTC later and activate your changes at a more convenient time for you. You then return to the system prompt.

Configuring IP and DNS parameters

rdtcmodify dtcname
or
rdtcadd dtcname dtc_IP_address

DTC backplane

Board = L

| Configure IP & DNS parameters | Configure global parameters | Configure TCP parameters | Configure AFPC parameters | Configure SNMP authorization filters | Configure SNMP data parameters | Save as user default |
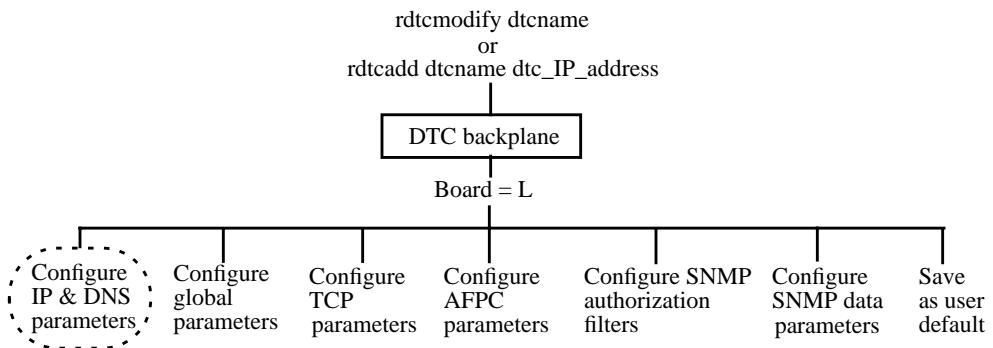
Figure 4 shows the **IP & DNS Parameters Configuration** screen which specifies:

• The IP address and node name of the DTC

• IP addresses for the DNS (Domain Name System) server

The IP address format is `x.x.x.x` where `x` is a decimal number from 0 through 255. The IP address cannot be 0.0.0.0 or 255.255.255.255. The IP address must be unique on the network.

```
                    IP & DNS Parameters Configuration
                           claudia LAN board

     Fill in or modify the desired fields and then press "Perform Task" (F4).


     IP Address . . . . . .          015.128.173.183

     DTC Node Name . . . . . .       CLAUDIA.DOMAIN.ORGANISATION


Domain Name Service:

   Default Server Address . . . . . . 015.128.175.030 (optional)

   Backup Server Address  . . . . . . 015.128.175.099 (optional)

   Default Local Domain . . . . . . . hp.com               (optional)




  ┌────────┬────────┬────────┬────────┬────────┬────────┬────────┬────────┐
  │ Help   │        │ Shell  │Perform │        │        │Default │        │Exit
  │        │        │        │ Task   │        │        │Values  │        │Task
  └────────┴────────┴────────┴────────┴────────┴────────┴────────┴────────┘
```

Figure 4. IP and DNS Parameters Configurations

1 Enter the field values, referring to the online help for guidance.

2 When you have finished entering values, press the **Perform Task** (**F4**) function key. You return to the **Rear Panel Configuration** screen.

3 You **must** perform a disruptive reset of the DTC to modify the node name. Press the **Exit Task** function key to leave the DTC Manager menu-driven user interface. You are asked several questions to confirm your configuration. To activate your changes you can either:

   • Type **y** to the question: Do you want to reset the DTC 16RX now?

     or

   • Type the following command later at the prompt:

     rdtcreset dtcname

7 **Configuring IP and DNS parameters**

The IP and DNS parameters

The IP Parameters   Values for the IP Address and DTC Node Node parameters are automatically entered when you add a DTC using the command `rdtcadd`.

IP Address

Enter the exact IP address that you entered (or will enter if the DTC is not yet on the LAN) in the DTC Network Information screen. It must be a value in the form `x.x.x.x` where `x` is a decimal number from 0 through 255. The address cannot be 0.0.0.0 or 255.255.255.255 which are reserved addresses. Each DTC must have an IP address which is unique in the network. For more information on the DTC IP address, see page 33.

DTC Node Name

Enter a name consisting of three fields, each with a maximum of 16 characters, separated by periods (.) and in the following form:

`NODENAME.DOMAIN.ORGANIZATION`

Each field must start with an alphabetic character and can be followed by a combination of alphanumeric characters, hyphens (-), and underscores (_). The DTC `NODENAME` is a *unique node name* to identify a DTC within a system or network.

For simplicity, the DTC name and the `NODENAME` portion of the DTC node name are often the same name. However, they are used for separate tasks by the DTC Manager and the system.

The DNS parameters

Default Server Address

Enter the IP address of the default server you want to use. A DNS server resolves system names to IP addresses for the entire network. For example, if you are at a terminal, you can enter the DTC `connect` command with a system name instead of an IP address:

`DTC>connect  host1.hp.com`

The DTC sends a DNS request to the DNS server whose IP address is specified. The DNS server returns the IP address of the requested system. If you use the DTC `connect` command and specify the IP address of a system, DNS is not used.

Backup Server Address

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Enter the IP address of the DNS server to be used if the default DNS server is not available.

Default Local Domain

Enter the default local domain that you want to use. The DTC uses the specified local domain name to complete the domain node name when necessary. If a terminal user enters a node name without a period, the DTC will complete the node name with the default local domain name. For example, if the Default Local Domain is `hp.com` and a terminal user enters:

```
DTC> connect host1
```

the DTC will try to connect to `host1.hp.com`.

Configuring global parameters

rdtcmodify dtcname
or
rdtcadd dtcname dtc_IP_address

DTC backplane

Board = L

| Configure IP & DNS parameters | Configure global parameters | Configure TCP parameters | Configure AFPC parameters | Configure SNMP authorization filters | Configure SNMP data parameters | Save as user default |
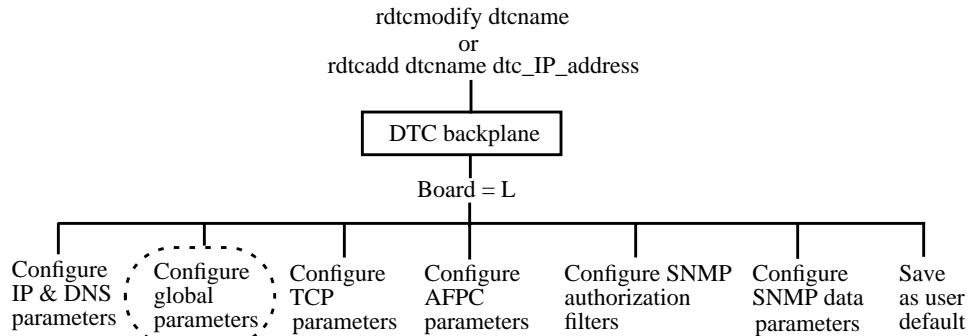
Figure 5 shows the **Global Parameters Configuration** screen.

7   **Configuring global parameters**

The DTC user interface timeout, DTC user prompt, and the DTC welcome message are used by the DTC terminal user interface which is explained in appendix B, "DTC Terminal Parameters and Commands".

```
┌──────────────────────────────────────────────────────────────┐
│                  Global Parameters Configuration              │
│                        claudia LAN board                      │
│                                                                │
│    Fill in or modify the desired fields and then press "Perform Task" (F4).│
│                                                                │
│                                                                │
│ DTC User Interface Timeout (5 - 300 seconds)  . .  ▓00         │
│                                                                │
│ User Prompt (maximum of 16 characters)  . . . . .  dtc_claudia>     (optional)│
│                                                                │
│ Welcome Message (maximum of 400 characters - optional):        │
│ Welcome in DTC claudia interface                               │
│ ─────────────────────────────────────────────────────────     │
│ ─────────────────────────────────────────────────────────     │
│ ─────────────────────────────────────────────────────────     │
│ ─────────────────────────────────────────────────────────     │
│ ─────────────────────────────────────────────────────────     │
│                                                                │
│     _   Enable Short Upload       Upload IP address   000.000.000.000│
│                                                                │
│     _   Enable DTCDF Access       DTCDF Password ...  AVESTA   │
│                                                                │
│     _   Enable RAFCP Front End                                │
│                                                                │
│ ┌──────┬──────┬──────┬────────┬──────────┬──────┬────────┬──────┐│
│ │ Help │      │Shell │Perform │  hpterm  │      │Default │ Exit ││
│ │      │      │      │ Task   │          │      │Values  │ Task ││
│ └──────┴──────┴──────┴────────┴──────────┴──────┴────────┴──────┘│
└──────────────────────────────────────────────────────────────┘
```

Figure 5. Global Parameters Configuration Screen

1   Enter the field values, referring to the online help for guidance.

2   When you have finished entering values, press the **Perform Task** (**F4**) function key. You return to the Rear Panel Configuration screen.

Global parameters

DTC User Interface Timeout   Specify a timeout value between 5 and 300 seconds for the DTC. The default timeout is 300 seconds. A user at a terminal using the `connect` command (see page 153) to connect to a system via the DTC must attempt to connect to the system within this amount of time.

The DTC waits this amount of time before the DTC Terminal User interface is disconnected. Once the terminal has established a connection with a system via the DTC, the timeout is disabled until the user returns to the DTC user interface.

The DTC User Interface Timeout can be enabled and disabled from the **Enable Port Options** screen. Refer to "Enable DTC User Interface Timeout" on page 78 for an explanation of the timeout enable function. By default, the DTC User Interface Timeout is disabled.

User Prompt   If you want a user prompt that is different from the default prompt (DTC>), specify a prompt of up to 16 alphanumeric characters. Non-displayable ASCII characters must be specified in caret-character format (for example, **^K** means **Ctrl-K**). Use a backslash before a literal caret (^) and a backslash (\).

The User Prompt is the DTC prompt seen by a user at a terminal connected to a DTC. You may want to change the user prompt to the name of your DTC (for example, MYDTC1>) to help you keep track of your DTCs. Only users connected to ports with the switching capability see the prompt. Other users connected directly to a host system do not see the DTC user prompt.

Switching is the ability to connect to more than one computer from a terminal. Switching is automatically enabled for all terminal ports. Refer to "Enable Switching" on page 78.

Welcome Message   If you want to provide a welcome message, enter up to 390 alphanumeric characters. Non-displayable ASCII characters must be specified in caret-character format (for example, **^K** means **Ctrl-K**). Put a backslash (\) before a literal caret (^) or a backslash (\) to ensure these characters appear correctly on the screen. The welcome message is an optional parameter.

Do not use the keyboard **Enter** key (carriage return) to create line breaks in the welcome message. Using the **Enter** key terminates the DTC configuration steps. Use the **^M^J** (**Ctrl-M**, **Ctrl-J**) keys to force the text onto the next line.

The welcome message is the message displayed on a terminal connected to a DTC when:

• a terminal user opens a connection to a port configured for system switching
• a terminal user connected to the DTC user interface issues the status command.

Only users connected to ports with switching capability see the welcome message. The welcome message is not displayed when a user switches back from a system connection to the DTC user interface.

Switching is the ability to connect to more than one computer from a terminal. Switching is automatically enabled for all terminal ports. Refer to "Enable Switching" on page 78.

7   **Configuring global parameters**

Enable Short Upload   Put an **X** or an **x** in this field to enable a short upload.

When the DTC encounters a serious problem, it will automatically transfer information to the DTC Manager. This information is called a software upload. When short uploads are enabled, the DTC sends the upload reason and the last DTC events to the DTC Manager instead of a complete upload. Other information on the upload is not sent.

By default, complete upload files are sent to the DTC Manager.

Upload IP Address   Enter the IP address of a local system in this field so that DTC uploads are sent to a local system rather than to the DTC Manager. This avoids causing heavy traffic on your network, especially if the DTC is connected to the DTC Manager by low-speed links.

Only use this field if instructed to do so by your Hewlett-Packard representative.

By default (`Upload IP Address = 000.000.000.000`), upload files are sent to the DTC Manager.

Enable DTCDF Access   Enter an **X** or an **x** in this field to enable the Hewlett-Packard customer response center to access DTC memory in case of problems. Access to your DTC is protected by a password which is defined in the DTCDF password field.

By default the Hewlett-Packard customer response center can **not** access your DTCs.

DTCDF Password   Enter up to 8 alphanumeric characters in this field. The first character must be alphabetic and all alphabetic characters must be entered in upper case.

This field contains the password which you must give to your Hewlett-Packard representative to enable the Hewlett-Packard customer response center to access the DTC's memory for troubleshooting.

The default password is `AVESTA` (upper case).

Enable RAFCP Front End   If you intend to use the DTC as a Routable AFCP gateway, you must put an **x** or **X** in this box. You must also go to the **DNS/IP** window and provide the IP addresses of the Domain Name Servers and routers that you intend to use. If you modify this parameter you must reset the DTC.

Configuring TCP parameters

rdtcmodify dtcname
or
rdtcadd dtcname dtc_IP_address

DTC backplane

Board = L

| Configure IP & DNS parameters | Configure global parameters | Configure TCP parameters | Configure AFPC parameters | Configure SNMP authorization filters | Configure SNMP data parameters | Save as user default |
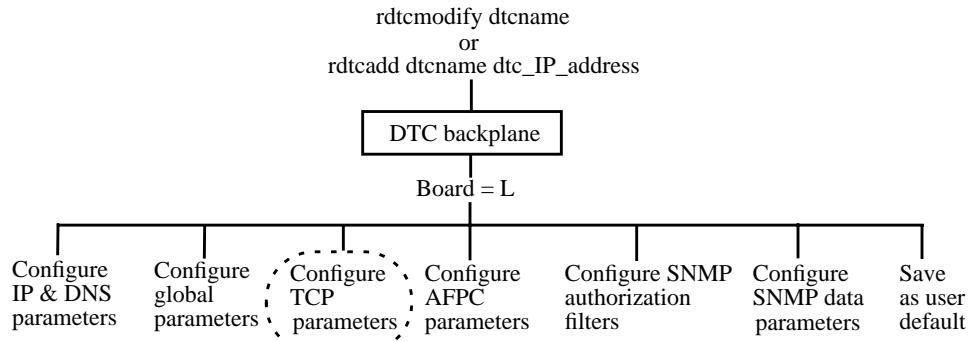
The **TCP Parameters Configuration** screen, shown in figure 6, is used to specify TCP timing information for different LAN and extended LAN configurations.

```
                    TCP Parameters Configuration
                          claudia LAN board

         Mark with an "x" the set of TCP parameters to configure.
         Then press "Return" or "Done" (F4).

     Maximum Data Retransmission Timer (in tenths of seconds) .  20

     Minimum Data Retransmission Timer (in tenths of seconds) .  1

     Stand-Alone ACK Timer (in tenths of seconds) . . . . . . .  4

     Connection Assurance Timer (in tenths of seconds)  . . . .  3000

     Window Probe Timer (in tenths of seconds)  . . . . . . . .  1200

     Number of Retries for Data . . . . . . . . . . . . . . . .  4


   x  Set 1      _  Set 2      _  Set 3      _  Set 4      _  Set 5


  Help              Done                Default          Exit
                                        Values           Window
```

Figure 6. TCP Parameters Configuration Screen

7   **Configuring TCP parameters**

1   Use the **tab** key to move to a **Set** field. Type an **x** or **X** to select the set. The timer values are defined by the set of values that you choose.

   •   **Set 1**: TCP timers for traffic over the LAN only (the HP default setting).

   •   **Set 2**: TCP timers for traffic over a LAN with bridges.

   •   **Set 3**: TCP timers for traffic over a LAN with exceptionally high transmission times.

   •   **Set 4**: TCP timers for networks with high data losses.

   •   **Set 5**: TCP timers for extended switching applications over a LAN, or a LAN with bridges.

2   Press **Done** (**F4**) key to return to the **Rear Panel Configuration** screen.

3   You **must** perform a disruptive reset the DTC to modify the TCP timers. Press the **Exit Task** function key to leave the DTC Manager menu-driven user interface. You are asked several questions to confirm your configuration. To activate your changes you can either:

   •   Type **y** to the question: `Do you want to reset the DTC 16RX now?`

      or

   •   Type the following command later at the prompt:

      `rdtcreset dtcname`

Configuring AFCP parameters for LAN configurations with HP 3000 systems

```
                    rdtcmodify dtcname
                            or
            rdtcadd dtcname dtc_IP_address
                            │
                   ┌─────────────────┐
                   │  DTC backplane  │
                   └─────────────────┘

                        Board = L
```

| Configure IP & DNS parameters | Configure global parameters | Configure TCP parameters | Configure AFPC parameters | Configure SNMP authorization filters | Configure SNMP data parameters | Save as user default |
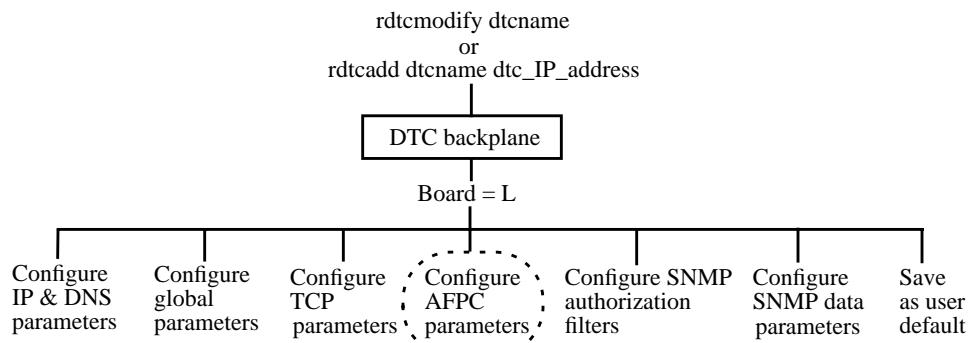
The **AFCP Parameters Configuration** screen, shown in figure 7, is used to specify AFCP timing information for different LAN and extended LAN configurations.

```
        DTC AFCP Protocol Parameters Configuration
                  claudia LAN board

 Mark with an "x" the set of DTC AFCP parameters to configure.
 Then press "Return" or "Done" (F4).

Timers:                           Number of re-tries:
   Short Retransmission Timer   50     Data-Short              6
   Long Retransmission Timer    1200   Data-Long               14

   Packet-Type Call-Req Short   50     Packet-Type Call-Req Short  6
   Packet-Type Call-Req Long    1200   Packet-Type Call-Req Long   14

   Stand-Alone ACK Timer        30

   Connection Assurance Timer   3000

   Window Probe Timer           1200


       x Set 1    _ Set 2    _ Set 3    _ Set 4    _ Set 5   _ Set 6



 ┌──────┐ ┌──────┐ ┌──────┐ ┌──────┐ ┌──────┐ ┌────────┐ ┌──────┐ ┌──────┐
 │ Help │ │      │ │      │ │ Done │ │      │ │Default │ │      │ │ Exit │
 │      │ │      │ │      │ │      │ │      │ │Values  │ │      │ │Window│
 └──────┘ └──────┘ └──────┘ └──────┘ └──────┘ └────────┘ └──────┘ └──────┘
```

Figure 7. AFCP Parameters Configuration Screen

**7**   **Configuring AFCP parameters for LAN configurations with HP 3000 systems**

1 Use the **tab** key to move to a **Set** field. Type an **x** or **X** to select the set. The timer values are defined by the set of values that you choose.

- **Set 1**: Normal timer mode for release 2.2 (and above) of the MPE/iX FOS. This is appropriate for most users operating in a normal LAN environment.

- **Set 2**: Short transmission timer mode for LAN environments where there is a high number (greater than 1%) of packets lost on the LAN. The values are adapted to provide shorter retransmission timer values, and higher numbers of retries.

- **Set 3**: Long retransmission timer mode for LAN environments where the LAN is very reliable. The values are adapted to reduce LAN traffic and host driver overhead.

- **Set 4**: Variable Retransmission Timer Mode for exceptional cases where there is a very high percentage of packets lost on the LAN. The values are adapted to prevent saturation of the LAN.

- **Set 5** and **Set 6**: for other configurations.

2 Press the **Done** (**F4**) function key to return to the **Rear Panel Configuration** screen.

3 You **must** perform a disruptive reset the DTC to modify the AFCP timers. Press the **Exit Task** function key to leave the DTC Manager menu-driven user interface. You are asked several questions to confirm your configuration. To activate your changes you can either:

- Type **y** to the question: `Do you want to reset the DTC 16RX now?`

  or

- Type the following command later at the prompt:

  `rdtcreset dtcname`

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Saving a LAN board configuration as the user default

rdtcmodify dtcname
or
rdtcadd dtcname dtc_IP_address

| DTC backplane |

Board = L

| Configure IP & DNS parameters | Configure global parameters | Configure TCP parameters | Configure AFPC parameters | Configure SNMP authorization filters | Configure SNMP data parameters | Save as user default |
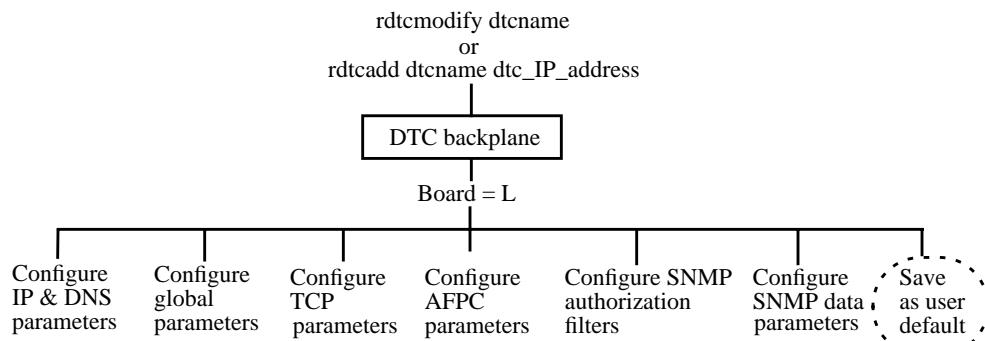
You can save the configuration of the LAN card as your default LAN card configuration. Each time you add a new DTC to your configuration its LAN card is automatically configured to be the same as the user default LAN card configuration.

