

DECserver 300

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Introduction

Order No. AA-NE46A-TE

DECserver 300

Introduction

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This manual describes the DECserver 300 system, which consists of DECserver 300 hardware and software. Information is provided for using the server and for expanding or reconfiguring the server.

Supersession/Update Information: This is a new manual.

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This manual applies to Version 1.0 of DECserver 300 and all subsequent maintenance releases up to the next major product release.

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Preface

This manual contains an overview of the DECserver 300 terminal server system; both hardware and software.

Intended Audience

The *DECserver 300 Introduction* manual is intended for the following audiences:

- Terminal user — Uses an interactive terminal attached to a server port. Terminal users have access to nonprivileged server commands.
- Server manager — Manages a server. The server manager has access to privileged server commands.
- Software installer — Installs the server software on a load host. The installer also configures new servers in the load host node database.
- Network manager — Manages the local area network of the server.
- Field service engineer — Services the server hardware if it should fail.

Structure of This Manual

The *DECserver 300 Introduction* contains the following chapters:

- | | |
|-----------|--|
| Chapter 1 | Provides an overview of the features and functions of the DECserver 300 system. Chapter 1 also provides the DECserver 300 specifications. |
| Chapter 2 | Describes the various server configurations, including connections to the network and port devices. This includes identifying the devices that are compatible with the DECserver 300 system. |
| Chapter 3 | Provides guidelines for planning and implementing server reconfiguration. |
| Chapter 4 | Provides an overview to the DECserver 300 documentation set. |
| Chapter 5 | Provides information about ordering terminal server hardware and software, related hardware products, and documentation. |

Conventions Used in This Manual

Convention	Meaning
<i>lowercase italics</i>	Italics in command syntax or examples indicate variables for which either the user or the system supplies a value.
bold	In text, words appearing in bold type introduce new terms or concepts and can also be found in the glossary.

Overview

The DECserver 300 terminal server system enables a variety of data-leads-only devices (for example, printers and terminals) to access and use computer resources on an Ethernet local area network (LAN).

The DECserver 300 terminal server system comprises three basic components: hardware, firmware, and software. This chapter provides a definition of the DECserver 300 system, a description of the server's features, and an overview of the hardware, firmware, and software. Also, the EIA-423-A communication standard and the site requirements for the server are discussed.

1.1 What is the DECserver 300 System?

A **server** is a computer system, or **node**, where resources shared by the network are located. A server offers these resources to the other nodes. The DECserver 300 system is a type of communications server called a **terminal server**. It provides an efficient way to connect terminals and other devices to the Ethernet local area network (LAN).

NOTE

In this manual, the terms "Ethernet" and "LAN" are used interchangeably.

The DECserver 300 system consists of the following:

- DECserver 300 hardware and the devices attached to the server ports
- DECserver 300 firmware operating on the hardware unit

- Current version of the DECserver 300 software running on the unit, which implements the LAT (local area transport) networking protocols

The DECserver 300 offers two kinds of benefits to the network:

- It gives the users of its attached interactive devices access to resources, or **services** (such as applications programs) offered by other network nodes.
- It offers services, typically printers, to users of terminals connected to other terminal servers and non-server systems on the network.

The DECserver 300 supports up to 16 asynchronous devices attached at the server ports. The server uses modified modular jack (MMJ) connectors for attaching serial devices. The server uses the EIA-423-A electrical interface standard. EIA-423-A is compatible with the EIA-232-D electrical interface.

The DECserver 300 terminal server does not allow you to use modems to connect to wide area networks and non-LAT hosts. Also, the DECserver 300 system does not support non-LAT hosts.

The server provides transparent data paths between devices on its ports and other network nodes. The nodes are computers or other terminal servers on the network that offer services to the network. The DECserver 300 provides its users with flexible access to these services. The DECserver 300 system can offer such services to interactive users of any terminal server on the Ethernet, including users of the same DECserver 300 system.