The DTC IP address, DTC name and DTC node name are not saved as part of the default LAN board configuration.

Use the **Save as User Default** option from the **Action Menu** at the **Rear Panel Configuration** screen as follows:

1   Enter **L** or **l** in the **Board** field of the **Rear Panel Configuration** screen.

2   Press the **Action Menu** (**F5**) function key and select **Save as User Default**.

7   **Saving a LAN board configuration as the user default**

8

Configuring SNMP Parameters

This chapter describes how to configure a DTC for SNMP (Simple Network Management Protocol) access.

About SNMP configuration

SNMP is an open-systems standard that allows a DTC to be interrogated by any authorized SNMP network management workstation, such as a workstation running HP OpenView Network Node Manager. Security is provided by authorization filters which list the management workstations allowed to access the DTC.

The SNMP information for the DTC is stored in a MIB (Management Information Base). For example, the MIB contains information such as the physical location of the DTC and whether the DTC should report unauthorized access attempts to the SNMP manager. Two types of MIB are available: MIB-II allows the SNMP manager to access the standard MIB objects; DTC MIB allows the SNMP manager to access the standard MIB-II objects as well as HP-UX MIB objects.

There are two SNMP configuration screens in the DTC Manager:

- **SNMP Authorization Filters**—identifies the SNMP managers, the information that can be requested and whether the managers have write access to the SNMP MIB data.

- **SNMP MIB Data Parameters**—defines the SNMP data stored on the DTC.

Note   The procedures described in this chapter are accessed from the **DTC Rear Panel Configuration** screen. This screen is opened when you execute the commands `rdtcadd` or `rdtcmodify.`

`rdtcadd` adds a single DTC to your network and opens the **Rear Panel Configuration** screen to let you modify the configuration.

`rdtcmodify` opens the Rear Panel Configuration screen of the specified DTC.

Configuring SNMP authorization filters

reconditely dynamo
or
redact dynamo dtc_IP_address

DTC backplane

Board = L

| Configure IP & DNS parameters | Configure global parameters | Configure TCP parameters | Configure AFPC parameters | Configure SNMP authorization filters | Configure SNMP data parameters | Save as user default |
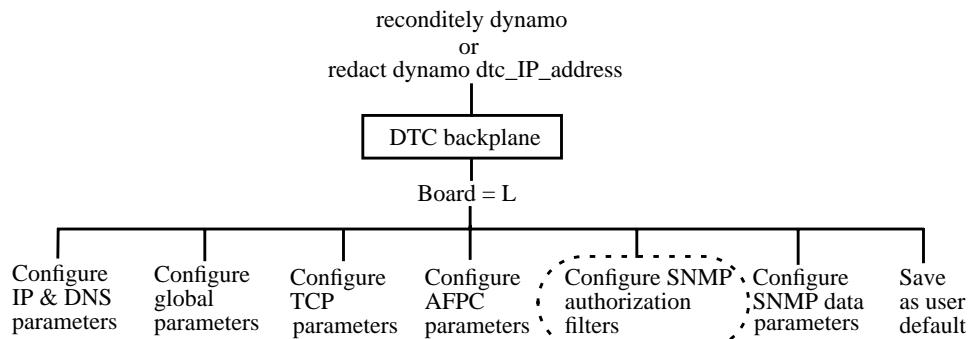
The **SNMP Authorization Filter Configuration** screen enables you to configure up to five SNMP filters. It defines the SNMP manager(s), the data they can request and whether they have write access to the SNMP MIB data.

```
              SNMP Authorization Filter Configuration
                        claudia LAN board

   Fill in or modify the desired fields and then press "Perform Task"


  SNMP Manager
  IP Address        SNMP Manager Community Name        MIB Access   MIB View

  15.128.131.56    building3_____   Read Only   DTC MIB

  15.128.123.111   building2_____   Read Only   DTC MIB

  15.128.123.13    building4_____   Read Only   DTC MIB

  15.128.123.2     building1_____   Read Write  DTC MIB

  _____    _____    _____    _____




  Help           Shell   Perform                Default             Exit
                         Task                   Values              Task
```

Figure 8. SNMP Authorization Filters Screen

8   **Configuring SNMP authorization filters**

1   Type the following command at the system prompt:

    `rdtcmodify dtcname`

    The **DTC Rear Panel Configuration** screen appears.

2   Enter **L** or **l** in the board field of the **Rear Panel Configuration** screen.

3   Press the **Action Menu** (**F5**) function key for a list of action options.

4   Select **Configure SNMP Authorization Filters** and press the **Select Action** (**F4**) function key. Refer to the online help when entering data in the screens.

5   When you have finished entering values, press the **Perform Task** (**F4**) function key. You return to the **Rear Panel Configuration** screen.

6   You must perform a disruptive reset the DTC to modify the SNMP parameters. Press the **Exit Task** function key to leave the DTC Manager menu-driven user interface. You are asked several questions to confirm your configuration. To activate your changes you can either:

- Type **y** to the question: `Do you want to reset the DTC 16RX now?`

    or

- Type the following command later at the prompt:

    `rdtcreset <dtcname>`

The SNMP authorization filters parameters

SNMP Manager IP Address

Enter the IP address of an SNMP manager that can monitor and control the DTC as an SNMP network element.

A value of `0.0.0.0` in this field means that any SNMP manager that has the same community name as the community name corresponding to this IP address can access this DTC's MIB parameters.

The IP address 255.255.255.255 is not valid in this field.

SNMP Manager Community Name

Enter the name of the SNMP community to which the DTC belongs.

All ASCII characters are valid in this field.

If two SNMP authorization filters have the same SNMP manager community name they must also have the same MIB access and MIB view values.

MIB Access   Choose **Read & Write** or **Read Only**. These values determine the access rights of
                       the SNMP manager to the SNMP parameters of the DTC.

                       If two SNMP authorization filters have the same SNMP manager community name
                       they must also have the same MIB access and MIB view values.

MIB View   Choose **DTC MIB** or **MIB-II**. These values determine the subset of MIB objects
                       that the SNMP manager can access. Selecting DTC MIB enables the SNMP
                       manager to access both the SNMP MIB-II and HP-UX MIB objects.

                       If two SNMP authorization filters have the same SNMP manager community name
                       they must also have the same MIB access and MIB view values.

Configuring SNMP/MIB data parameters
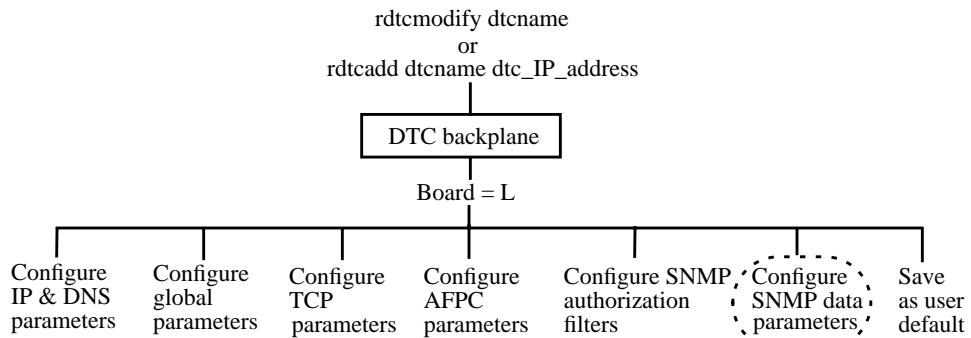
The **SNMP/MIB Data Configuration** screen contains the SNMP-specific data to be stored on the DTC. This data can only be configured on the DTC after a hardware reset, but may be changed online by an authorized SNMP manager workstation after initial download. See figure 9.

Figure 9. SNMP Parameters Screen

1 Type the following command at the system prompt:

   `rdtcmodify <claudia>`

   The **DTC Rear Panel Configuration** screen appears.

2 Enter **L** or **l** in the board field of the **Rear Panel Configuration** screen.

3 Press the **Action Menu** (**F5**) function key for a list of action options.

4 Select **Configure SNMP/MIB Data Parameters** and press the **Select Action** (**F4**) function key. Enter the field values, referring to the online help for guidance.

5 When you have finished entering values, press the **Perform Task** (**F4**) function key. You return to the **Rear Panel Configuration** screen.

6 You must perform a disruptive reset the DTC to modify the SNMP parameters. Press the **Exit Task** function key to leave the DTC Manager menu-driven user interface. You are asked several questions to confirm your configuration. To activate your changes you can either:

   • Type **y** to the question: `Do you want to reset the DTC 16RX now?`

     or

   • Type the following command later at the prompt:

     `rdtcreset <claudia>`

The SNMP/MIB data configuration parameters

Contact Name   Enter up to 255 ASCII characters. Contact the SNMP manager of your network to find the name of the contact person to enter for this DTC. This optional field can include information on how to contact the person as well as a name.

Sys Name   Enter up to 255 ASCII characters if you want to use this optional field. Contact the SNMP manager of your network to find the system name you should enter here. This name will be used to identify the DTC as an SNMP node and is by convention the same as the DTC node name.

Sys Location   Enter up to 255 ASCII characters to specify the physical location of the DTC. This is an optional field.

SNMP Enable   Set this optional field to **Disabled** or **Enabled.** Enabled means that the SNMP
Authentication Traps process agent of the DTC can generate authentication failure traps.

                          The default setting is **Enabled.**

8   **Configuring SNMP/MIB data parameters**

Trap Destination IP Address   Enter the IP addresses (non-broadcast) that designate the SNMP network management stations on the network to which the DTC will send SNMP traps. If no trap destination IP addresses are entered, the DTC will not generate any SNMP traps.

9

Changing a Port Group to Modem or Direct Connect

This chapter describes procedures to change a port group to **Modem** or **Direct Connect**.

About DTC ports

Ports on a DTC are organized in two sets of eight called *port groups*. Each port group can be either all direct connect or all modem ports. The default setting is direct connect port groups. Each port group corresponds to a connector on the rear panel of the DTC.

Note   A port group corresponds to a connector on the rear panel of the DTC. The type of port group you configure depends on whether you have a modem connected to your DTC or are using connection (direct connect) accessory.

The procedures described in this chapter are accessed from the DTC **Rear Panel Configuration** screen. This screen is opened when you execute the commands `rdtcadd` or `rdtcmodify.`

`rdtcadd` adds a single DTC to your network and opens the **Rear Panel Configuration** screen to let you modify the configuration.

`rdtcmodify` opens the Rear Panel Configuration screen of the DTC you specified.

Changing a port group

When you change a port group, the ports are configured with the user terminal port default configuration. Any data that was in these port configurations is lost.

1   At the system prompt, type `rdtcmodify dtcname`

    The DTC **Rear Panel Configuration** screen appears.

2   In board field enter **B** or **b**. Do not enter any value in the port field.

3   Press the **Action Menu** (**F5**) function key and then select **Change Port Group.** A pop-up window for choosing port group types appears. Use the **tab** or **arrow** key to go to the **Direct Connect** or **Modem** field for the two port groups. Place an **x** or **X** in the field that you want to choose. See figure 10.
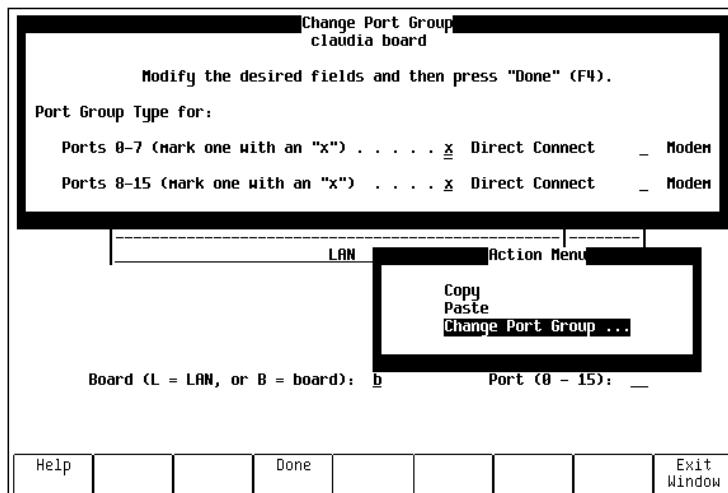
Figure 10. Change Port Group Screen

4 Press the **Done** (**F4**) function key. You return to the **Rear Panel Configuration** screen.

On the right hand side of the **Rear Panel Configuration** screen, **DIRECT** or **MODEM** indicates the port group type as shown in figure 11.

```
                          Rear Panel Configuration
                            claudia    A1430000

   Fill in the DTC 16RX board and port fields and then press "Action Menu" (F5).




          0 T   1 T   2 T   3 T   4 T   5 T   6 T   7 T  | MODEM

          8 T   9 T  10 T  11 T  12 T  13 T  14 T  15 T  | DIRECT
         --------------------------------------------------------
                              LAN




       Board (L = LAN, or B = board):  b          Port (0 - 15):  __



   Help          Shell           hpterm    Action              Exit
                                           Menu                 Task
```
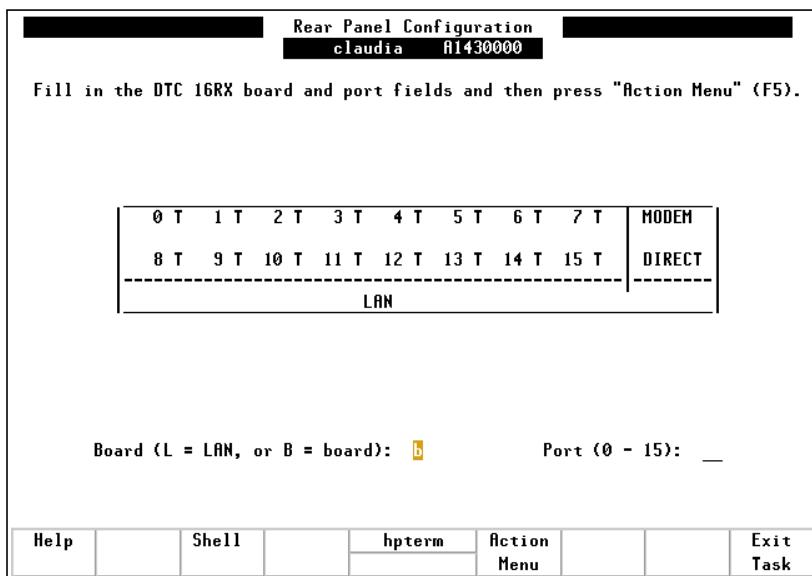
Figure 11. Changed Port Group in Rear Panel Configuration Screen

5 You **must** perform a disruptive reset the DTC to modify the port group type. Press the **Exit Task** function key to leave the DTC Manager menu-driven user interface. You are asked several questions to confirm your configuration. To activate your changes you can either:

   • Type **y** to the question: `Do you want to reset the DTC 16RX now?`

      or

   • Type the following command later at the prompt:

      `rdtcreset dtcname`

Note   The port group type configured in DTC Manager must match the hardware configuration of the DTC. Otherwise the configuration cannot be downloaded. If, for example, you have connected an MDP to the left hand connector in the DTC, you must set the ports 0 to 7 port group type to **MODEM**.

10

Changing Port Type to Terminal, Printer or Host

This chapter describes how to configure a DTC port as a terminal, printer or host port. When you complete this task you should go to chapter 11, "Configuring Terminal, Printer and Host Ports", to configure the port as required.

About the procedure

Before you can change a DTC's port type, the DTC must belong to the set of managed DTCs.

The procedures described in this chapter are accessed from the DTC **Rear Panel Configuration** screen. This screen is opened when you execute the commands:

- `rdtcadd` adds a single DTC to your network and opens the **Rear Panel Configuration** screen to let you modify the configuration.

- `rdtcmodify` opens the **Rear Panel Configuration** screen of the specified DTC.

Changing a port type

You can change a port to a terminal port, to a printer port or to a host port using the **Change Port Type** option from the **Action Menu** in the **Rear Panel Configuration** screen.

```
              rdtcmodify dtcname
                      or
      rdtcadd dtcname dtc_IP_address

            ┌─────────────────┐
            │  DTC backplane  │
            └─────────────────┘

           Board = B or b, Port = #

Configure    Enable    Copy    Paste    Change    Save
port         port                      port type  as user
parameters   options                              default
```
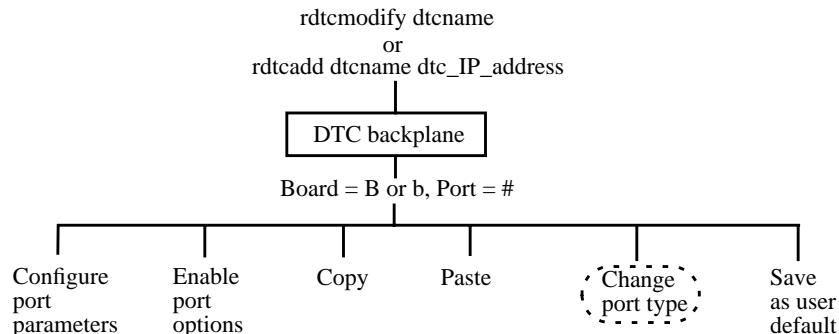
The steps are as follows:

1   Enter the board and port numbers in the **Rear Panel Configuration** screen.

2   Press the **Action Menu** (**F5**) function key and select **Change Port Type**.

   The **Change Port Type** window appears. See figure 12.

3   Indicate a printer, terminal or host port type by entering an **x** or **X** in the appropriate field and press **Return** or the **Done** (**F4**) function key.

   Change Port Type copies in the HP or user default port settings for the specified port type (terminal, printer or host). Therefore, any data that was in the port configuration will be lost.

The **Rear Panel Configuration** screen indicates **T** for a terminal port, **P** for a printer port or **H** for a host port.
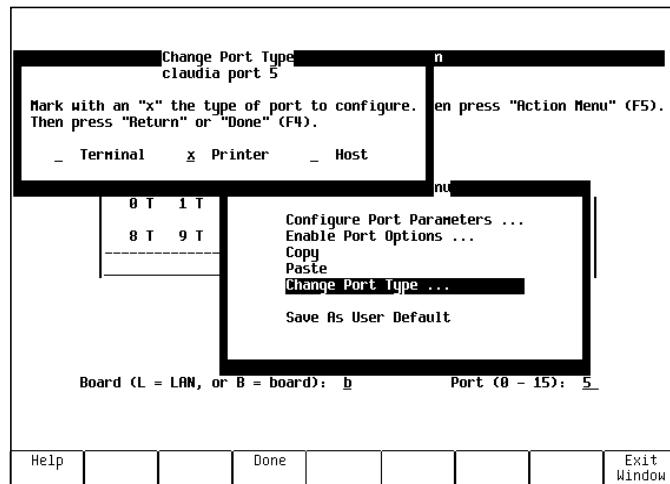
Figure 12. The Change Port Type Screen

4   You can configure another port or exit from this **Rear Panel Configuration** screen.

5   To exit, press the **Exit Task** (**F8**) function key. You then leave the **Rear Panel Configuration** screen and return to the system prompt.

Port type changes are activated immediately if you choose to activate them immediately when leaving the DTC Manager menu-driven user interface. You can also activate changes later using the command rdtcreconf. Port type changes do not require a disruptive DTC reset to be activated.

10 **Changing a port type**

Configuring Terminal, Printer and Host Ports

This chapter describes how to configure a DTC port. This involves configuring the port to match the characteristics of the attached device and configuring the port's behavior.

About the procedure

Once a port has been configured, this configuration can be copied and pasted to other ports as described in chapter 12, "Copying and Pasting Configurations."

To use the procedures described in this chapter, the DTC you want to configure must first be added to the management set. If necessary, its port group and type should also be configured.

Note

The procedures described in this chapter are accessed from the DTC **Rear Panel Configuratio**n screen. This screen is opened when you execute the commands `rdtcadd` or `rdtcmodify`.

`rdtcadd` adds a single DTC to your network and opens the **Rear Panel Configuration** screen to let you modify the configuration.

`rdtcmodify` opens the **Rear Panel Configuration** screen of the specified DTC.

Configurable port parameters

There are three groups of attributes for DTC ports that you can change from the **Rear Panel Configuration** screen.

- **Port Type**, such as printer, terminal or host. The default port type is terminal. Refer to chapter 10, "Changing Port Type to Terminal, Printer or Host."

- **Port Options**, such as DTC user interface time-out and switching (explained in the section starting on page 76).

- **Port Parameters**, such as parity and data transfer mode (refer to the section starting on page 81).

Configuring a port

1 Run `rdtcmodify dtcname` and the DTC **Rear Panel Configuration** screen appears.

2 In the **Rear Panel Configuration** screen, enter **B** or **b** in the **Board** field.

3 To go to the port field, use the arrow key. Enter a port number in the range 0 through 15.

4 Press the **Action Menu** (**F5**) function key. Select one of the tasks in the **Action Menu**.

You are taken to the appropriate screen to enter new port values. The screen and the information you provide for each task varies depending on the type of port group (direct-connect or modem) and type of port (printer, terminal or host) you have chosen to configure.

5   Consult the online help for more information on individual fields.

The port configuration screen displays the current defaults being used. The **Configure Port** screen and **Enable Port Options** screen allow you to choose HP Defaults, User Defaults, or enter other values.

The screens are described in the rest of this chapter.

6   When you have finished making your changes, return to the **Rear Panel Configuration** screen.

7   You can configure another port or exit from this **Rear Panel Configuration** screen.

8   To exit, press the **Exit Task** (**F8**) function key.

When you modify DTC parameters, at the end of the configuration process you are prompted to activate your changes immediately. You can also choose to reset the DTC later and activate your changes at a more convenient time.

You then leave the **Rear Panel Configuration** screen and return to the system prompt.

Note   Changes you make to the port parameters described in this chapter can be activated on the DTC without a disruptive reset. However, any terminal users connected to the DTC and running sessions will not see the changes until they close the current sessions and start new sessions.

Enabling port options
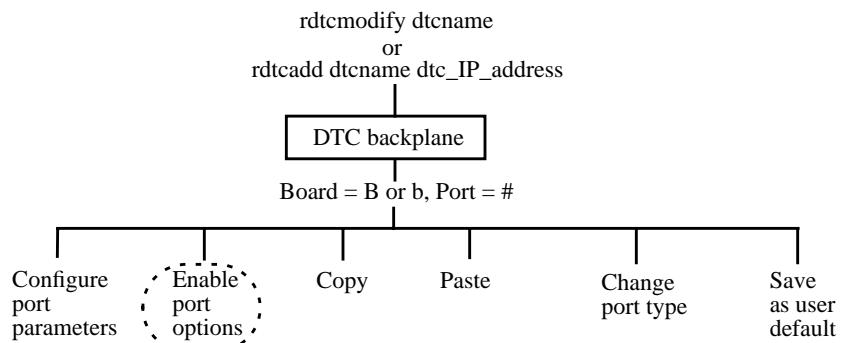
Figures 13, 14 and 15 show examples of the **Enable Terminal Port Options**, **Enable Printer Port Options** and **Enable Host Port Options** screens.

1   Enter the field values, referring to the online help for guidance.

2   When you have finished entering values, press the **Done** (**F4**) function key. You return to the **Rear Panel Configuration** screen.
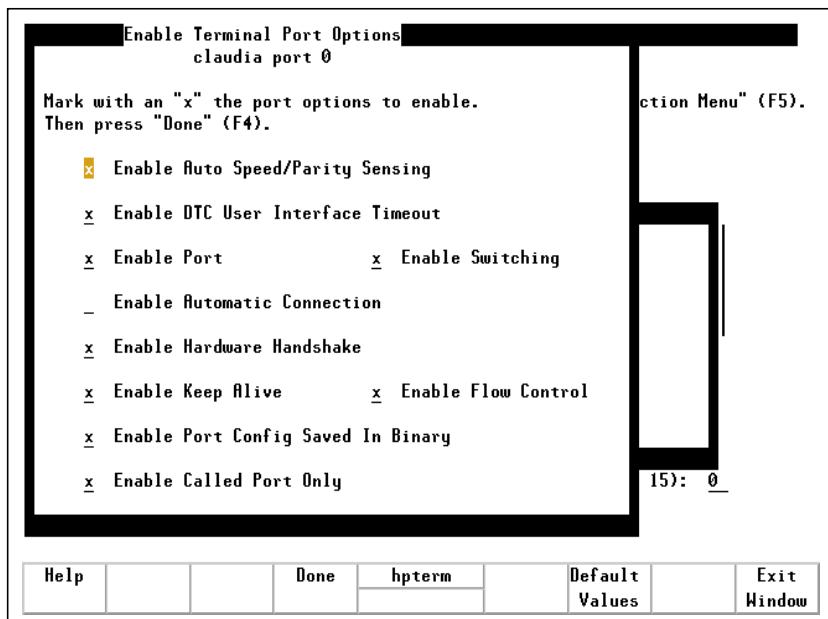
Figure 13. Direct Connect Enable Terminal Port Options

```
         Enable Printer Port Options
                claudia port 1
                                                    ction Menu" (F5).
Mark with an "x" the port options to enable.
Then press "Done" (F4).

        x   Enable Port

        _   Enable Dedicated Printer

        _   Enable Automatic Connection

        _   Enable Hardware Handshake

        x   Enable Keep Alive         x   Enable Flow Control

        _   Enable Port Config Saved In Binary


                                                       15):  1


   Help              Done     hpterm        Default            Exit
                                            Values            Window
```
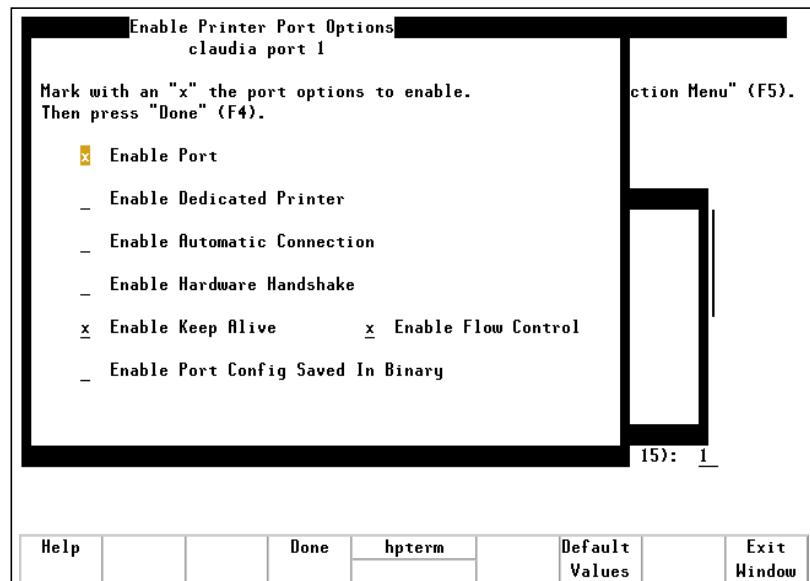
Figure 14. Direct Connect Enable Printer Port Options

```
         Enable Host Port Options
                claudia port 2
                                                    ction Menu" (F5).
Mark with an "x" the port options to enable.
Then press "Done" (F4).

        x   Enable Port

        _   Enable Automatic Connection

        _   Enable Hardware Handshake

        x   Enable Keep Alive         x   Enable Flow Control

        x   Enable Port Config Saved In Binary

        x   Enable Data Buffering

        _   Enable Enq/Ack Flow Control


                                                       15):  2


   Help              Done     hpterm        Default            Exit
                                            Values            Window
```
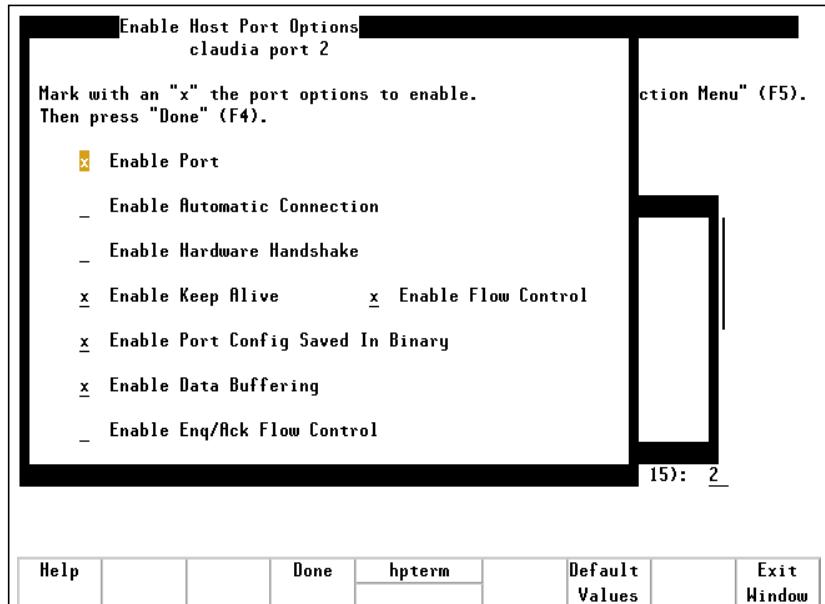
Figure 15. Direct Connect Enable Host Port Options

11   Enabling port options

The Enable Port parameters

Enable Auto Speed/ Parity Sensing   Mark this box with an **x** or **X** to have the DTC check speed and parity. When a connection is set up by a terminal, the DTC automatically checks the speed and parity (none or even parity only). If necessary, the DTC reconfigures the port. Note that only **None** or **Even** parity settings are recognized; Auto Speed/Parity sensing does not work for any other terminal parity settings.

By default, auto speed/parity sensing is disabled and the line speed and parity settings you specified for the port are used.

Enable DTC User Interface Timeout   Mark this box with an **x** or **X** to have the DTC enable the DTC User Interface Timeout. When the DTC User Interface Timeout is enabled, the time that it takes the terminal user to connect to the DTC is monitored. The connection is automatically shut down if the DTC senses no activity at the DTC prompt for a predefined period. The timeout period is defined on in the **Global Parameters** configuration screen and explained on page 48.

This timeout is active only while the user is in the DTC user interface and applies only to users with switching enabled. Non-switching users do not see the DTC user interface, because they are connected directly to their designated host system. The switching option is explained below. Once the connection to a host system has been established, the DTC no longer monitors idle time.

By default, the DTC User Interface Timeout is **disabled**.

Enable Port   Mark this box with an **x** or **X** to enable a port. If this box is not marked, the port is disabled, and no communications can pass through.

By default, the port is enabled.

Enable Switching   Mark this box with an **x** or **X** to have enable DTC switching, connecting from the port to different systems. Switching is the ability to connect to more than one computer system from a terminal. Each port can have switching enabled or disabled independently of the other ports on the board. Switching must be enabled for the terminal to access more than one system. If switching is disabled, you can only connect to the default destination which is defined in the port parameter configuration screen. If switching is enabled, you can connect to a specified system by typing one of the following at the DTC prompt:

```
DTC> connect IP_address
DTC> c name
```

The parameter `name` can be an HP 9000 or an HP 3000 node name, a DTC host port name or an Internet Services name.

By default, switching is enabled.

Enable Hardware Handshake

Mark this box with an **x** or **X** to have the DTC enable hardware handshaking. Hardware handshaking provides a way to control the flow of data between a terminal and the system it is connected to. Refer to the *DTC Cabling and Racking Guide* for more information on hardware handshake cabling.

Hardware handshake is not available if attached device is set to **European Modem**.

By default, hardware handshaking is disabled.

Enable Automatic Connection

Mark this box with an **x** or **X** to enable automatic connection from this port to the system identified as the default destination (see "Enable Dedicated Printer" on page 79). The default destination field must be defined in the port parameter configuration screen. The connection is made as soon as the modem signal rises.

By default, automatic connection is disabled.

If you have set modem behavior to None in the modem port parameter configuration screen, the automatic connection option is not available.

Enable Dedicated Printer

Mark this box with an **x** or **X** to enable a printer on this port to be available **only** to the system identified as the default destination (see "Default Destination (IP Address or Internet Services name)" on page 87). The default destination field is defined in the **Printer Port Parameter Configuration** screen.

If the dedicated printer option is enabled, the default destination port parameter must be defined with a system name or IP address. If you want several systems to access this printer, then disable the dedicated printer.

If the dedicated printer option is disabled and the default destination is defined, the default destination will not be accessible to the printer port.

By default, the dedicated printer is disabled.

Enable Enq/Ack Flow Control

Mark this box with an **x** or **X** if the host port is connected to an HP 3000 MPE V system. Do not enable Enq/Ack flow control for systems that do not use this form of flow control.

This setting is enabled by default.

Enable Keep Alive

When there is no data transfer between the DTC and the system, a mechanism called *keep alive* is activated to detect if the connection still exists.

To avoid extra traffic on the LAN, you can disable this function (the default setting).

11 Enabling port options

Enable Flow Control

When enabled, the data flow between the DTC port and the device connected it is connected to is made with Xon/Xoff characters. This function is also known as *software handshake*. This setting should be disabled if you do not want DTC to interpret Xon/Xoff characters coming from the device.

This setting is enabled by default.

Enable Port Config Saved In Binary

Specifies if the port configuration parameters **data length** and **parity** have to be forced when selecting binary mode (Telnet negotiation, user interface command). When enabled, the port configuration in used as is. When disabled, the port parameters of 8 bits for data length and parity forced to "none" are used as the port goes into binary mode.

This setting is disabled by default.

Enable Data Buffering

When this option is enabled, all synchronous data received with no connection established are kept in a buffer. If large amounts of data are received, the port may send an Xoff to the system attached, which may result in a system hang.

This option is useful in autoestablishment mode. This option should be disabled if a system console mux port is connected.

This setting is enabled by default.

Enable Called Port Only

When this option is enabled, a connection for the port can only come from the LAN. The DTC user interface will not be available when pressing **Return** on a terminal attached to this port. This option should be enabled if the port is dedicated to programmatic access.

The setting is disabled by default.

Configuring port parameters

rdtcmodify dtcname
or
rdtcadd dtcname dtc_IP_address

```
┌─────────────────┐
│  DTC backplane  │
└─────────────────┘
```

Board = B or b, Port = #

| Configure port parameters | Enable port options | Copy | Paste | Change port type | Save as user default |
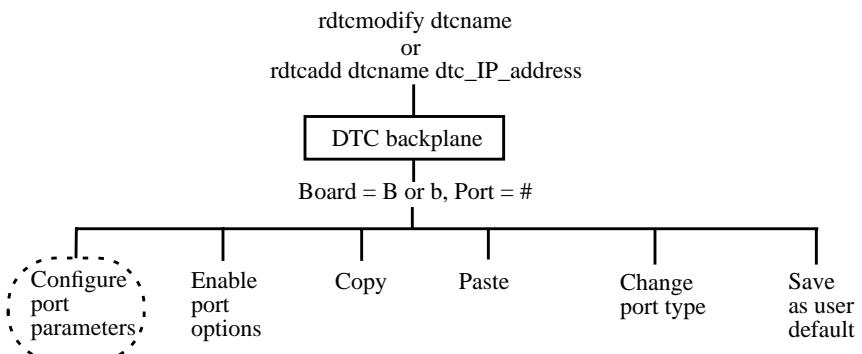
Figures 16, 17 and 18 show examples of the **Terminal Port Parameters**, **Printer Port Parameters** and **Host Port Parameters** screens.

1 Enter the field values, referring to the online help for guidance.

2 When you have finished entering values, press the **Perform Task** (**F4**) function key. You return to the **Rear Panel Configuration** screen.

```
                  Terminal Port Parameters Configuration
                              claudia port 0

      Fill in or modify the desired fields and then press "Perform Task" (F4).
      Press "Help" (F1) to obtain the information or valid values for a field.

  Terminal Name or IP Address  . . . . . . . . . . . _____  (optional)

  Line Speed . . .   19200        Attached Device . . Terminal_____

  Bits-Parity  . .  7bits_Even   Number of Stop Bits One

  Modem Behavior    None_____  Data Transfer Mode  Binary_____

  Escape from Data Transfer Character  . . . . . . . ^K

  Maximum Number of Sessions (1 - 5) . . . . . . . . 5

  Default Destination (IP address or ARPA name)  . . _____

  Initialization String (maximum of 16 characters) . _____  (optional)


   ┌──────┬──────┬───────┬──────────┬──────┬─────────┬──────┬──────┐
   │ Help │      │ Shell │ Perform  │ hpterm      │ Default │      │ Exit │
   │      │      │       │   Task   │             │  Values │      │ Task │
   └──────┴──────┴───────┴──────────┴──────┴─────────┴──────┴──────┘
```

Figure 16. Direct Connect Terminal Configuration Screen

Figure 17. Direct Connect Printer Configuration Screen

Figure 18. Direct Connect Host Configuration Screen

Configurable parameters

Terminal/Printer/Host Name or IP Address

Enter up to 16 alpha-numeric characters or an IP address in this field. The characters can include hyphens (-) and underscores (_). The first character **must** be alphabetic. This field is optional, the default is empty.

By entering a name or IP address, you are naming or labeling the port, not the device attached to it. If you disconnect the device and connect it to another port, the device is associated with the name or IP address of the other port. If you want the device to retain its name or IP address, you must reconfigure the ports accordingly.

Some key points to consider about using a port IP address:

- The port IP must be on the same subnet as the DTC 's IP address.

- If there is a port IP address for outgoing connections, it is used as the calling address.

- If there is no IP address for the port, the DTC's IP address is used.

- You cannot have the same port IP address used on more than one DTC. Be careful about the IP address when you copy and paste DTC port configurations.

- The IP address per port feature can be used with the Telnet port identification feature and the DTC Device File Access Utilities (DDFA).The port IP address can be associated with a specific **pty** device file name. Together, these features can be used to provide a pool of ports or identify a specific printer port to the HP-UX spooler. DDFA is part of Internet Services. Refer to the DDFA documentation.

Line Speed

Set the line speed to correspond to the line speed of the attached device. To select a line speed, press the **Help** (**F1**) function key and a list is displayed. Line speed choices are **300**, **1200**, **2400**, **4800**, **9600**, **19200**, and **38400** (direct connect only) bits per second. Highlight your choice and press **Return** or the **Select Item** (**F4**) function key.

The line speed default is **9600** baud.

Attached Device

Select the type of device physically attached to the port. This adapts the port behavior to the requirements of the physically-attached device. To select the device, press the **Help (F1)** function key and a list is displayed. Highlight your choice and press **Return** or the **Select Item (F4)** function key.

11   **Configuring port parameters**

The choices are as follows.

- **Terminal**—the default for direct connect and modem terminal ports

- **Printer**—the default for direct connect and modem printer ports

- **HP 2334/5 Multiplexer**

- **US Modem**—for a modem port with modem behavior set to **Standard DCE**, **DCE High**, or **DTE**.

- **European Modem**—for a modem port with modem behavior set to **Standard DCE**, **DCE High**, or **DTE**.

- **Data Switch**

- **US Modem IN OUT**

- **EU Modem In OUT**

- **Five Wires Modem**.

Bits Parity   Bit parity allows you to select the data length (not including start and stop bits) and the parity you want to assign to the port. Data length is also known as number of bits per character; these bits determine the number of received serial bits assembled to form a character.

The possible values are:

7 bits data length with parity even
7 bits data length with parity odd
7 bits data length with parity forced to 0
7 bits data length with parity forced to 1
8 bits data length with parity none
8 bits data length with parity even
8 bits data length with parity odd

A setting of **8 bits data length with parity none** is used by default.

Number of Stop Bits   This setting determines the number of stop bits to be used for asynchronous characters. Possible values are:

1 stop bit
2 stop bits

The **2 stop bits** option could be required for specific device, such as a bar code reader. The setting **1 stop bit** is used by default.

Data Transfer Mode	To select the data transfer mode, press the **Help** (**F1**) function key and a list is displayed. Data transfer mode choices are **ASCII, Binary** and **Local Binary** (host port only). Highlight your choice and press **Return** or the **Select Item** (**F4**) function key.

The data transfer mode selects the type of transfer mode used in back-to-back connections.

The default setting is **ASCII**.

Maximum Number of Sessions (for Terminal Ports)

Specify a value between 1 and 5. The maximum number of sessions is the greatest number of system connections allowed on a terminal at any one time. This value applies only to terminal ports for which switching is enabled. The maximum number of sessions on a single DTC is 80.

The default is **3** sessions per port.

Number of Systems Sharing Printer (for Printer Ports)

Specify a value between 1 and 5. This field applies only to printer ports for which the dedicated printer is disabled. The number of systems sharing printer is the largest number of systems able to use the printer port at any one time.

The dedicated printer option is enabled or disabled from the **Enable Port Options** menu item (see "Enable Dedicated Printer" on page 79 for more details on the **Enable Dedicated Printer** option). By default, the dedicated printer option is disabled.

The default is **3** systems sharing a printer.

Wait Queue Length (for host ports)	Enter a value between 1 and 5 which corresponds to the largest number of sessions that can wait for the host port at any one time. This field must be filled.

The default setting is **3**.

Note	Hewlett-Packard recommends setting this parameter to 1 (single session only) to avoid the following problem: If a host port that already has an open session receives another connection request, it queues it. The user sees a message confirming that the connection has been established, but nothing indicating that the connection is queued, and may mistakenly believe the port is hung.

11 Configuring port parameters

Modem Behavior   If you have selected a direct connect port, modem behavior is not used and should be set to **None**. The default is **None**. If you have selected a port on a modem port group, select modem behavior by pressing the **Help** (**F1**) function key. A list is displayed. Highlight your choice and press **Return** or the **Select Item** (**F4**) function key.

The DTC checks device modem signals and sets up its own modem signals. You may want to enable the automatic connection port option for this port. If enabled, the DTC will establish a connection to the Default Destination as soon as it senses modem signal activity, see "Default Destination (IP Address or Internet Services name)" on page 87, and see "Enable Automatic Connection" on page 79.

Terminal Modem Ports

None—use for a directly connected terminal.

Standard DCE—user for a terminal connected to the DTC port via a modem/multiplexer.

DCE high—use for a terminal connected to the DTC port via a modem/multiplexer, and where you need an indefinite time-out before pressing Return to connect to the DTC user interface.

DTE—use when the connection to the terminal is initiated by the host.

Printer Modem Ports

None—use for a directly connected printer.

Standard DCE or DCE high—use for a modem connected printer, where a link is made at the device.

DTE—use when the connection to the terminal is initiated by the host.

Host Modem Ports

None—use when connecting to hosts that do not support modem signals.

Standard DCE—use for a host connected to the DTC port via a modem/multiplexer.

DCE high—do not use for host port.

DTE—use when connecting to hosts that support modem connection.