Each DECserver 300 user can maintain up to eight simultaneous connections, or **sessions**, to these various services on each port. Therefore, the DECserver 300 hardware supports up to 128 total sessions for the server.

Response time and throughput for terminals connected to the server are similar to those for terminals directly connected to a computer system. The server also permits properly configured computer systems on the network to share access to asynchronous printers attached to DECserver 300 ports.

The LAN on which the DECserver 300 operates supports both a DECnet network and a LAT network. Terminal servers and service nodes communicate using LAT network protocols and LAT software, but they also use DECnet protocols for other tasks (for example, down-line loading server software). See the *Local Area Transport (LAT) Network Concepts* manual for a discussion of LAT networks and LAT software.

The DECserver 300 hardware is designed to be located either in an office environment or in a satellite equipment room in a facility that employs the DECconnect wiring strategy.

1.2 Server Features

The DECserver 300 has the following features:

- Permits fast, easy connections between the devices attached to the server ports and the systems on the network
- Reduces and simplifies cabling required for connecting devices to a network
- Provides access to Digital host systems on a LAT network
- Supports up to 8 multiple sessions per user, up to 128 per server. Users can simultaneously maintain multiple sessions on several hosts.
- Manages device traffic, leaving computer systems more time for applications tasks
- Initializes down-line loading of the software so that local mass storage devices are not needed
- Includes ROM-based diagnostics
- Connects to either a standard or ThinWire Ethernet network
- Can be placed on a desk, mounted in a standard rack cabinet, or mounted to a wall
- Provides log-in load balancing (when two or more service nodes offer the same service), by evaluating the service ratings that the service nodes include in multicast announcement of services

1.2.1 Models

There is only one model of the server, shown in Figure 1-1. However, there are two versions. One for 120 Vac (DSRVF-BA), and one for 240 Vac (DSRVF-BB).

1.2.2 Operating Modes

The server has two operating modes: local mode and service mode.

Local Mode

In local mode, an interactive user enters server commands to communicate directly with the server. Local mode is distinguished by the server's local mode prompt that appears on the port user's device display. The Local > is the default prompt; however, the server manager can define another prompt for the server.

Service Mode

In service mode, an interactive user communicates with a service in an active session. The server does not interpret data entered by the user. Instead, this data is passed to the service node.

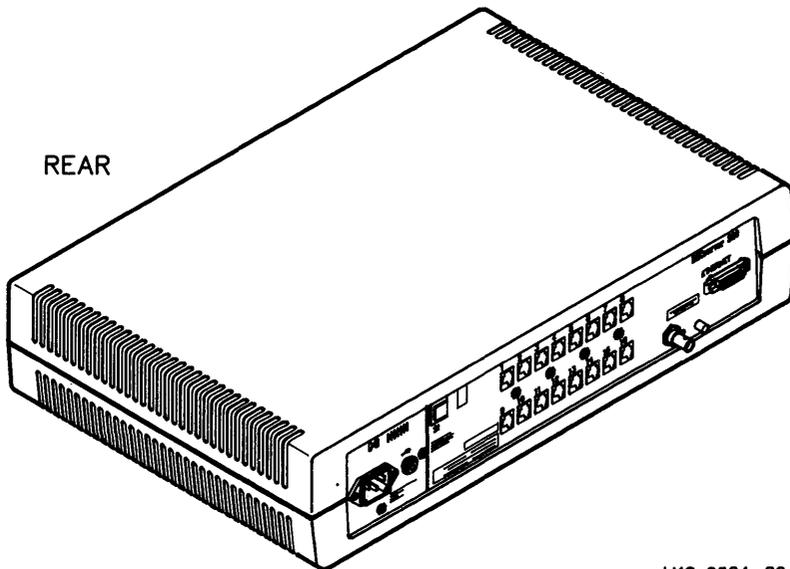
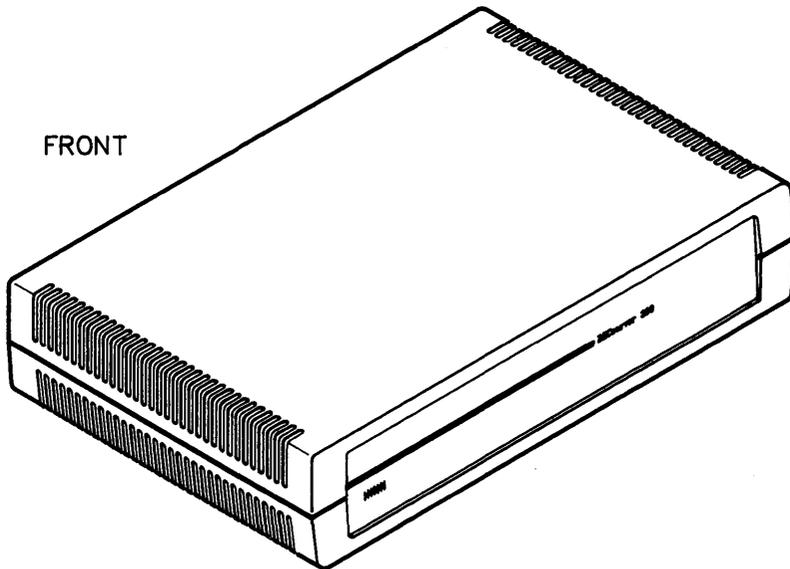
To the user, the connection appears to be direct to the service node. The user sees the prompt for the operating system or application program, not the server's Local > prompt.