Default Destination (IP Address or Internet Services name)

Enter one of the following in this field.

- **Empty**—no system is identified.

- **Internet Services node domain name**—any number of non-empty fields separated by periods (.). Each field may contain alphanumeric characters and hyphens (-) but must start with an alphabetic character.

- **IP address**

This field specifies the default destination system for the device connected to the port.

Other Port Settings	Type of Port	What to enter for "Default Destination"	Result
Switching disabled	Direct Connect terminal	IP address of system or system name[1]	The DTC connects you to this system when it senses a carriage return at the terminal.
Switching enabled	Direct Connect terminal	empty	You must type **C** followed by the IP address or name of the system to which you want to connect.
		IP address of system or system name[1]	If you type **C**, without specifying a system, you are connected to the default destination.
Automatic connection enabled	Modem terminal	IP address of system or system name[1]	The DTC connects you to this system when it detects modem activity.
Dedicated printer enabled	Printer	IP address of system or system name[1]	The printer is only available to the "default destination" system.

1. You can only use a system name here for Telnet system if a DNS server has been configured on the DTC

Destination Node Name (Host Ports)

Enter an NS node name, a DTC host port name (using the NS nodename format), a Domain name or an IP address to specify the name of a default device to which the port will connect. This is the device to which the host port is connected by default as soon as the DTC senses modem activity. The default destination must be supplied for all ports enabled for automatic connection.

This field is only available if you enabled automatic connection (modem behavior **must not** be set to **None**).

Initialization String

Enter up to 16 ASCII characters to specify the initialization string. Non-displayable ASCII characters are specified in caret-character (^character) format. For example, specify **^M^J** for **Ctrl-M** and **Ctrl-J**. The literal caret (^) and backslash (\) are escaped with a backslash. This field is optional and the default is **Empty**.

If specified and depending on the setting of the parameter "Enable Auto Speed/ Parity Sensing" (see "Enable Auto Speed/Parity Sensing" on page 78), the initialization string is the string sent to the connected terminal, printer or host port immediately after one of the following tasks:

- resetting a port
- closing a session on a host and returning to the DTC user interface
- logging into a system and typing the escape from data transfer character
- establishing a connection to the DTC user interface for modem connections: the initialization string is sent when all the modem signals are up

| Configuration task	Auto Speed/Parity Sensing Enabled	Auto Speed/Parity Sensing Disabled
Reset a DTC port	No initialization string sent	Initialization string sent
Close a session on a port and return to user interface	Initialization string sent	Initialization string sent
Log onto a system and press **Ctrl-K**	Initialization string sent	Initialization string sent
Log out from the user interface	No initialization string sent	Initialization string sent
User interface times out	No initialization string sent	Initialization string sent
Type return to access the user interface	Initialization string sent	No initialization string sent

Escape From Data Transfer Character

Enter an ASCII character to use as an escape from data transfer. Non-displayable ASCII characters are specified in caret-character (^character) format. The literal caret (^) and backslash (\) are escaped with a backslash. This field must be filled.

The escape from data transfer character is used at a terminal to switch from the host system to the DTC terminal user interface. This value applies only to terminal ports for which switching is enabled. (see "Enable Switching" on page 78).

If switching is enabled when the DTC is configured, you can press any key on a DTC terminal to get a DTC prompt. You can then log on to your system. Later, if you wish to leave your system but not log off, you enter the escape from data transfer character (**Ctrl-K**). You see the DTC prompt again and can enter a DTC user terminal interface command. Refer to appendix B, "DTC Terminal Parameters and Commands.". You can even connect to another system. The number of systems you can connect to is determined by the "Maximum Number of Sessions".

The default escape from data transfer character is **^K (Ctrl-K)**.

Saving a default port configuration

```
                    rdtcmodify dtcname
                            or
           rdtcadd dtcname dtc_IP_address
                            │
                   ┌────────────────┐
                   │  DTC backplane │
                   └────────────────┘
                   Board = B or b, Port = #
        ┌──────┬──────┬──────┬──────┬──────┬──────┐
    Configure  Enable  Copy  Paste  Change   Save
    port       port                 port     as user
    parameters options               type    default
```
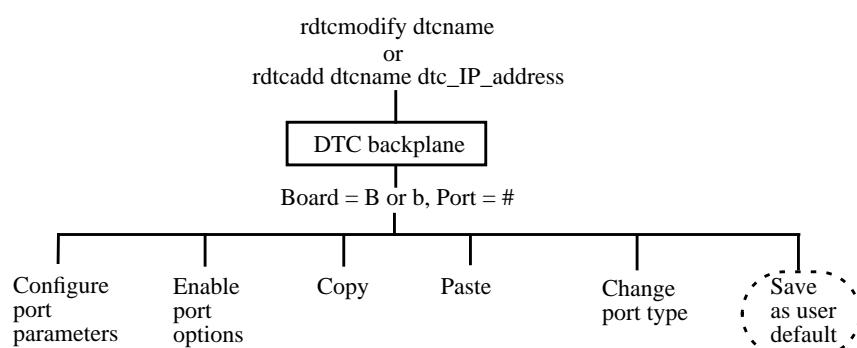
You can save the configuration of any port as your default port configuration. Each time you add a new DTC to your configuration, its ports are automatically configured to be the same as the user default port configuration. You can save a user default configuration for each of the three port types: terminal, printer and host.

11   **Saving a default port configuration**

Use the **Save as User Default** option from the **Action Menu** at the **Rear Panel Configuration** screen as follows:

1 Enter **B** in the board field and the port number in the port field of the **Rear Panel Configuration** screen.

2 Press the **Action Menu** (**F5**) function key and select **Save as User Default**.

12

Copying and Pasting Configurations

This chapter describes procedures to:

- Copy the entire configuration of a DTC to another DTC

- Copy the configuration of all the DTC ports (but not that of the LAN card) to another DTC

- Copy a single DTC port configuration to another DTC port.

Requirements for copying and pasting

The destination DTC port can be on the same DTC or on another DTC. Note that the DTC node name (or IP address) is not copied since these must be unique in your network.

Caution	If an IP address has been configured for ports, be careful when you copy and paste configurations. Remember that each IP address in your network must be unique.
Note	If you are copying and pasting from one DTC to another, both DTCs must have the same software version. You can check the software version of your DTCs with the `rdtclist -d` command.

Copying and pasting a DTC configuration

Use the `rdtccopy` command when you want to copy the entire configuration of a DTC to another DTC. All the parameters will be copied except for the DTC IP address and DTC node name which are unique to each DTC.

To copy the configuration of the DTC called `source_dtcname` to the DTC called `destination_dtcname`, type the following command at the prompt:

```
rdtccopy source_dtcname  destination_dtcname
        or
rdtccopy source_DTC_IP_address destination_DTC_IP_address
```

The destination DTC must have been created in the same DTC code version as the source before you use the `rdtccopy` command.

Example

To copy the configuration of the DTC called `dtcname1` into the DTC called `dtcname2`, use the following command:

```
rdtccopy dtcname1 dtcname2
```

Copying and pasting all port configurations

rdtcmodify dtcname
or
rdtcadd dtcname dtc_IP_address

```
DTC backplane
```

Board = B, Port not chosen

Copy   Paste   Change
Port Group
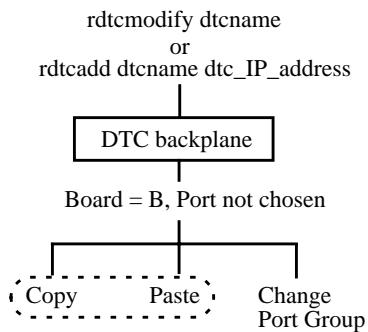
1   At the system prompt, type:

    ```
    rdtcmodify first_dtcname
    ```

    The DTC **Rear Panel Configuration** screen appears.

2   In the **Board** field enter **B** or **b**. Do not enter any value in the port field.

3   Press the **Action Menu** (**F5**) function key and then select **Copy.**

    A confirmation message is displayed showing that the data was copied.

4   Press the space bar. You return to the **Rear Panel Configuration** screen.

5   To exit, press the **Exit Task** (**F8**) function key. You then leave the **Rear Panel Configuration** screen and return to the system prompt.

6   At the system prompt, type:

    ```
    rdtcmodify other_dtcname
    ```

    The DTC **Rear Panel Configuration** screen appears.

7   In the **Board** field enter **B** or **b**. Do not enter any value in the port field.

8   Press the **Action Menu** (**F5**) function key and then select **Paste.**

    A confirmation message is displayed showing that the data was pasted.

    Press the space bar. You return to the **Rear Panel Configuration** screen.

9   To exit, press the **Exit Task** (**F8**) function key.

10 When you modify DTC parameters, at the end of the configuration process you are prompted to activate your changes immediately. You can also choose to reset the DTC later and activate your changes at a more convenient time for you.

11 If you want to copy the configuration of the first DTC to another DTC, repeat from step 6.

Copying and pasting a single port configuration

The destination DTC port can be on the same DTC or on another DTC.
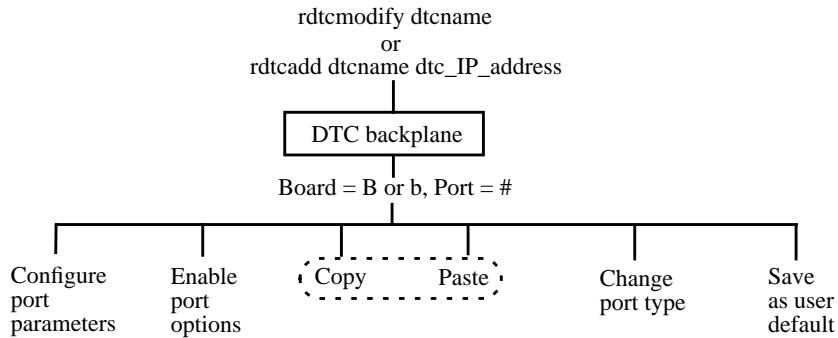
```
                    rdtcmodify dtcname
                            or
              rdtcadd dtcname dtc_IP_address
```

```
                    ┌─────────────────┐
                    │  DTC backplane  │
                    └─────────────────┘

                    Board = B or b, Port = #
```

| Configure port parameters | Enable port options | Copy   Paste | Change port type | Save as user default |

1   At the system prompt, type:

    ```
    rdtcmodify dtcname
    ```

    The DTC **Rear Panel Configuration** screen appears.

2   In the **Board** field enter **B** or **b**. Use the arrow key to go to the **Port** field and enter the required port number.

3   Press the **Action Menu** (**F5**) function key and then select **Copy.**

4   A confirmation message is displayed showing that the data was copied.

5   Press the space bar. You return to the **Rear Panel Configuration** screen.

Note

If you are copying and pasting configurations on the same DTC, skip steps 6 and 7 and go directly to step 8.

---

6   To exit, press the **Exit Task** (**F8**) function key. This returns you to the system prompt.

7   At the system prompt, type:

    ```
    rdtcmodify other_dtcname
    ```

    The DTC **Rear Panel Configuration** screen appears.

8   In the **Board** field enter **B** or **b**. Use the arrow key to go to the **Port** field and enter the required port number.

9   Press the **Action Menu** (**F5**) function key and then select **Paste.**

    A confirmation message is displayed showing that the data was pasted.

10   Press the space bar. You return to the **Rear Panel Configuration** screen.

11   Press the **Exit Task** (**F8**) key to exit. You return to the system prompt.

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13

Configuring a Backup DTC Manager

This chapter describes how to configure a backup DTC Manager.

How the backup works

Once configured, a backed up DTC Manager will operate as described below:

1   When the DTC is switched on, it sends out a request to the default DTC Manager's IP address.

2   If after ten tries the default DTC Manager does not respond, the DTC waits for 30 seconds and then sends a request to the backup DTC Manager.

3   If after ten tries the backup DTC Manager does not respond, the DTC waits for 30 seconds and then sends its request again to the default DTC Manager. This continues until one of the DTC Managers responds by downloading the configuration files. The DTC is ready only after the download operation is successful.

Backup types

The two backup types are:

•   A full backup DTC Manager
•   A backup DTC Manager for configuration download only.

For a full backup DTC Manager, you install DTC Manager on both the default host and the backup host and configure the DTC on both hosts. This enables you to configure and troubleshoot the DTC from either host. However, you **must** change the configuration on both hosts each time you modify a DTC's configuration.

For a backup DTC Manager for configuration download, you only install DTC Manager on the default host. After each configuration change on the default host, you copy the configuration files to the backup host. This is the recommended method and is described in detail in the following section.

Creating a backup DTC Manager for configuration download

Before you configure a backup manager, you must ensure that **tftp** is installed and operational on your backup host. This is explained on page 17.

Each time you add a DTC or modify the configuration of an existing DTC:

1   Use the `rdtcstat` command to verify the IP address of the DTC's backup host.

2   On the default manager, go to the directory `<tftp_directory>/rdtcmgr`.

3   Copy all the files to a directory of the same name in the backup host.

Note	If a DTC is downloaded by the backup host, any uploads which occur are sent to the backup host by default.

13   **Creating a backup DTC Manager for configuration download**

14

Configuring Connections to HP 3000 Systems

This chapter provides an overview of how to configure a DTC for:

• local connection to an HP 3000 Series 900 system
• remote connection to an HP 3000 Series 900 system

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System requirements

You must have the following in order to make a connection to an HP 3000 system:

- a DTC (running DTC code version 14.3) configured as a front-end, and attached to the same LAN as the HP 3000.

- another DTC (running DTC code version 14.3) on the other side of a routable network.

- the HP 3000 Series 900 system must be running either:

  - MPE/iX version 4.0 with power patch B.40.06

    OR

  - MPE/iX version 5.0 for remote connections

For more detailed information on configuring printers, nailed and non-nailed devices on the HP 3000 Series 900, refer to *Configuring Systems for Terminals, Printers and Other Serial Devices*.

Configuring a local connection to an HP 3000 system

There are two basic steps to configuring a DTC for connections to HP 3000 Series 900 systems:

- Configuring the DTC's LAN board
- Configuring the individual ports.

This section gives an overview only of the steps in the configuration of the DTC's LAN board specific to HP 3000 Series 900 connections. See the online help for detailed information on the fields.

- The DTC must be assigned a valid NS node name in the **DTC Node Name** field of the **IP & DNS Parameters Configuration** screen. This is the only *essential* step specific to connections to HP 3000 Series 900 systems.

- The other fields in the LAN Configuration window should be filled in according to the information in chapter 7, "Configuring a Lan Board"

- If you have problems with network traffic, you may need to change the values in the **AFCP Retransmission Timers** screen.

- For remote connections, fill in the DNS Server field in the **IP & DNS Parameters Configuration** screen.

Configuring the HP 3000 with NMMGR

The following tasks must be performed on the HP 3000 Series 900 to support connections via a DTC.

- Configure DTS information on the HP 3000 Series 900, such as the HP 3000 Series 900 node name, the link name, and the physical path of the LANIC.

- Configure the maximum number of non-nailed terminals that can log on to the HP 3000 Series 900 at one time.

- Configure information about each DTC that will communicate with the HP 3000/900, including its name, and the node name (the LAN address is also necessary for nailed devices).

- Configure DTC port information for each nailed terminal.

- Ensure that the following parameters match:
    - The HP 3000 Series 900 node name
    - The DTC node name.

Configuring a printer for access by an HP 3000 system

This procedure summarizes how to configure a printer on the DTC for access by HP 3000 systems. There are three major steps:

1 Configure a DTC port to be a printer port:

- See chapter 10, "Changing Port Type to Terminal, Printer or Host" to change the port type to printer.

- See chapter 11, "Configuring Terminal, Printer and Host Ports" to set the other port parameters.

2 Configure the printer on the HP 3000—refer to *Configuring Systems for Terminals, Printers and Other Serial Devices.*

3 Test that you can print.

Configuring remote connections

The illustration below shows a remote connection configuration. The front-end DTC is connected to the same LAN as the HP 3000 system. The remote DTC is connected to the HP 3000 system across a routed network. Communications between the remote DTC and the HP 3000 system are made via the network and the front-end DTC. This type of connection is known as a "routable AFCP" connection.

Logon access occurs when a DTC terminal user initiates a connection with an HP 3000 system. Programmatic access occurs when the HP 3000 system initiates a connection with a remote DTC. In both cases, addresses are resolved using the Domain Name Server.
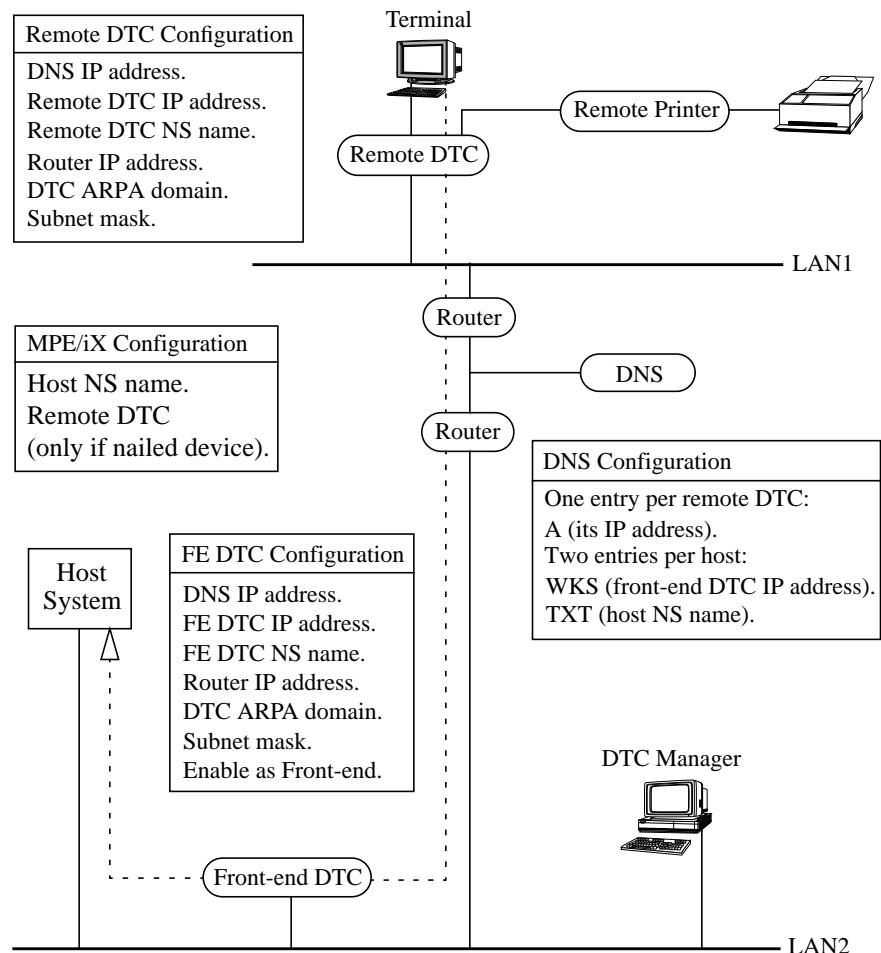
Figure 19. Remote connection configuration

Configuring a remote connection to an HP 3000 system

You configure a remote DTC for connection to an HP 3000 Series 900 system the same way you configure connection to a local MPE host system ("Configuring a local connection to an HP 3000 system" on page 100) except that you must also include the IP address of the Domain Name Server (DNS). Refer to "Configuring IP and DNS parameters" on page 44 for instructions on how to configure the IP address for a remote DTC.

Configuring a DTC for front-end operation

The front-end DTC provides a gateway service, encapsulating AFCP packets into UDP datagrams and vice versa. It may consist of a DTC 16RX (running code version 14.4), a DTC 72MX (managed from OpenView DTC Manager), or a Telnet Express. It does not have to be dedicated to providing the gateway service; it may also perform all other DTC functions.

Note | In order to operate as a front-end, the DTC must be on the same LAN as the HP 3000.

To allow front-end capability:

- activate the "Enable RAFCP Front End" field in the DTC Manager's **Global Parameters** screen as described in "Configuring global parameters" on page 47.

- enter the DNS server name in the DNS Server Name field in the **IP & DNS Parameters Configuration** screen.

- enter the default Local Domain in the **IP & DNS Parameters Configuration** screen.

Note | The DTC must be reset in order for changes to take effect.

DNS configuration

A Domain Name Server (DNS) converts network names into IP addresses. The list of network names and corresponding IP addresses used by the Domain Name Server is stored in a text file which must be maintained by the system administrator.

Each line of the file may be in one of the following different formats:

- The A (Address) format associates an IP address with an Internet Services name
- The TXT (TeXT) format associates any text string with an Internet Services

name
• The WKS (Well Known Service) format adds secondary information to the IP address.

For Routable AFCP to work, all three formats must be used.

The A format associates the IP address of a remote DTC with the NS nodename of that DTC (attached to the Internet Services extension of a front-end DTC).

The TXT format supplies the NS name of the host, so that the front-end DTC can find the host's LAN address using the Probe protocol.

The WKS format associates the IP address of the front-end DTC with the Internet Services name of the HP 3000 host system, and also defines the transport protocol to be used. The transport protocol must be 17 (UDP protocol).

The following should be noted:

• A DTC's NS name should not contain underscores if it is to be used for Routable AFCP. A host's NS name may contain underscores, but its Internet Services name or alias in the WKS record should not contain underscores.

• If the DNS has been configured for a certain front-end DTC but the front-end functionality of that DTC is not enabled, remote DTCs may try to use the DTC as a front-end, in which case the connection will fail.

Examples   Following is an example of DNS configuration for Routable AFCP, showing the lines entered in the text file.

```
# DTCs list
RDTCName.DTCArpaDomain   in   A      RDTC_IP@
#MPE ix list
hostName.DTCArpaDomain   in   WKS    FEDTC_IP@ 17
#Front End/MPEix Application
hostName.DTCArpaDomain   in   TXT      "RAFCP_HOST=hostNSName"
```

where:

RDTCName   is the NS nodename of the remote DTC.

hostName   is the ARPA nodename of the host.

DTCArpaDomain   is the Internet Services domain of the front-end DTC and the

	remote DTC.
RDTC_IP@	is the IP address of the remote DTC.
FEDTC_IP@	is the IP address of the front-end DTC.
17	is the protocol number of UDP.
RAFCP_HOST	is a keyword that should always be entered exactly a written here (in upper or lower case).
hostNSName	is the full NS name of the host, in the format HOST.DOMAIN.ORG (in upper or lower case).

Note   Spaces and tabs are not allowed between quotes in the TXT string.

When you have finished making modifications to the DNS, use the sig_named restart command to restart the DNS. Refer to your man pages for the hosts_to_named, named and nslookup commands.

14   **DNS configuration**

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Configuring a DTC Printer for HP 9000 Access

This chapter describes how to configure a printer attached to a DTC 16RX for access by an HP 9000 system. The examples are given in the context of HP-UX 9.x.

Configuration overview

The following is a summary of the configuration procedure:

1 Configure a DTC port to be a printer port

- See chapter 10, "Changing Port Type to Terminal, Printer or Host" to change the port type to printer.

- See chapter 11, "Configuring Terminal, Printer and Host Ports" to set the other port parameters.

2 Associate a device file with the printer using the DDFA device file utilities, see "Creating the Device File Name with the DDFA Utility" on page 109.

3 Configure a printer on the DTC for the HP-UX spooler, see "Configuring a DTC printer for the HP-UX spooler" on page 111.

4 Test printing to a printer, see "Testing the printer configuration" on page 112.

DTC Device File Access utilities

DTC Device File Access utilities (DDFA) provides an interface to remote DTC ports which is similar to the interface for local MUX ports and comprises a group of configuration files, executable files, and a daemon. The DDFA software is part of Internet Services and is automatically installed with it on HP 9000 Series 300, 400, 700, and 800 systems for HP-UX 9.0.

DDFA is intended for DTC users who need to access DTC devices by using pty device files names. Without DDFA, pty device file names are assigned randomly to devices on DTCs. This randomness makes it difficult to associate a specific pty device file with a specific device connected to a DTC.

DDFA allows the system or network administrator to configure a correspondence between the DTC IP address and port with specified pty device file names. Devices on the DTC can then be referred to by their **pty** device file names. For example, these **pty** device file names can be used with standard `read()`, `write()`, `open()`, `close()`, and `ioctl()` calls.

DDFA can also be used to identify a DTC printer with the HP-UX spooler. The HP-UX spooler requires devices to be identified by their device file names. For each device that is directly connected to the system, a device file name is assigned by the system administrator.

The location of the printer (port number on the DTC) and an assigned device file name must be specified in a DDFA utilities configuration file. This chapter describes how to use DDFA to configure a printer on a DTC for access by HP 9000 systems. Refer to the *DTC Device File Access Utilities Manual* and *HP-UX System Administration Tasks Manual* from your HP-UX System Administrator's documentation set for more information about DDFA. More information is also available in these man pages:

- `ddfa(7)`   DTC Device File Access Utilities description
- `dp(4)`   Dedicated port file
- `dpp(1m)`   Dedicated port file parser
- `ocd(1m)`   Outbound connection daemon
- `ocdebug(1m)`   Debug version of ocd
- `pcf(4)`   Port configuration file

Creating the Device File Name with the DDFA Utility

DDFA configuration is dependant on the `newconfig/ddfa/dp` file. Follow the procedure below to create a device file name for the printer port.

1 Ensure that you are logged in as root.

2 Check whether the file `ddfa/dp` exists.

   If this file already exists, go to step 6

   If this file does not exist, go to step 3

3 Create a directory for the DDFA files, as follows (HP recommends `ddfa`):

   `mkdir ddfa`

4 Copy the master template dedicated port file, `dp`, to the DDFA directory:

   `cp newconfig/ddfa/dp ddfa/dp`

   Do not alter `newconfig/ddfa/dp`, so that you keep a master template `dp` file.

5 Copy the master template port configuration file, `pcf`, to the DDFA directory:

   `cp newconfig/ddfa/pcf ddfa/pcf`

   Do not alter `newconfig/ddfa/pcf`, so that you keep a master template `pcf` file.

6 For each DTC printer that you wish to permanently associate with a particular device file, perform the following steps:

   a   Find the IP Address of the DTC, and the port number on the DTC to which

**15**   **Creating the Device File Name with the DDFA Utility**

the printer is connected.

b   Choose the device file name for this printer. You can choose any name, but you might want to include some port information, for example you could choose `/dev/dtc1p2` to indicate that the device file name is associated with `port 2` of `dtc1`.

c   Edit the `/etc/ddfa/dp` file, using `vi` for example, and create an entry for each printer in the file of the following form:

```
<DTC IP address> <board>/<port><device file name> <port config file>
```

The slash (/) must separate the board and port parameters.

For example, a printer is on port 2 of a DTC with an IP address of `192.101.23.45`. You want to refer to this printer as `/dev/dtc1p2`. The entry in the dp file would be:

```
192.101.23.45      1/2      /dev/dtclp2    /etc/ddfa/pcf
```

DTC IP address	Port 2	Device file address	Port configuration file containing printer configuration information
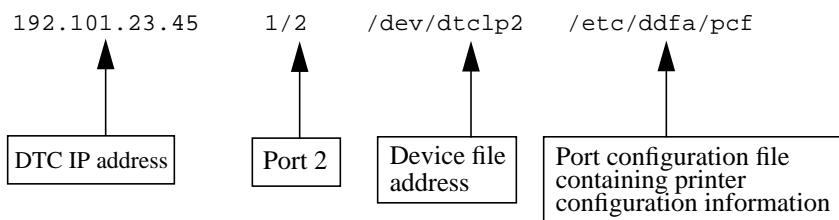
Note   For a DTC, the board number should be `1` or `01`. Valid port values are 0 to 15.

Each printer must have a `pcf` file associated with it. Several devices can have the same `pcf` file, or they can each have a unique `pcf` file. Usually, the default `pcf` file is sufficient for most applications or systems.

7   The file `ddfa/dp` is protected. In vi, to save your changes, use the command `wq!`.

8   Implement your changes by entering the following command.

```
dpp ddfa/dp -k
```

This executes the dedicated port parser (dpp) to scan the `dp` file and start up an `ocd` (outgoing connection daemon) process for each entry in the `dp` file.

9   Verify that the ocd process has been started by looking at the output of the following command:

```
ps -ef |grep ocd
```

10 To ensure that the ocd processes are started correctly each time the system is started up, add the following entry to the file `/etc/rc`:

```
ocd-start ()
{
ddp ddfa/dp -k
}
....
case $ State in
standalone )
...
net-start
ocd_start
...
;;
```

Configuring a DTC printer for the HP-UX spooler

The printer on the DTC must be specified with the HP-UX spooler using the System Administration Management (SAM) tool or the HP-UX `lpadmin` command. Refer to the *HP-UX System Administration Tasks Manual* for information on the HP-UX printer spooler.

Configuring a printer using SAM

Configure an HP-UX spooler from SAM as follows. These procedure is for HP-UX 9.0 used on an HP 9000 Series 800 system and may vary slightly for different versions of HP-UX.

1   Select the following menu options (starting from the SAM main menu).

    a   Choose **Printers/Plotters**.

    b   In the **Printer/Plotter Manager** screen, choose:

    Actions -> Local Printer Plotter
If you are using a character mode terminal the menu bar (F4 Menu bar On/Off) must be on to use the **Actions** option.

    c   Choose **Add Printer/Plotter Requiring Nonstandard Device File**.

2   Complete the **Add Printer** screen as follows:

Printer name:

    Assign a name to the printer.

Printer model/interface:

    With this field selected, press the **Enter** key. Choose the printer model corresponding to your printer from the list of printer models displayed.

Printer device file name:

Enter the printer device file that you entered in the file `ddfa/dp` file for the DTC printer port. For the device file name in the example on page 110 you would enter `/dev/dtc1p2`.

3 Complete the other fields as required and exit from SAM.

Configuring a printer using the lpadmin command

1 Configure the printer using the command line method with the following commands[*] (consult the *HP-UX System Administrator Tasks* manual for a list of supported printers):

```
# lpshut
# lpadmin  -pdtcprinter  -v/dev/dtc1p2   -mhp2235a
# enable dtcprinter
# lpsched
# accept dtcprinter
# lpstat -t
destination dtcprinter now accepting requests
printer dtcprinter now enabled
```

where:

pdtprinter   is the name of the printer.

dtc1p2   is the name of the device file.

mhp2235a   is the printer model.

2 If required, you can make `dtcprinter` the system default printer as follows:

```
lpadmin  -ddtcprinter
```

Testing the printer configuration

Use the `lp` command to verify that your printer configuration works.

1 If a default printer was configured, the following `lp` command prints the file `ddfa/dp` on the default printer:

```
lp ddfa/dp
```

2 If no default printer has been configured, type:

```
lp -dprinter name ddfa/dp
```

---

*   Consult the *HP-UX System Administrator Tasks* manual for a list of supported printers.

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Troubleshooting

This chapter describes how to troubleshoot basic DTC Manager configuration problems. For additional information, see "Diagnosing DTC Problems" on page 121.

For DTC hardware problems, refer to your DTC hardware manual.

Troubleshooting checklist

Consider the following questions to clarify the source of the problem:

For the DTC

- Did the problem occur during or just after a DTC was installed?

- Did the problem occur just after a hardware change?

  If you suspect a DTC hardware problem, consult the DTC hardware manual.

- Is the problem isolated to one specific DTC, or on a specific port on a DTC?

  The **rdtcstat** command can help you isolate the problem to a specific port on a DTC. Consult page 124 for more information.

- Did the problem occur following a storm or a power cut?

For the DTC Manager and the network

- Did the problem occur just after a software configuration change?

  This could be due to an incorrect or invalid DTC configuration.

- Did the problem occur after a cabling change?

- Is the problem isolated to a particular user or to a particular program?

- Is the problem isolated to a group of DTCs in a particular subnet?

- Can the problem be reproduced?

- Does the problem affect all users trying to access a particular system?

  This could be due to improperly functioning Internet Services on an HP 9000 destination host.

Use the troubleshooting chart to help you locate the problem. The procedures in the flowchart are described in the rest of this chapter.

Troubleshooting flowchart

```
          ┌─────────────────┐
          │ Switch on the   │
          │ DTC             │
          └────────┬────────┘
                   │
```

Does the DTC pass the self- test? — **NO** →
- Consult the error codes chart and the hardware installation guide.
- Check the LAN cable connections to the DTC.
- Perform off-line diagnostics.

YES

Is the DTC downloaded? — **NO** →
- Ensure the **tftp** is operational.
- Ensure the DTC IP address and DTC name (case sensitive) are identical on the DTC and on the DTC Manager.
- Ensure that the port group type configured on the DTC Manager matches the distribution panel connected to the DTC.
- Check the network connections using `ping`.
- Check the code version on your DTC—it may not be compatible with the DTC version on your DTC Manager (see page 118).

YES

Do you get a prompt on DTC terminal? — **NO** →
- Check the configuration using `rdtclist –c` or `rdtcmodify`.
- Check the setting of the Enable. Automatic Connection parameter for modem connections.
- Check that the DTC Node Name is correct for your network.
- Check the terminal configuration.

YES

Your DTC is operational. Use the `connect` command.

Checking that the DTC self-test is successful

When a DTC is switched on it runs a hardware self-test. Some errors which occur during the self-test are recoverable, while others are not.

The following steps describe how to ensure that the DTC has correctly passed its self-test and what action to take if the self-test indicates any problems.

1   Remove the power cord of the DTC and plug it in again.

2   Use the summary of the display codes and their meanings (located under the DTC on a pull-out card) to interpret the front-panel display.

   Refer to the DTC hardware manual for a more detailed explanation of the codes displayed on the DTC.

3   If the DTC passes its self-test, go to the next stage of troubleshooting, "Checking the DTC Download Process".

4   If the DTC does not pass the self-test, take the following steps.

   a   Ensure that the LAN cable is connected to the DTC.

   b   If you cannot solve the problem, call your Hewlett-Packard representative.

5   If the DTC does pass the self-test, but some errors were indicated, take the following steps.

   a   Identify any faulty ports and avoid using them for connections until you can have the DTC repaired.

   b   If you cannot solve the problem, call your Hewlett-Packard representative.

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Checking the DTC download process

If the power-on self-test is successful, the DTC sends out a request to the default DTC Manager's IP address. If after ten tries the default DTC Manager does not respond, the DTC waits 30 seconds and then sends a request to the backup DTC Manager.

If after ten tries the backup DTC Manager does not respond, the DTC waits 30 seconds and then sends a request to the default DTC Manager again. This continues until one of these DTC Managers responds by downloading the configuration files. The DTC is ready only after the download operation is successful.

The following steps describe how to ensure that the DTC configuration is downloaded from the DTC Manager to the DTC.

1 Use the summary of the display codes and their meanings (located on a pull-out card) to interpret the front-panel display, or refer to the DTC hardware manual for a more detailed explanation of the codes displayed on the DTC.

2 If the display code indicates a successful download, but you cannot connect to a specific Telnet system, go to the section "Checking that ARPA/9000 Services are Operational" on page 118.

3 If the display code does not indicate a successful download, use the `rdtcmodify` command to correct the configuration information.

   If this DTC is not included in the list of configured DTCs, it is probably because the DTC name and DTC IP address on the DTC itself and on the DTC Manager are not the same.

4 If the DTC still does not download correctly, delete and add it again, taking care to enter the DTC name and DTC IP address exactly as they are entered on the DTC. The DTC name is case sensitive. The two names "Mydtc" and "mydtc" are different. Make sure that the code version on the DCT unit is the same as the DTC code version on the server.

5 Try to download the DTC again.

6 If the display code does not indicate a successful download, go to the next stage of the troubleshooting, "Checking that **tftp** is Installed and Operational".

Checking that tftp is installed and operational

The `tftp` daemon is responsible, among other things, for downloading DTCs. If `tftp` is not running, the HP 9000 host cannot respond to a DTC download request.

1 Check that `tftp` is properly installed and operational as described in chapter 3.

2 Consult the `tftp` man page for information on how to use tracing on **tftp** and look at the trace files to find the problem.

3 Contact your system administrator if you cannot solve the problem.

Checking that the Internet Services software is operational (HP 9000 connections)

The DTC uses the Telnet and TCP/IP protocols to establish terminal and device connections from the DTC to HP 9000 destination hosts. Therefore, the Internet Services must be correctly installed and operating on HP 9000 hosts.

Details of Internet Services operations and troubleshooting are beyond the scope of this manual. However, correct operation of Telnet services on the HP 9000 can be verified as follows.

1 Use the `ps -ef` command to make sure the `inetd` daemon is running. The `inetd` daemon spawns the `telnetd` daemon.

2 From the host, attempt to establish a Telnet connection to your own node by typing the `telnet` command at the shell prompt:

   `telnet myhostname`

   where `myhostname` is the node name or IP address of your own node.

3 If you suspect problems with the Internet Services on your node, check with your system or network administrator.

Checking DTC code version compatibility

While it is not necessary that the DTC's code (stored in "flash EEPROM") be of the same version as the DTC Manager software, the DTC must be configured in the same DTC code version on the server. You can verify the DTC code version on the server with the `rdtclist -d` command and the available DTC code versions with the `rdtcver` command. The code version that is currently running on the DTC unit is displayed at the top of the Network Management screen when the terminal is connected to the DTCs diagnostics port.

You can also verify a DTCs software version by looking at the version number displayed at the top of the DTC terminal, in the Network Management screen, when the DTC's terminal is attached to its diagnostics port.

Checking log files

In general, reading the appropriate log file can provide you with a better idea of where the problem is located.

For installation information look in:

- HP-UX 9.x systems: `/tmp/update.log`

- HP-UX 10.0 systems: `/var/adm/sw/swagent.log`

For `rdtc` commands (such as `rdtcmodify` and `rdtcadd`), look in:

- HP-UX 9.x systems: `/usr/tftpdir/rdtcmgr/rdtcconf.log`

- HP-UX 10.0 systems: `var/opt/rdtcmgr/rdtcconf.log`

16 **Checking log files**

17

Diagnosing DTC Problems

This chapter presents information on diagnostic commands and procedures.

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Your DTC 16RX hardware manual explains the meaning of the terms upload, download, and self-test. The following tasks and related commands are described in this chapter:

Task	Related command
Resetting a DTC	
Reset a DTC or a DTC port	`rdtcreset`
Finding information	
Find the IP address of a DTC	`rdtcip`
Find the name of a DTC	`rdtcname`
List the DTCs configured on the DTC Manager	`rdtclist -d`
Find the status of DTC LAN board or a Port	`rdtcstat`
Determine if DTC uploads have occurred	`rdtcupload -d`
Find the current DTC Manager version	`rdtcver`
Testing Connections	
Test connections to a DTC	`rdtcping`
Commands you should use ONLY if instructed to do so by a Hewlett-Packard engineer	
Turn off or turn on an extended trace	`rdtctraceon` `rdtctraceoff`
Upload files from a DTC or a port	`rdtcupload`

Resetting a DTC or a DTC port

The `rdtcreset` command resets a DTC or a port. The board in the DTC cannot be reset. You can only reset the entire DTC or a single port.

The `rdtcreset` command is disruptive and breaks all connections on the port or ports being reset. It will download the latest configuration changes to the DTC.

```
rdtcreset dtcname [dtcport]
```

Examples

To reset the DTC named `dtc1`:

```
rdtcreset dtc1
```

To reset port 1 of the DTC named `dtc1`:

```
rdtcreset dtc1 1
```

Finding information

Finding the IP address of a DTC using its name

The command `rdtcip` finds the IP address which corresponds to a DTC name.

```
rdtcip dtcname
```

Finding the name of a DTC

The command `rdtcname` finds the name of DTC using its IP address.

```
rdtcname dtc_IP_address
```

Listing the DTCs configured on the DTC Manager

The command `rdtclist -d` lists all the DTCs configured on this DTC Manager.

```
rdtclist -d
```

17 **Testing connections using the rdtcping command**

Finding the status of DTC LAN board or a port

The `rdtcstat` command obtains status information about a DTC or a DTC port and lists it to the standard output.

```
rdtcstat dtcname [dtcport] [>filename]
```

Examples

To obtain status information about the DTC named `dtc3`:

```
rdtcstat dtc3
```

To obtain status information about Port 1 of the DTC named `dtc3` and copy the result to a file called `rainbow`:

```
rdtcstat dtc3 1 >rainbow
```

Finding information about DTC uploads

The command `rdtcupload -d` finds out if any uploads have occurred on the DTCs downloaded by this DTC Manager. It lists the upload files on the screen and places the upload files in the directory `/usr/<tftp_directory>/tmp/`:

```
rdtcupload -d
```

You should regularly clear the files in this directory as each upload file occupies 2.2 MBytes.

Testing connections using the rdtcping command

The `rdtcping` command is used as a troubleshooting tool to perform a connection test. The `rdtcping` command sends one ICMP (Internet Control Message Protocol) echo packet to the specified DTC which is echoed back. A message indicates whether or not the DTC responded. Both the `rdtcping` command and the standard `ping` command are useful to check if a DTC is still up and running, at least at the IP level of the networking stack.

You can only use the `rdtcping` command on the DTCs listed by the command `rdtclist -d`.

The `rdtcping` command helps you:

- Do a preliminary connectivity check when setting up the DTC connections

- Do a quick check of the connectivity if the response from a DTC seems unusually slow.

You must run `rdtcping` as superuser. The `rdtcping` command can be scheduled using the HP-UX `at` command or the HP-UX `cron` command. Only one `rdtcping` or other diagnostic command can be run at a time.

```
rdtcping dtcname
```

Example

Perform `dtcping` on the DTC called `mydtc`:

```
rdtcping mydtc
```

Commands an HP engineer might ask you to use

Caution Only use the following commands if instructed to do so by an HP engineer for troubleshooting purposes.

The information uploaded to the DTC Manager during a DTC upload can only be read with special formatting tools available only to HP engineers.

Turning off or turning on an extended trace

The `rdtctraceoff` command turns off an extended trace for the selected port.

```
rdtctraceoff dtcname dtcport
```

The `rdtdctraceon` command turns on an extended trace for the selected port.

```
rdtctraceon dtcname dtcport
```

Examples

To turn on an extended trace for port 0 of the DTC named `dtc3`:

```
rdtctraceon dtc3 0
```

To turn off the extended trace on port 4 of the DTC named `dtc3`:

```
rdtctraceoff dtc3 4
```

Uploading files from a DTC

The command `rdtcupload` uploads a DTC configuration or a DTC port
configuration.

```
rdtcupload dtcname [dtcport]
```

The following upload data files are created:

- `<tftp_directory>/rdtcmgr/upload/dtcname.box` contains the upload
  of a DTC called dtcname.

  or

- `<tftp_directory>/rdtcmgr/upload/dtcname.pi` contains the upload
  data file of port number `i` of the DTC called dtcname, where `i` is an integer
  between 0 and 15

Caution	You must **never** access the upload files in these directories. For information on deleting upload files see "Deleting DTC upload files" on page 136.

Note that each upload data file from a specific port overwrites the last upload data
file for a previous port upload from that port. To retain port uploads for a given port,
you must use the HP-UX `cp` or `mv` command to copy or move each file produced
into another file.

Examples

To upload the DTC named `dtc2`:

```
rdtcupload dtc2
```

To upload port 1 of the DTC named `dtc2`:

```
rdtcupload dtc2 1
```

You can refer to "Deleting DTC upload files" on page 136 for information about
deleting upload files.

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Reprogramming a DTC

This chapter explains how to reprogram the Flash EEPROM in the DTC unit.

The reprogramming procedure

For systems running HP_UX 9.x, the download code is in the file:

`/usr/tftpdir/rdtcmgr/code/<DTC_version_number>/`**`romrx.cod`**

For systems running HP_UX 10.0, the download code is in the file:

`/opt/rdtcmgr/code/`**`romrx.cod`**

Caution	Reprogramming the DTC takes approximately ten minutes. During this time the status light on the DTC's rear panel will display a flashing number 6. **Do not switch the power off during this period**. If there is power failure during this period the DTC will generate a fatal error code number 6 (not flashing) and will not operate.

Command examples

To reprogram `dtc3` with the A1410G00 version of the software, enter:

```
rdtcreprog dtc3 -v A1410G00
```

To reprogram the EEPROM code in the DTC named `dtc3` with the latest DTC version available:

```
rdtcreprog dtc3
```

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Listing DTC Configurations

This chapter describes how to list DTC configurations using the command `rdtclist`.

Using the rdtclist command

This command enables you to display one of the following:

- The list of DTCs managed by the DTC Manager

- A summary of configuration data for a DTC—this includes information about the LAN board and the ports.

Listing managed DTC

To display a list of the DTC 16RXs managed by a DTC 16RX Manager, use the `rdtclist -d` command as follows:

```
rdtclist -d
```

Listing configuration information about a DTC

To display a configuration information for a particular DTC, using the UNIX pipe function (for easier reading) enter:

```
rdtclist -c dtcname [>>filename]
```

To display a complete list of configuration information for `DTC1`, enter:

```
rdtclist -c DTC1 |more
```

To display the complete list of default configuration information for the current DTC version:

```
rdtclist -C | more
```

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20

Logging DTC Events

This chapter describes how to format and display DTC events.

About event logging

The event log is a binary file in the memory of the DTC to which DTC networking events are logged.

Up to 256 events are stored in a circular file in the DTC. To read this information it must first be transferred to the DTC Manager and formatted.

There are two DTC Manager commands related to event logging:

```
rdtcevents
```

The command `rdtcevents` transfers the event information currently in the DTC to the DTC Manager, formats it and puts it in a log file called /<tftp_directory>/rdtcmgr/log/dtcname.log.

```
rdtclist -e
```

The command `rdtclist -e` formats and displays an existing log file on the DTC Manager. Give the log file's full path name.

Working with event log files

Retrieving and formatting an event log file

Use the command `rdtcevents` to format DTC event files. The event log file is a binary file that stores networking event information.

```
rdtcevents dtcname [>filename]
```

If you specify a file name using the > (pipe) function, the formatted DTC events are copied into this file. If you don't specify a file name, formatted events are displayed on the screen. The output on screen is easier to read if `rdtcevents` is piped to the HP-UX `more` command. The non-formatted DTC events are always stored in the default log file /<tftp_directory>/rdtcmgr/log/dtcname.log.

Each time you use the command `rdtcevents` the information in the default log file /<tftp_directory>/rdtcmgr/log/dtcname.log is overwritten.

Examples

To view the DTC events of the DTC called `mydtc` on screen:

```
rdtcevents mydtc | more
```

To copy the DTC events of the DTC called `mydtc` into a file called `eventfile`:

```
rdtcevents mydtc >eventfile
```

Listing an event log file

Use the command `rdtclist -e` to format an existing event log file stored on the
DTC Manager. This command does not retrieve new event information from the
DTC and does not overwrite event files stored in the DTC Manager.

```
rdtclist -e filename
```

Example

To format and view the events in the `events5` file (one screen at a time):

```
rdtclist -e events5 | more
```

20 **Working with event log files**

File Management

This chapter describes file management procedures for DTC Manager files, and includes special guidance on deleting files.

Managing DTC Manager files

The location of DTC Manager files is described in appendix C.

Caution	Never delete files in any of the `rdtcmgr` directories, even if they are empty. All of these files and directories are necessary for the proper operation of DTC Manager.

Deleting DTC upload files

DTC upload files are placed in `/<tftp_directory>/rdtcmgr/upload/` when they are initially created. To access the upload files follow the steps below.

Caution	Do not delete any files from the directory `/<tftp_directory>/rdtcmgr/upload/` directly even if the files in this directory are empty. These files **must** exist for the DTC Manager to operate correctly. Follow the steps below to delete upload files.

1 Type the following command at the prompt:

   `rdtcupload -d`

   This command:

   • copies all the files in the directory:

     (in HP-UX 9.x) `/tftpdir/rdtcmgr/upload` to the directory `/usr/tftpdir/rdtcmgr/tmp`

     (in HP-UX 10.0) `/<tftp_directory>/rdtcmgr/upload/` to the directory `/var/opt/rdtcmgr/tmp`

   • lists the current upload files on the screen

   • sets the size of each of the files in `/.../rdtcmgr/upload/` to 0 bytes

2 Delete any upload files you do not want to keep from the `/tmp` directory.

22

Modifying Configurations with rdtcmodifyconfs

This chapter describes how to modify multiple DTC configurations in one procedure with `rdtcmodifyconfs`. This command can be used as an alternative to the `rdtcmodify` utility which only allows you to modify one DTC at a time.

About the command

With `rdtcmodifyconfs` you can:

- Modify DTC configurations that were created with `rdtcadd`

- Copy data from one configuration and paste it into another (except LAN board configurations)

- Modify parameters with a script.

Note   The `rdtcmodifyconfs` command can only be used to modify DTCs that already exist—it cannot be used to create a DTC. To create a DTC configuration, use the `rdtcadd` command.

You must download the new configuration to the DTC whenever you change any of the following SNMP parameters:

- contact name
- sys name
- sys location
- SNMP enable authentication traps
- trap destination IP address.

There are two ways to reset the DTC and start the download:

- Turn off and turn on the DTC
- Run the command `rdtcreset dtcname`.

Using rdtcmodifyconfs

The `rdtcmodifyconfs` command enables you to modify multiple DTC configurations by creating a shell script containing the desired parameter settings for each DTC.

You must have superuser privileges. To execute `rdtcmodifyconfs` commands, logon as `root` or enter the `su` (superuser) command.

Note	You can only run *one* of the following DTC Manager commands at a time: `rdtcmodifyconfs` or `dtcping`. For this reason only one user can configure and modify a DTC at a time.

Refer to the `rdtcmodifyconfs.sh` file for a complete description of command options.

Common uses for rdtcmodifyconfs

Task	Command Syntax
Copy a configuration	`rdtcmodifyconfs -c dtcobject`
Paste a configuration to DTC board(s) or port(s)	`rdtcmodifyconfs -p [-q] dtcobject`
Specify a script file containing the parameters to modify	`rdtcmodifyconfs -m [-f scriptfile]` `[-e 'parameter_name'] [-q] dtcobject`

Command syntax

rdtcmodifyconfs [-c][-p] <dtcobject>

rdtcmodifyconfs [-m][-e <parameter_name>] <dtcobject>

rdtcmodifyconfs [-m][-f <scriptfile>] <dtcobject>

Note	Use the `rdtcmodifyconfs.sh` script file provided with your DTC Manager file set.

Copying and pasting configurations

-c   Copies the specified `dtcobject` into an internal copy buffer. The `dtcobject` is a board or port (explained later in this chapter). Only one `dtcobject` may be copied. A `dtcobject` can be one of the following items:

- A board—specify the DTC name and board (LAN boards cannot be copied).

- A port—specify the DTC name, the board, and the port number.

-p   Pastes the `dtcobject` from the internal copy buffer into one or more compatible `dtcobject` locations. For example, you can paste a board to another board; you can not paste a board to a port.

22 Using rdtcmodifyconfs

Example

This example shows how to copy port 3 of `dtc1` and the paste the configuration to the same port on `dtc2`.

```
rdtcmodifyconfs    -c  dtc1 b 3
rdtcmodifyconfs    -p  dtc2 b 3
```

Modify parameters option

`-m`   Used to specify which parameters to modify for given `dtcobjects`. The parameters can be given on the command line or in a user-defined `scriptfile`. In both cases, each parameter is specified with single quotes and the `scriptfile` must be given with a full path name.

Object parameters

`dtcobject`   The `dtcobject` parameter specifies a board, or port(s) to be copied, pasted, or modified. For copying, only a single object can be specified. For pasting or modifying, multiple similar dtcobjects can be specified.

If you specify a board, then you must specify a DTC. If you specify a port, then you must specify a DTC and a board.

The syntax is:

```
dtc [board [port]]
```

`dtc`   (Mandatory) The name of the target DTC to modify. This is the same DTC name you used when you added the DTC using `rdtcconf`. A DTC name must be from 1 to 8 alphanumeric characters, including hyphens (-) and underscores (_). Note that the first character *must* be alphabetic. An asterisk (*) is a wildcard character.

`board`   The name or number of the target board to modify. The board parameter is one of the following:

L or **l**   LAN.

B or **b**   Board.

| port | The number of the port to modify. It is one of the following: |
| | |

             0 ... **15**   An integer from 0 to 15.

Logging options

| logging | The `rdtcmodifyconfs` command supports the following logging options: |
| | |

| -a | Appends the log messages from this `rdtcmodifyconfs` execution to the existing `rdtcmodifyconfs` log file. |

By default, executing `rdtcmodifyconfs` means that the existing log file is overwritten. The default log file is:

`rdtcmodifyconfs.log`.

| -L logfile | Specifies an alternative file that `rdtcmodifyconfs` should use to log status and error messages. The default file is: |

- `/usr/tftpdir/rdtcmgr/rdtcmodifyconfs.log` in HP-UX 9.X
- `/var/opt/rdtcmgr/rdtcmodifyconfs.log` in HP-UX 10.X.

Controlling verbosity

| -q | Turns off the display informational messages during the task. This is the quiet option and is useful if several or many DTCs are being pasted or modified and you do not want to see messages for all the DTCs. |

Using the script options

You can use the script options to specify parameters to be modified. There are two forms of scripts:

- Command-line scripts: specify modifications at the command line
- Script files: contain parameters that define the modifications

| Note | LAN boards or ports can be selected as `dtcobjects` for use with the script options. |

Command-line scripts

-e "script"   Executes a command-line script. Modifications to the DTC configuration are contained in the command-line script. The script can be specified in single or double quotes.

Example

This example shows how a command-line script is used to modify the DTC User Prompt on the DTC named dtc1.

```
rdtcmodifyconfs -m -e 'User Prompt="Hello>>";' dtc1 l
```

User-defined script files

The scriptfile option is used to modify one or more DTCs at a time. The parameters to be modified are specified in a user-defined script file.

An example script file is provided with the DTC Manager fileset. This file—rdtcmodifyconfs.sh—contains examples for all parameter names and values.

You can use the rdtcmodifyconfs.sh file as basis for creating your own customized scripts. Copy it to another file name and then adapt it to your needs.

-f scriptfile   Executes a script file. Modifications to the DTC configuration are made by means of parameter assignment statements for particular configuration parameters. These are kept in an ASCII text file (scriptfile).

Example

To modify a DTC User Prompt parameter with a script file:

```
rdtcmodifyconfs   -m  -f modscript  dtc1 l
```

In this case the file modscript would contain: User Prompt="dtc1>>";

Parameter definitions

LAN parameters

The LAN `parameter_name` can be any of the following.

Parameter name	Explained on:
Backup Server Address	page 46
Default Local Domain	page 47
Default Server Address	page 46
DTC User Interface Timeout	page 48
User Prompt	page 49
Welcome Message	page 49

SNMP parameters

The `parameter_name` can be any of the following:

Parameter name	Explained on:
Contact Name	page 63
Sys Name	page 63
Sys Location	page 63
SNMP Enable Authentication Traps	page 63

The following two SNMP parameters have a special notation: :

Parameter name	Explained on:
SNMP Authorization Filters (5 maximum)	page 60
Trap Destination IP Address (10 maximum)	page 64

Example SNMP parameters

This example shows how two SNMP authorization filters are configured:

```
rdtcmodifyconfs -m -e 'SNMP Authorization Filters =
"015.123.123.111|Washington community|Read Write|DTC
MIB|015.123.123.122|Houston Community|Read Only|MIB-II";'dtc1 l
```

This example shows how four Trap Destination IP Addresses are configured:

```
rdtcmodifyconfs -m -e 'Trap Destination IP Address =
"015.123.123.111
|015.123.123.122|015.123.123.134
|015.123.123.145";' dtc1 l
```

Port parameters

For a DTC port, port parameters and port options for parameter_name are listed below.

Parameter name	Explained on:
Attached Device	page 83
Default Destination	page 87
Escape from Data Transfer Character	page 89
Initialization String	page 88
Line Speed	page 83
Maximum Number of Sessions	page 85
Modem Behavior	page 86
Number of Systems Sharing Printer	page 85
Wait Queue Length	page 85
Parity (Bit Parity)	page 84
Number of Stop Bits	page 84
Data Transfer Mode	page 85
Terminal IP Address	page 83
Printer IP Address	page 83
Host Name IP Address	page 83

To enable or disable the following port options, the `parameter_value` is set as
follows:

x or **X** to enable the port option
Double quotes **(" ")** to disable the port option

Parameter name	Explained on:
Enable Auto Speed/Parity Sensing (terminal ports only)	page 78
Enable Automatic Connection (modem ports only)	page 79
Enable Dedicated Printer (printer ports only)	page 79
Enable DTC User Interface Timeout (terminal ports only)	page 78
Enable Hardware Handshake	page 79
Enable Port	page 78
Enable Switching (terminal ports only)	page 78
Enable Keep Alive	page 79
Enable Flow Control	page 80
Enable Port Config Saved In Binary	page 80
Enable Data Buffering (host ports only)	page 80
Enable Data Buffering (host ports only)	page 80
Enable Called Port Only (terminal ports only)	page 80
Enable Eng/Ack Flow Control (for host only)	page 80

Script examples

To enable port 3 of `mydtc1`:

```
rdtcmodifyconfs -m -e 'enable port = "x";' mydtc1 b 3
```

To change the DTC user interface timeout to 30 seconds on `mydtc1`:

```
rdtcmodifyconfs -m -e 'DTC User Interface Timeout = "30";'
mydtc1 l
```

An example script file called `dtcscript` contains the following parameters:

```
User Interface Timeout = "9";
User Prompt = "New_DTC>";
Welcome Message = "Welcome! Type ? to get help on using the DTC
Terminal User Commands";
```

This command will make all the changes listed in the script file.

```
rdtcmodifyconfs  -m  -fdtcscript  mydtc1 l
```

The parameters in the example are explained as follows:

-m uses the modify option.

-f uses a file containing a script. The file name is dtcscript.

mydtc1 is the name of the DTC to modify.

Key points about scripts

- A script can only contain global or port parameters. You cannot mix global and port parameters in the same script.

- When the LAN is specified as the dtcobject parameter, only the LAN parameters can be modified. Therefore, you cannot specify DTC port parameters in the script or scriptfile parameter. Likewise, the reverse is also true. If you specified a port in the dtcobject parameter, then only port parameters can be modified.

- The parameter_name is case sensitive and must be specified exactly as shown above.

Command return values

The rdtcmodifyconfs command returns 0 (zero) for no errors if there are no problems, otherwise an error code is displayed.

A

DTC Manager Commands

This appendix provides a listing of the DTC Manager commands.

Note   In HP-UX 9.X, all DTC Manager commands are located in the `/etc` directory. In HP-UX 10.0, the DTC Manager commands are located in the directory `/opt/rdtcmgr/sbin`.

Adding a DTC to the list of DTCs configured DTCs

Add a DTC

```
rdtcadd dtcname  DTC_IP_address [-v DTC_version_number]
```

Add a DTC using the configuration of an existing DTC

```
rdtcadd dtcname DTC_IP_address existing_DTCname
```

Configuring DTCs

Note   An asterisk indicates that the IP address of the DTC can be used instead of its name.

Copy the configuration of one DTC to another

```
rdtccopy dtcname1* dtcname2*
```

Delete a DTC

```
rdtcdelete dtcname*
```

Modify the configuration of a DTC

```
rdtcmodify dtcname*
```

Make modification to dynamic parameters effective

```
rdtcreconf dtcname*
```
Modify configurations by program
```
rdtcmodifyconfs
```

Finding information

Note   An asterisk indicates that the IP address of the DTC can be used instead of its name.

Display the configuration of a DTC
```
rdtclist -c dtcname* [dtcport]
```
Find the IP address of a DTC using its name
```
rdtcip dtcname
```
Find the name of a DTC using its IP address
```
rdtcname DTC_IP_address
```

Find the status of the DTC LAN board or a port

```
rdtcstat dtcname* [dtcport]
```

Find the version of the software on the DTC Manager

```
rdtcver
```

Finding out if DTC uploads have occurred

```
rdtcupload -d
```

List the DTCes managed by this DTC Manager

```
rdtclist -d
```

Troubleshooting the DTC Manager

Note	An asterisk indicates that the IP address of the DTC can be used instead of its name.

Format log events already retrieved from the DTC

```
rdtclist -e filename
```

Reset a DTC or a DTC port

```
rdtcreset dtcname* [dtcport]
```

Retrieve, format and display the DTC event log

```
rdtcevents dtcname*
```

Test connections to a DTC

```
rdtcping dtcname*
```

Commands that an HP Engineer might ask you to use

Only use these commands if instructed to do so by a Hewlett-Packard engineer.

Note	An asterisk indicates that the IP address of the DTC can be used instead of its name.

Reprogram the EEPROM in the DTC

```
rdtcreprog dtcname [-v DTC_version_number]
```

Turning off or turning on an extended trace

```
rdtctraceoff dtcname* dtcport
rdtctraceon dtcname* dtcport
```

Uploading files from a DTC

```
rdtcupload dtcname* [dtcport]
```

DTC Terminal Parameters and Commands

This appendix explains the:

- configuration parameters that affect the DTC terminal user interface.
- commands that you can use from a terminal connected to a DTC.

DTC terminal parameters

The following parameters are related to the DTC terminal user interface.

Switching　Only terminals which have switching enabled are connected to the DTC terminal user interface. If switching (see page 78) is disabled, from a terminal you are connected directly to the system and do not see the DTC prompt.

Welcome message　This message is displayed when you try to logon from a terminal or when you use the `Status` command. The welcome message is explained on page 49.

User prompt　This prompt is displayed when you try to logon from a terminal. It is at the user prompt that you enter the DTC terminal user commands. The user prompt is explained on page 49.

Escape from data transfer character　After connecting to a system, you can return to the DTC terminal user interface by using the Escape from Data Transfer character. The default is **Ctrl-K** (**^k**). If you are in binary mode (See the "Set Binary" command on page 154), use the **Break** key. The escape from data transfer character is explained on page 89.

Default destination　If a default destination system has been defined for the port, then you can enter the DTC `connect` command without specifying a system. You are automatically connected to the default destination system.

DTC user interface commands

Type `help` at the DTC prompt to see a list of the available terminal user commands.

The following commands are available at the DTC user interface:

- `connect`
- `disconnect`
- `help`
- `logout`
- `recall`
- `set ascii`
- `set binary`
- `status`

Each command can be abbreviated. The commands are not case-sensitive. For example, enter either C, c, connect, or CONNECT to connect to a system.

If you have several connections open simultaneously, when you execute one of these commands, connection information is displayed on the screen and you are prompted to specify the connection to which you want the command to apply.

Connect

Connect opens a connection to a system.

> C[ONNECT] [NODE NAME | IP address |DNS NAME]
>
> or
>
> C[ONNECT] [system name]

If a system is not specified, you are connected to the default destination system. If the DNS server is not defined (see page 46), you must enter an IP address for a Telnet system other than the default destination system.

Never include the leading zeros in an IP address when using the Connect command. If the IP address you want to connect to is 128.10.11.12, **do not** type 128.010.011.012 or the connection will fail.

Disconnect

Disconnect closes the system connection.

> D[ISCONNECT] [xx]

Each connection is identified as a number (xx) in the status command display. Only the connection number can be used. The connection name can not be used. If the connection number is not specified, the current system connection is closed.

Help or ?

Help or ? displays a list of available commands, their abbreviations, and a brief explanation.

> H[ELP]

Logout

Logout logs you out of the DTC user interface. If the connection is via modems, the line is dropped. If the connection is open on a system, it is closed.

> L[OGOUT]

Recall

Recall resumes a connection that you left open when you used the escape from data transfer character to leave a connection without logging off.

> R[ECALL]   [xx]

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B   DTC user interface commands

Each connection is identified as a number (xx) in the status command display. Only the connection number can be used. The connection name can not be used. If the connection number is not specified, the current system connection is recalled.

Set ASCII   Set ASCII sets the data transfer mode to ASCII.

```
[SET ]A[SCII]   [ xx ]
```

Each connection is identified as a number (xx) in the status command display. Only the connection number can be used. The connection name can not be used. If the connection number is not specified, the current system connection is set.

Set binary   Set Binary sets the data transfer mode to binary.

```
[SET ]B[INARY]   [ xx ]
```

Each connection is identified as a number (xx) in the status command display. Only the connection number can be used. The connection name can not be used. If the connection number is not specified, the current system connection is set.

Status   Status displays a table showing information about the open connections from the terminal. The connection number is displayed by status.

```
S[TATUS]
```

Examples of DTC user interface commands

The following examples show the DTC Terminal User help, status, and connect commands you can enter. User input is **bold** type. The DTC prompt on the DTC in the examples is DTC1>>.

Examples of the connect **command**

```
DTC1>CONNECT ALPHA <return>
DTC1>C rainbow connection3<return>

DTC1> connect mysystem
Connection #1 established to MYSYSTEM.MKTG.COMPANY

To return to DTC interface, type <Ctrl>K <L>
login:

DTC1> connect 15.13.13.13
```

Example of the disconnect **command**

```
DTC1>DISCONNECT 1 <return>
```

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It is a good idea to use the status command first to find out what connections are open before disconnecting a connection.

Example of the help **command**

```
DTC1> help

Command [Opt. Parameters]    | Abbr.  |  Meaning
CONNECT [destination         |   C    | Opens a connection.
        [connection name]]   |        |
DISCONNECT  [xx]             |   D    | Closes connection xx.

HELP                         | H or ? | Lists available commands.

LOGOUT                       |   L    | Logs out from the DTC.

RECALL  [xx]                 |   R    | Resumes connection xx.
SET ASCII  [xx]              |   A    | Enables ASCII mode.*

SET BINARY  [xx]             |   B    | Enables BINARY mode.*

STATUS                       |   S    | Displays port status.

*: Not applicable for MPE iX connections
```

Example of the status **command**

```
    DTC1>> status

                   STATUS:     Board 1 (DAB)        Port 6

    DTC name                              : DTC1.MKTG.COMPANY
    Default Destination                   : MYSYSTEM.MKTG.COMPANY
    Maximum number of connections         : 3
    DNS Default Local Domain              : SYSTEM1.MAIN.HUB
    DTC multivendor

    No connection established
```

B   **DTC user interface commands**

C

DTC Manager File System

This appendix contains listings of all HP-UX 10.0 and HP-UX 9.X files and directories used by DTC Manager.

HP-UX 10.0 file system

File listing (by directory)

<tftp_directory>/rdtcmgr/   **Configuration database**

Note | The location of the `<tftp_directory>` is determined by the **tftp** configuration on your system (see chapter 3).

./<dtcname>.dtc/conf/
./<dtcname>.dtc/conf.tp/ (temporary)
./<dtcname>.dtc/conf/<Old_DTC_Version>/ (optional)

Each of the above sub-directories contain the following files:
backplan
confext
nglobal
secp
tioconf.*

<tftp_directory>/rdtcmgr/log/   DTC event logging files

<dtcname>.log

<tftp_directory>/rdtcmgr/status/   **Status files**

<dtcname>.ist
<dtcname>.ust

<tftp_directory>/rdtcmgr/upload/   Upload files

<dtcname>.box
<dtcname>.p<#port>

/opt/rdtcmgr/sbin/   Commands

rdtcadd
rdtcbst
rdtcconf
rdtccopy
rdtcdelete
rdtcevents
rdtcevt
rdtcip
rdtclist
rdtcmigrateconf
rdtcmodify

rdtcmodifyconfs
rdtcname
rdtcping
rdtcpst
rdtcreconf
rdtcreprog
rdtcreset
rdtcstat
rdtctraceoff
rdtctraceon
rdtcupload
rdtcver

/opt/rdtcmgr/code/   DTC code

romrx.cod
./**A1410G00**/romrx.cod (Old DTC code)

/opt/rdtcmgr/tools/   DTC support tools

DTCDFNWS
EVCODE20
STDRCTRY
dtcdf
./symbtab/A1410G00
./symbtab/<MR_version>

/opt/rdtcmgr/jam_data/   Keyboard and video data

hpansikeys.bin
hpansivid.bin
hpkeys.bin
hpitevid.bin
hpvid.bin
msgfile.bin
vt100keys.bin
vt100vid.bin
vt220keys.bin
vt220vid.bin
wy30keys.bin
wy30vid.bin
wy50keys.bin
wy50vid.bin
wy60keys.bin
wy60vid.bin

/opt/rdtcmgr/jam_screens/   **Screen descriptions**

> data.dic
> global.ini
> screenlib

/var/opt/rdtcmgr/default/   **Default configurations**

> acclist.def
> afcp.def
> backplan.def
> confext.cus
> confext.def
> ncpu.cus
> ncpu.def
> nhost.cus
> nhost.def
> nprinter.cus
> nprinter.def
> nterm.cus
> nterm.def
> tcp.def

/var/opt/rdtcmgr/default/A1410G00   **Old default config.**

> afcp.def
> backplan.def
> confext.cus
> confext.def
> ncpu.cus
> ncpu.def
> nglobal.141
> nhost.cus
> nhost.def
> nprinter.cus
> nprinter.def
> nterm.cus
> nterm.def
> tcp.def

/var/opt/rdtcmgr/

> copyhdr (optional)
> mapip
> rdtcconf.lock
> rdtcconf.log
> rdtcmodifyconfs.log

./copy/ (optional)

/var/opt/rdtcmgr/tmp/

RDTCMGR.tar (optional)
<old_upload>.box (optional)
<old_upload>.p<#port> (optional)

/opt/rdtcmgr/lib/nls/msg/C/   Message catalogs

rdtcbst.cat
rdtcconf.cat
rdtcevt.cat
rdtcpst.cat

/opt/rdtcmgr/share/man/man1m.Z/Manual pages

rdtcadd.1m
rdtcbst.1m
rdtccopy.1m
rdtcdelete.1m
rdtcevents.1m
rdtcip.1m
rdtclist.1m
rdtcmodify.1m
rdtcmodifyconfs.1m
rdtcname.1m
rdtcping.1m
rdtcpst.1m
rdtcreconf.1m
rdtcreprog.1m
rdtcreset.1m
rdtcstat.1m
rdtctraceoff.1m
rdtctraceon.1m
rdtcupload.1m
rdtcver.1m

/opt/rdtcmgr/doc/   On-line documentation

rdtcmgr.err
rdtcmodifyconfs.sh

Alphabetical file listing (HP-UX 10.0)

File	Path
*.cus	/var/opt/rdtcmgr/default/
*.cus	/var/opt/rdtcmgr/default/A1410G00/
*.def	/var/opt/rdtcmgr/default/
*.def	/var/opt/rdtcmgr/default/A1410G00/
<dtcname>.box	/<tftp_directory>/rdtcmgr/upload/
<dtcname>.dtc/conf*/	/<tftp_directory>/rdtcmgr/
<dtcname>.ist	/<tftp_directory>/rdtcmgr/status/
<dtcname>.log	/<tftp_directory>/rdtcmgr/log/
<dtcname>.p<#port>	/<tftp_directory>/rdtcmgr/upload/
<dtcname>.ust	/<tftp_directory>/rdtcmgr/status/
<old_upload>.box	/var/opt/rdtcmgr/tmp/
<old_upload>.p<#port>	/var/opt/rdtcmgr/tmp/
RDTCMGR.tar	/var/opt/rdtcmgr/tmp/
backplan	./<TFTP_DIR>/rdtcmgr/<dtcname>.dtc/conf*/
confext	./<TFTP_DIR>/rdtcmgr/<dtcname>.dtc/conf*/
copyhdr	/var/opt/rdtcmgr/
data.dic	/opt/rdtcmgr/jam_screens/
global.ini	./opt/rdtcmgr/jam_screens/
hpansikeys.bin	./opt/rdtcmgr/jam_data/
hpansivid.bin	opt/rdtcmgr/jam_data/
hpitevid.bin	./opt/rdtcmgr/jam_data/
hpkeys.bin	./opt/rdtcmgr/jam_data/
hpvid.bin	./opt/rdtcmgr/jam_data/
mapip	./var/opt/rdtcmgr/
msgfile.bin	./opt/rdtcmgr/jam_data/
nglobal	./<TFTP_DIR>/rdtcmgr/<dtcname>.dtc/conf*/
rdtcadd	/opt/rdtcmgr/sbin/
rdtcbst.cat	./opt/rdtcmgr/lib/nls/msg/C/
rdtcadd.1m	/opt/rdtcmgr/share/man/man1m.Z/
rdtcbst	/opt/rdtcmgr/sbin/
rdtcbst.1m	/opt/rdtcmgr/share/man/man1m.Z/

rdtcconf.cat. . . . .   /opt/rdtcmgr/lib/nls/msg/C/

rdtcconf.lock . . . .   /var/opt/rdtcmgr/

rdtcconf.log . . . .   /var/opt/rdtcmgr/

rdtccopy . . . .   /opt/rdtcmgr/sbin/

rdtccopy.1m . . . .   /opt/rdtcmgr/share/man/man1m.Z/

rdtcdelete . . . .   /opt/rdtcmgr/sbin/

rdtcdelete.1m . . . .   /opt/rdtcmgr/share/man/man1m.Z/

rdtcevents . . . .   /opt/rdtcmgr/sbin/

rdtcevents.1m . . . .   /opt/rdtcmgr/share/man/man1m.Z/

rdtcevt. . . . .   /opt/rdtcmgr/sbin/

rdtcevt.cat.   /opt/rdtcmgr/lib/nls/msg/C/

rdtcip . . . .   /opt/rdtcmgr/sbin/

rdtcip.1m . . . .   /opt/rdtcmgr/share/man/man1m.Z/

rdtclist . . . .   /opt/rdtcmgr/sbin/

rdtclist.1m . . . .   /opt/rdtcmgr/share/man/man1m.Z/

rdtcmgr.err . . . .   /opt/rdtcmgr/doc/

rdtcmodify . . . .   /opt/rdtcmgr/sbin/

rdtcmodify.1m . . . .   /opt/rdtcmgr/share/man/man1m.Z/

rdtcmodifyconfs . . . .   /opt/rdtcmgr/sbin/

rdtcmodifyconfs.1m . . . .   /opt/rdtcmgr/share/man/man1m.Z/

rdtcmodifyconfs.log . . . .   /var/opt/rdtcmgr

rdtcmodifyconfs.sh . . . .   /opt/rdtcmgr/doc/

rdtcname . . . .   /opt/rdtcmgr/sbin/

rdtcname.1m . . . .   /opt/rdtcmgr/share/man/man1m.Z/

rdtcping . . . .   /opt/rdtcmgr/sbin/

rdtcping.1m . . . .   /opt/rdtcmgr/share/man/man1m.Z/

rdtcpst.cat . . . .   /opt/rdtcmgr/lib/nls/msg/C/

rdtcpst. . . . .   /opt/rdtcmgr/sbin/

rdtcpst.1m . . . .   /opt/rdtcmgr/share/man/man1m.Z/

rdtcreconf.1m . . . .   /opt/rdtcmgr/share/man/man1m.Z/

rdtcreprog . . . .   /opt/rdtcmgr/sbin/

rdtcreprog.1m . . . .   /opt/rdtcmgr/share/man/man1m.Z/

rdtcreset . . . .   /opt/rdtcmgr/sbin/

rdtcreset.1m . . . .   /opt/rdtcmgr/share/man/man1m.Z/

rdtcstat . . . ./opt/rdtcmgr/sbin/

rdtcstat.1m . . . ./opt/rdtcmgr/share/man/man1m.Z/

rdtctraceoff. . . . ./opt/rdtcmgr/sbin/

rdtctraceoff.1m . . . ./opt/rdtcmgr/share/man/man1m.Z/

rdtctraceon . . . ./opt/rdtcmgr/sbin/

rdtctraceon.1m . . . ./opt/rdtcmgr/share/man/man1m.Z/

rdtcupload . . . ./opt/rdtcmgr/sbin/

rdtcupload.1m . . . ./opt/rdtcmgr/share/man/man1m.Z/

rdtcver . . . ./opt/rdtcmgr/sbin/

rdtcver.1m . . . ./opt/rdtcmgr/share/man/man1m.Z/

romrx.cod . . . ./opt/rdtcmgr/code/

romrx.cod . . . ./opt/rdtcmgr/code/A1410G00/

screenlib . . . ./opt/rdtcmgr/jam_screens/

secp . . . ./<TFTP_DIR>/rdtcmgr/<dtcname>.dtc/conf*/

tcp.def . . . . /var/opt/rdtcmgr/default/

tioconf.*. . . . ./<TFTP_DIR>/rdtcmgr/<dtcname>.dtc/conf*/

vt100keys.bin . . . . /opt/rdtcmgr/jam_data/

vt100vid.bin . . . . /opt/rdtcmgr/jam_data/

vt220keys.bin . . . . /opt/rdtcmgr/jam_data/

vt220vid.bin. . . . . /opt/rdtcmgr/jam_data/

wy30keys.bin . . . . /opt/rdtcmgr/jam_data/

wy30vid.bin. . . . . /opt/rdtcmgr/jam_data/

wy50keys.bin. . . . . /opt/rdtcmgr/jam_data/

wy50vid.bin . . . . /opt/rdtcmgr/jam_data/

wy60keys.bin . . . . /opt/rdtcmgr/jam_data/

wy60vid.bin . . . . /opt/rdtcmgr/jam_data/

HP-UX 9.X file system

Note   In HP UX 9.X, the `<tftp_directory>` must be `/usr/tftpdir`.

File listing (by directory)

/etc/   Commands

rdtcadd
rdtcbst
rdtcconf
rdtccopy
rdtcdelete
rdtcevents
rdtcevt
rdtcip
rdtclist
rdtcmigrateconf
rdtcmodify
rdtcmodifyconfs
rdtcname
rdtcping
rdtcpst
rdtcreconf
rdtcreprog
rdtcreset
rdtcstat
rdtctraceoff
rdtctraceon
rdtcupload
rdtcver

/usr/tftpdir/rdtcmgr/default/   Default configurations

acclist.def
afcp.def
backplan.def
confext.cus
confext.def
ncpu.cus
ncpu.def
nhost.cus
nhost.def

nprinter.cus
nprinter.def
nterm.cus
nterm.def
tcp.def

/usr/tftpdir/rdtcmgr/default/A1410G00   Old default config.

acclist.def
afcp.def
backplan.def
confext.cus
confext.def
ncpu.cus
ncpu.def
nglobal.141
nhost.cus
nhost.def
nprinter.cus
nprinter.def
nterm.cus
nterm.def
tcp.def

/usr/tftpdir/rdtcmgr/code/   DTC code

romrx.cod
./**A1410G00**/romrx.cod (Old DTC code)

/usr/tftpdir/rdtcmgr/tools/   DTC support tools

DTCDFNWS
EVCODE20
STDRCTRY
dtcdf
./symbtab/A1410G00
./symbtab/<MR_version>

/usr/tftpdir/rdtcmgr/jam_data/   Keyboard and video data

hpansikeys.bin
hpansivid.bin
hpkeys.bin
hpitevid.bin
hpvid.bin
msgfile.bin
vt100keys.bin

vt100vid.bin
vt220keys.bin
vt220vid.bin
wy30keys.bin
wy30vid.bin
wy50keys.bin
wy50vid.bin
wy60keys.bin
wy60vid.bin

/usr/tftpdir/rdtcmgr/jam_screens/ Screen descriptions

data.dic
global.ini
screenlib

/usr/man/man1m.Z/   Manual pages

rdtcadd.1m
rdtcbst.1m
rdtccopy.1m
rdtcdelete.1m
rdtcevents.1m
rdtcip.1m
rdtclist.1m
rdtcmodify.1m
rdtcmodifyconfs.1m
rdtcname.1m
rdtcping.1m
rdtcpst.1m
rdtcreconf.1m
rdtcreprog.1m
rdtcreset.1m
rdtcstat.1m
rdtctraceoff.1m
rdtctraceon.1m
rdtcupload.1m
rdtcver.1m

C   HP-UX 9.X file system

/usr/lib/nls/C/	**Message catalogs**

    rdtcbst.cat
    rdtcconf.cat
    rdtcevt.cat
    rdtcpst.cat

/usr/tftpdir/rdtcmgr/doc/	**On-line documentation**

    rdtcmgr.err
    rdtcmodifyconfs.sh

/usr/tftpdir/rdtcmgr/	**Configuration database**

    mapip
    ./<dtcname>.dtc/conf/
    ./<dtcname>.dtc/conf.tp/ (temporary**)**
    ./<dtcname>.dtc/conf/<Old_DTC_Version>/ (optional)

    Each of the above sub-directories contain the following files:
      backplan
      confext
      nglobal
      secp
      tioconf.*

/usr/tftpdir/rdtcmgr/	**Miscellaneous run-time files**

    copyhdr (optional)
    rdtcconf.lock
    rdtcconf.log
    rdtcmodifyconfs.log
    ./copy/ (optional)

/usr/tftpdir/rdtcmgr/log/	**DTC Event Logging files**

    <dtcname>.log

/usr/tftpdir/rdtcmgr/status/	**Status files**

    <dtcname>.ist
    <dtcname>.ust

/usr/tftpdir/rdtcmgr/tmp/

    <old_upload>.box (optional)
    <old_upload>.p<#port> (optional)

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/usr/tftpdir/rdtcmgr/upload/   Upload files

<dtcname>.box
<dtcname>.p<#port>

/tmp/

RDTCMGR.tar

Alphabetical file listing (HP-UX 9.X)

File	Path
*.cus	./usr/tftpdir/rdtcmgr/default/
*.cus	./usr/tftpdir/rdtcmgr/default/A1410G00/
*.def	./usr/tftpdir/rdtcmgr/default/
*.def	./usr/tftpdir/rdtcmgr/default/A1410G00/
<dtcname>.box	/usr/tftpdir/rdtcmgr/upload/
<dtcname>.dtc	./usr/tftpdir/rdtcmgr/
<dtcname>.ist	/usr/tftpdir/rdtcmgr/status/
<dtcname>.log	/usr/tftpdir/rdtcmgr/log/
<dtcname>.p<#port>	/usr/tftpdir/rdtcmgr/upload/
<dtcname>.ust	/usr/tftpdir/rdtcmgr/status/
<old_upload>.box	/usr/tftpdir/rdtcmgr/tmp/
<old_upload>.p<#port>	/usr/tftpdir/rdtcmgr/tmp/
RDTCMGR.tar	./tmp/
backplan	/usr/tftpdir/rdtcmgr/<dtcname>.dtc/conf*/
confext	/usr/tftpdir/rdtcmgr/<dtcname>.dtc/conf*/
copyhdr	./usr/tftpdir/rdtcmgr/
data.dic	./usr/tftpdir/rdtcmgr/jam_screens/
global.ini	./usr/tftpdir/rdtcmgr/jam_screens/
hpansikeys	./usr/tftpdir/rdtcmgr/jam_data/
hpansikeys.bin	./usr/tftpdir/rdtcmgr/jam_data/
hpansivid	./usr/tftpdir/rdtcmgr/jam_data/
hpansivid.bin	./usr/tftpdir/rdtcmgr/jam_data/
hpitevid	./usr/tftpdir/rdtcmgr/jam_data/
hpitevid.bin	./usr/tftpdir/rdtcmgr/jam_data/
hpkeys	./usr/tftpdir/rdtcmgr/jam_data/
hpkeys.bin	./usr/tftpdir/rdtcmgr/jam_data/
hpvid	./usr/tftpdir/rdtcmgr/jam_data/
hpvid.bin	./usr/tftpdir/rdtcmgr/jam_data/
mapip	./usr/tftpdir/rdtcmgr/
msgfile.bin	./usr/tftpdir/rdtcmgr/jam_data/
nglobal	/usr/tftpdir/rdtcmgr/<dtcname>.dtc/conf*/

rdtcadd . . . .   /etc/

rdtcadd.1m . . . .   /usr/man/man1m.Z/

rdtcbst.1m . . . .   /usr/man/man1m.Z/

rdtcbst. . . . .   /etc/

rdtcbst.cat . . . .   /usr/lib/nls/C/

rdtcconf.cat . . . .   /usr/lib/nls/C/

rdtcconf.lock . . . .   /usr/tftpdir/rdtcmgr/

rdtcconf.log . . . .   /usr/tftpdir/rdtcmgr/

rdtccopy.1m . . . .   /usr/man/man1m.Z/

rdtccopy . . . .   /etc/

rdtcdelete.1m . . . .   /usr/man/man1m.Z/

rdtcdelete . . . .   /etc/

rdtcevents.1m . . . .   /usr/man/man1m.Z/

rdtcevents . . . .   /etc/

rdtcevt . . . .   /etc/

rdtcevt.cat . . . .   /usr/lib/nls/C/

rdtcip.1m . . . .   /usr/man/man1m.Z/

rdtcip . . . .   /etc/

rdtclist.1m . . . .   /usr/man/man1m.Z/

rdtclist. . . . .   /etc/

rdtcmgr.err . . . .   /usr/tftpdir/rdtcmgr/doc/

rdtcmodify.1m . . . .   /usr/man/man1m.Z/

rdtcmodify . . . .   /etc/

rdtcmodifyconfs . . . .   /etc/

rdtcmodifyconfs.1m . . . .   /usr/man/man1m.Z/

rdtcmodifyconfs.log . . . .   /usr/tftpdir/rdtcmgr/

rdtcmodifyconfs.sh . . . .   /usr/tftpdir/rdtcmgr/doc/

rdtcname.1m . . . .   /usr/man/man1m.Z/

rdtcname. . . . .   /etc/

rdtcping.1m . . . .   /usr/man/man1m.Z/

rdtcping . . . .   /etc

rdtcpst.1m . . . .   /usr/man/man1m.Z/

rdtcpst. . . . .   /etc/

rdtcpst.cat . . . .   /usr/lib/nls/C/

```
rdtcreconf.1m. . . . . . . . . . . . . . . . . . ./usr/man/man1m.Z/
rdtcreprog.1m. . . . . . . . . . . . . . . . . ./usr/man/man1m.Z/
rdtcreprog. . . . . . . . . . . . . . . . . . . . . . ./etc/
rdtcreset.1m . . . . . . . . . . . . . . . . . . ./usr/man/man1m.Z/
rdtcreset . . . . . . . . . . . . . . . . . . . . . . ./etc/
rdtcstat.1m . . . . . . . . . . . . . . . . . . . ./usr/man/man1m.Z/
rdtcstat . . . . . . . . . . . . . . . . . . . . . . ./etc/
rdtctraceoff.1m. . . . . . . . . . . . . . . . ./usr/man/man1m.Z/
rdtctraceoff. . . . . . . . . . . . . . . . . . . ./etc/
rdtctraceon.1m . . . . . . . . . . . . . . . . ./usr/man/man1m.Z/
rdtctraceon . . . . . . . . . . . . . . . . . . . ./etc/
rdtcupload.1m . . . . . . . . . . . . . . . . ./usr/man/man1m.Z/
rdtcupload . . . . . . . . . . . . . . . . . . . ./etc/
rdtcver.1m . . . . . . . . . . . . . . . . . . . ./usr/man/man1m.Z/
rdtcver . . . . . . . . . . . . . . . . . . . . . . ./etc/
romrx.cod . . . . . . . . . . . . . . . . . . . ./usr/tftpdir/rdtcmgr/code/
romrx.cod . . . . . . . . . . . . . . . . . . . ./usr/tftpdir/rdtcmgr/code/A1410G00/
screenlib . . . . . . . . . . . . . . . . . . . . ./usr/tftpdir/rdtcmgr/jam_screens/
secp . . . . . . . . . . . . . . . . . . . . . . . . . /usr/tftpdir/rdtcmgr/<dtcname>.dtc/conf*/
tioconf.*. . . . . . . . . . . . . . . . . . . . . . /usr/tftpdir/rdtcmgr/<dtcname>.dtc/conf*/
vt100keys.bin . . . . . . . . . . . . . . . . /usr/tftpdir/rdtcmgr/jam_data/
vt100vid.bin . . . . . . . . . . . . . . . . . /usr/tftpdir/rdtcmgr/jam_data/
vt220keys.bin . . . . . . . . . . . . . . . . /usr/tftpdir/rdtcmgr/jam_data/
vt220vid.bin . . . . . . . . . . . . . . . . . /usr/tftpdir/rdtcmgr/jam_data/
vt220vid.bin . . . . . . . . . . . . . . . . . /usr/tftpdir/rdtcmgr/jam_data/
wy30keys.bin . . . . . . . . . . . . . . . . /usr/tftpdir/rdtcmgr/jam_data/
wy30vid.bin . . . . . . . . . . . . . . . . . /usr/tftpdir/rdtcmgr/jam_data/
wy50vid.bin . . . . . . . . . . . . . . . . . /usr/tftpdir/rdtcmgr/jam_data/
wy50vid.bin . . . . . . . . . . . . . . . . . /usr/tftpdir/rdtcmgr/jam_data/
wy60keys.bin. . . . . . . . . . . . . . . . . /usr/tftpdir/rdtcmgr/jam_data/
wy60keys.bin . . . . . . . . . . . . . . . . /usr/tftpdir/rdtcmgr/jam_data/
wy60vid.bin. . . . . . . . . . . . . . . . . . /usr/tftpdir/rdtcmgr/jam_data/
```

Glossary

A

address
A numerical identifier defined and used by a particular protocol and associated software to distinguish one node from another.

address resolution
In networks, the mapping of node names to IP addresses and the mapping of IP addresses to low-level hardware addresses.

address resolution protocol (ARP)
A protocol used to convert an IP address to a low-level hardware address. ARP can be used only over a single physical network and is limited to networks that support hardware broadcast.

ADP
Active distribution panel. An ADP serves as the electrical and physical interface between a system MUX board and up to eight asynchronous devices.

AFCP
Avesta Flow Control Protocol. An HP proprietary protocol which provides data flow control features. AFCP is optimized for communications between nodes, including DTC 16RXes, in an MPE/iX environment.

ARP
See *address resolution protocol*.

asynchronous
A device's mode of operation in which a sequence of operations are executed irrespective of coincidence with any event. Devices that are directly accessible by people (for example, terminal keyboards) operate in this manner.

attachment unit interface (AUI)
The cable that runs between each node (host, DTC 16RX, or other device) and the medium attachment unit (MAU) that connects it to the LAN in a ThickLAN configuration.

B

baud rate
The measure of the speed at which information travels between devices, most commonly used in reference to terminal speed settings. Baud represents signal events per second. When one bit represents each signal change, baud is the same as "bits per second".

Glossary

binary mode   A data-transfer scheme in which no special character processing is performed. All characters are considered to be data and are passed through with no control actions being taken.

block mode   A terminal processing mode in which groups, or *blocks* of data are transmitted all at once.

bridge   A device used to connect LAN segments. Bridges are protocol-transparent and do not alter the data they receive but simply transmit it to the other network.

broadcast   Communication method for sending a message to all devices on a link simultaneously. Broadcast may be implemented with hardware (for example as in Ethernet) or with software.

C

configuration   1) The way in which computer equipment is physically interconnected and set up to operate as a system.
2) The layout of the computer system, including the system table, memory, and buffer sizes, that tells which peripheral devices are (or can be) connected to the computer and how they can be accessed.
3) The process of defining the characteristics of a network in software.

configuration files   Files containing all the information on a DTC 16RX's configuration. They are downloaded to the DTC 16RX whenever it is reset or switched on.

CSMA/CD   Carrier Sense Multiple Access with Collision Detect, transmission access method used by the IEEE 802.3 LAN standard.

D

Data communications and Terminal Controller
             See *DTC*.

datagram   A self-contained packet that is independent of other packets. It does not require an acknowledgement and it carries information which is sufficient to route it from the source device to the destination device.

DDFA   DTC Device File Access utilities. A set of HP-UX utilities used by systems and user-written applications to programmatically access devices attached to DTC ports.

DDP   Direct Distribution Panel. A distribution panel that serves as the electrical and physical interface between a DTC 16RX and up to eight asynchronous devices for direct connections. See *MDP* for modem connections.

dedicated printer   A printer that can be used only by one host in the network—the one specified in the destination node name in that printer port's configuration screen.

device-dependent characteristic
             A file specification for which modifications are restricted because of the type of device on which the file is opened. For example, data directed to terminals must have a blocking factor of one.

device file	A file being input to or output from any peripheral device except a disk. HP-UX allows operations to be performed on the device itself as if it were a file.
device independence	A characteristic of the operating system that allows users to selectively redirect input/output from a program, session, or job irrespective of the nature of the device.
device name	See *device file*.
direct-connect device	An asynchronous device that is connected directly to a DTC 16RX through an RS-232-C or RS-423 cable, with no intervening communications equipment. Also referred to as a *local connection*.

DNS (Domain Name System) Server
A system on a network that resolves names into IP addresses, so that connections can be made using names rather than IP addresses.

download	The process of loading configuration files into the DTC 16RX's memory. The DTC 16RX is downloaded by the host system running DTC 16RX Manager.
DTC	Datacommunications and Terminal Controller. The DTC is a hardware device, configured as a node on a LAN, that enables asynchronous devices to access HP computers. Terminals can either be directly connected to the DTC, or they can be remotely connected through modems.
DTC 16RX	The HP J2064A product. A routable communications server that enables up to 16 asynchronous connections to HP 3000 Series 900 computers and computer systems running ARPA, such as HP 9000s and third party systems.
DTC node name	A unique name used to identify a DTC 16RX. The node name format is `nodename.domain.organization`, with each of the three parts having up to 16 characters. The name must begin with either a letter or a digit.
DTC switching	The ability to connect to more than one computer from a terminal.
DTC user interface	The interface accessed by users of terminals connected to a DTC. The default DTC user interface prompt is DTC>
DTE	Data Terminal Equipment. Equipment that converts user information into data-transmission signals or reconverts received data signals into user information. Data terminal equipment operates in conjunction with data circuit-terminating equipment.
DTS	Distributed terminal system: an MPE XL concept.

E

EEPROM	See *Flash EEPROM*.

escape-from-data-transfer character
A character that allows a user who is connected to a host system through the DTC, to break that connection and return to the DTC terminal user interface. The default character is **^K**.

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Glossary

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escape sequence	A sequence of characters beginning with the escape character and followed by one or more other characters, used to convey control directives to printers, plotters, or terminals. Escape sequences are used when, for example, you need to include special characters in a screen message, such as a welcome message.
Ethernet	A Local Area Network system that uses baseband transmission at 10 Mbps over coaxial cable and unshielded twisted pair. Ethernet is a trademark of Xerox Corporation.
extended switching	A DTC 16RX configuration that makes use of two asynchronous DTC 16RX ports on one or two (back-to-back)DTC 16RXs.

F

file system	The organization of files and directories on a hard disk.
flow control	A means of regulating the rate at which data transfer takes place between devices, to protect against data overruns.
Flash EEPROM	Flash Electrically Erasable Programmable Read-only Memory, the type of ROM used in the DTC 16RX. Flash EEPROMs can be reprogrammed.
FOS	Fundamental operating system (MPE/iX).
front-end DTC	A DTC used to implement the gateway part of Routable AFCP. It must be on the same LAN as the HP 3000 Series 900 host system.

G

gateway	A node that connects two dissimilar network architectures, for example, a LAN and a PSN or two PSNs, and provides protocol translation between them. A gateway can be either a single node (full gateway) or two gateway halves.

H

handshaking	A communications protocol between devices or between a device and the CPU. It provides a method of determining that each end of a communications link is ready to transmit or receive data, and that transmission has occurred without error.
hardware handshake	Uses modem signals CTS and RTS to pace the data transfer from the DTC to the attached device.
host-based network management	A method of managing asynchronous communications for HP computers. All of the control software is configured on a single HP host and is downloaded to the DTCs that are managed by that host. The DTC 16RX Manger is a host-based management product.
host computer	The primary or controlling computer on a network. The computer on which the network control software resides. For HP purposes, it can also be used to distinguish the system (host) from the DTC 16RX.

I

ICMP   Internet control message protocol. An integral part of the Internet protocol that handles error and control messages. Gateways and hosts use ICMP to send reports of problems about datagrams back to the orignial source that sent the datagram. ICMP also includes an echo request/reply used to test whether a destination can be reached and will respond.

IEEE 802.3   A standard for a broadcast local area network published by the Institute for Electrical and Electronics Engineers (IEEE). This standard is used for both the ThinLAN and ThickLAN implementations of the LAN.

initialization string   A sequence of control characters used to initialize a terminal, printer, or plotter when a connection is established from a host on the network.

Internet Protocol (IP) A protocol used to provide routing between different local networks in an internetwork, as well as among nodes in the same local network. The Internet Protocol corresponds to layer 3, the Network Layer, of the OSI model. See also *IP address*.

Internet Services   A range of network services comprising File Transfer Protocol (FTP), Virtual Terminal Protocol (TELNET), and Simple Mail Transfer Protocol (SMTP).

IP   See *Internet Protocol*.

IP address   Internet Protocol address. An address used by the Internet Protocol to perform internet routing. A complete IP address consists of a network portion and a node portion. The network portion of the IP address identifies a network, and the node portion identifies a node within the network. The IP address of each node in the network must be unique within that network.

IP datagram   The basic unit of information passed across the Internet. It contains a source and destination address together with the data.

IP router   A node in an IP network that connects two or more networks and provides address mapping between them. The router selects messages from incoming buffers and places them into the appropriate outgoing message queues.

L

LAN   Local Area Network. A collection of data communication systems sharing a common cable whereby each system can communicate directly with another.

LAN address   See *DTC LAN station address*.

LANIC   See *local area network interface controller*.

ldev   See *logical device number*.

leased line   A data-grade telephone line leased directly to a subscriber and allocated specifically for the subscriber's needs.

Glossary

line speed   The speed at which data is transferred over a specific physical link (usually measured in bits or kilobits per second).

link name   A name that represents a hardware interface card. The link name can contain up to eight characters. The first character must be alphabetic but all others can be can be alphanumeric.

local area network interface controller (LANIC)
                            A hardware card that fits into the backplane of the HP 9000 and provides a physical layer interface for IEEE 802.3 local area networks.

local connection   See *direct connection*.

local node   The computer that you are configuring or that you are logged on to.

logical device number (ldev)
                            A value by which MPE/iX recognizes a specific device. All DTC devices through the NMMGR configuration have ldev numbers permanently assigned. The DTC devices can then be accessed programmatically through the user of their ldev number. Non-nailed devices have ldev numbers that are assigned from a pool of available ldev number for the duration of their connection to a system.

logon device   See *session-accepting device*.

loopback   The routing of messages from a node back to itself.

M

MAU   See *Medium Attachment Unit*.

M bit   More data bit. Setting this bit in a DATA packet indicates that at least one more DATA packet is required to complete a message of contiguous data.

medium attachment unit (MAU)
                            A device attached to a ThickLAN coaxial cable that provides the physical and electrical connection from the AUI cable to the coaxial cable.

MDP   Modem Distribution Panel; a distribution panel that serves as the electrical and physical interface between a DTC 16RX and up to eight asynchronous devices for direct or modem connections. Also called *ADP*.

MIB   Management information base. A database of information about a network node which is used by the SNMP manager.

MPE/IX   The operating system of the HP 3000 Series 900 computers.

modem   modulator/demodulator. A device that modulates and demodulates signals. Primarily used for modulating digital signals onto carriers for transmission and for performing the inverse function at the receiving end. Modems are essential for transmitting and receiving digital signals over telephone lines.

multicast	A technique that allows copies of a single packet to be passed to a selected subset of all possible destinations. Some hardware, for example Ethernet, supports multicast by allowing a network interface to belong to one or more multicast groups. Broadcast is a special form of multicast in which the subset of devices to receive a copy of a packet consists of the entire set.
multiplexer (MUX)	A device that allows multiple communication links to use a single channel.

N

nailed device	A device with a permanently assigned ldev. The assignment is established through the system configuration of the MPE/iX host system. Nailed devices can be accessed programmatically through their ldev number. Nailed devices can also be assigned to more than one host. Non-nailed devices have ldev numbers that are assigned from a pool of available ldev numbers for the duration of their connection to a system.
network	A group of computers connected so that they can exchange information and share resources.
network address	This can be either: 1) the network portion of an IP address as opposed to the node portion, or 2) when referring to X.25 networks, a node's X.25 address.
network directory	A file containing information required for one node to communicate with other nodes in 1) an internetwork 2) an X.25 network 3) a network that contains non-HP nodes.
network interface (NI)	The collective software that enables data communication between a system and a network. A node possesses one or more network interfaces for each of the networks to which it belongs. Network interface types are LAN802.3, router (point-to-point), X.25, loopback, and gateway half. The maximum number of supported NIs is 12, one of which is reserved for loopback.
NI	See *network interface*.
NMMGR	Node management services configuration manager. A software subsystem that enables you to configure DTC connectivity and network access parameters from an HP 3000 Series 900 computer.
node	A device on a network. The DTC is also considered to be a node and has its own address.
node address	The node portion of an IP address. The IP address consists of a node portion and a network portion.
node name	A character string that uniquely identifies each system in a network or internetwork. Each node name in a network or internetwork must be unique; however, a single node can be identified by more than one node name.

Glossary

Node Manger	HP OpenView Network Node Manger provides fault, configuration, and performance management for multivendor TCP/IP networks.

P

port	An outlet through which a device can be connected to a computer, consisting of a physical connection point and controlling hardware, controlling software, and configurable port characteristics. Ports can be thought of as data paths through which a device communicates with the computer.
port group	A port group corresponds to a connector on the rear panel of the DTC 16RX. The type of port group you configure depends on whether you attach a modem or direct connect connection accessory.
printer name	A character string of up to 16 characters specified in the DTC 16RX Manager configuration to define a printer by name. A printer name can be shared by several printers (port pool).
probe proxy server	A node on an IEEE 802.3 network that possesses a network directory. A probe proxy server can provide a node with information about other nodes on the same or other networks of an internetwork.
program captive device	See *programmatic device*.
programmatic access	Access to devices by software running on a system. The HP DTC Device File Access product, for example, allows HP-UX hosts to programmatically access devices connected to a DTC 16RX.
programmatic device	A device operating under control of a program running on a computer. Programmatic devices can be used for input, output, or both, depending on the device and how it is opened by the controlling program.
PSN	Packet Switching Network. The main characteristic of a packet switched network is that the data it handles are broken down into packets for transmission over the network. Each data packet is able to pass through the network by a different path without loss of data. On arrival, the packets are reassembled into the original data stream. An X.25 network is a PSN.

R

remote node	Any network node that is physically separate from the node you are currently using or referring to.
Routable AFCP	A method of encapsulating AFCP in UDP packets to permit communication between DTC ports and an HP 3000 Series 900 system across a routed IP network. A *front-end* DTC is required.
RS-232-C	The Electronic Industries Association (EIA) Level 1 specification that defines electrical circuit functions for 25 connector pins. Hewlett-Packard provides two implementations of this standard: a 3-pin version for direct connections up to a distance of 15 meters (50 feet), and a version which makes use of additional circuits

and can be used for either modem or direct connections.

RS-422   The Electronic Industries Association (EIA) Level 1 specification implemented by HP in a 5-pin version that can be used for direct device connection up to a distance of 1500 meters (4000 feet).

RS-423   The Electronic Industries Association (EIA) Level 1 single-ended specification that can be used for direct device connection up to a distance of 200 meters (600 feet).

S

serial device   Any device that is attached to and communicates with a computer by means of a serial transmission interface. Terminals, some printers, and plotters are among the devices that communicate serially with computers.

serial transmission   A method of transferring data in which characters are transmitted one bit at a time and received one bit at a time in the order of transmission. This transmission scheme is employed by devices connected to the systems via the DTC 16RX.

slaved device   A device that shares the same DTC port as another device and is connected, to the other device, referred to as its master, by a cable. The actions of the slaved device are controlled by the master device.

SNMP   Simple Network Management Protocol. An industry standard for managing networked computers in a multi-vendor environment.

SNMP agent   A network node, such as a DTC, that can respond to SNMP requests.

SNMP manager   A network management workstation that is running software which allows it to manage SNMP nodes, for example HP OpenView Network Node Manager.

spooled device   A printer that is accessed through the HP-UX spooling facility. The spooling facility allows a device to be shared among several users by temporarily storing output data on disk and managing the selection of output spool files destined for the spooled device.

station address   A link-level address used by the IEEE 802.3 protocol that is assigned to every node on an IEEE 802.3 network.

subnet   A portion of a network that is defined as a separate network. *All* the bits in the IP address specified by the subnet mask (that is, all the bits set to 1 in the subnet mask) are the same for any two IP addresses in that subnet.

subnet address   The portion of the IP address that identifies a physically distinct subnetwork of a network. It is also called a subnet number.

subnet mask   A 32-bit number that enables the node address portion of an IP address in a subnet to be identified. Bits in the subnet mask are set to 1 if the network treats the corresponding bit in the IP address as part of the network address, and to 0 if the network treats the corresponding bit in the IP address as part of the node address. The subnet mask 11111111 11111111 11111111 00000000 (or 255.255.255.0) indicates that the first three bytes identify the network and the fourth byte identifies

the node.

switching   See *DTC switching*.

synchronous   A mode of operation or transmission in which a continuous data stream is generated
                            without intervals between characters. The data stream is synchronized by clock
                            signals at the receiver and transmitter. As a result, fast transmission speeds (above
                            9600 bps) are attainable.

system configuration   The method for telling the operating system which peripheral I/O devices are
                            attached to the DTC and which parameters are required for system operation.

T

TCP   See *Transmission Control Protocol*.

terminal name   A character string of up to 16 characters specified in the DTC 16RX Manager
                            configuration to define a terminal by name.

tftp   The user interface to the Internet **tftp** (trivial file transfer protocol) that allows users
                            to transfer files to and from a remote machine. See the **tftp** man page for more
                            information.

Transmission Control Protocol (TCP)
                            A network protocol that establishes and maintains connections between nodes. TCP
                            regulates the flow of data, breaks messages into smaller fragments if necessary (and
                            reassembles the fragments at the destination), detects errors, and retransmits
                            messages if errors have been detected.

transparent mode   A data-transfer scheme in which only a limited number of special characters retain
                            their meaning and are acted on by the system. All other characters are considered to
                            be data and are passed through with no control actions being taken.

U

unedited mode   See *transparent mode*.

upload   In the context of this manual, to transfer data from the DTC 16RX to its network
                            manager.

X

XON/XOFF protocol   The flow control used by systems to protect against data overruns. XON/XOFF
                            protocol is controlled by the data recipient who sends an XOFF character (ASCII
                            DC3) to the sender if it is unable to continue to receive data. The sender suspends
                            transmission until it receives an XON character (ASCII DC1).

Notice

Printing History

The list below shows the dates of each edition of the manual.

Note that many product updates and fixes do not require manual changes and, conversely, manual corrections may be done without accompanying product changes. Therefore, do not expect a one-to-one correspondence between product updates and manual updates.

Edition 1   April 1994
Edition 2   October 1995

Edition 2 of this manual is released with software versions **A.14.3A.000** for HP-UX 10.0 and **A.14.39.000** for HP-UX 9.x.

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