1.3 Server Hardware

The DECserver 300 system hardware is contained in a system enclosure (see Figure 1-1). The DECserver 300 system hardware consists of the following:

- Main logic module
- EIA-423-A distribution module
- Power supply
- Two DC cooling fans
- Controls, indicators, and connectors

Figure 1-1: DECserver 300 Hardware



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1.3.1 Main Logic Module

The main logic module is a single printed circuit board that contains the central processing unit (CPU), standard and ThinWire Ethernet circuitry, random access memory (RAM), and read-only memory (ROM).

Central processing unit (CPU)

The CPU manages all of the functions of the server. These functions include:

- Managing the power-up process. This process includes monitoring the self-tests that run when the server is turned on or rebooted. The CPU also assists in initializing down-line loading the server software.
- Managing communications between the individual device ports and the systems on the Ethernet LAN.
- Supporting all of the user services provided by the server, such as multiple sessions, port-to-port communications, and on-line help.
- Participating in various diagnostic routines used to test server functions.

Ethernet Circuitry

The Ethernet circuitry allows you to connect the server to either a standard Ethernet or a ThinWire Ethernet.

The Ethernet circuitry is the server's network interface that performs all of the data link layer and the physical layer network functions for the server.

The Ethernet circuitry manages the transfer of data between the server and the Ethernet local area network. The Ethernet circuitry receives data from the network if the data is addressed to the server. The received data is then decoded and stored in server memory for processing.

Similarly, the Ethernet circuitry retrieves data from server memory, encodes it according to the Ethernet protocol, and transmits it onto the network as soon as transmit conditions are met.

The server is compatible with baseband and broadband Ethernet products, and with Ethernet and IEEE 802.3 specifications.

RAM and ROM

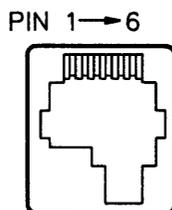
The RAM provides 1 megabyte of memory for the server. The ROM contains the server firmware.

1.3.2 EIA-423-A Distribution Module

The EIA-423-A distribution module contains 16 MMJ connectors that are used to connect to the EIA-423-A port devices. Each connector has one full-duplex, asynchronous channel using data-leads-only communications, along with DSR/DTR signaling. The server is compatible with EIA-232-D communications through the use of adapters.

Figure 1-2 shows the pins of the MMJ connector. Table 1-1 describes the function of each pin.

Figure 1-2: MMJ Connector Pinout



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Table 1-1: MMJ Connector Pin description

Pin	Description
1	DTR (data transmit ready)
2	Transmit data
3	Transmit common
4	Receive common
5	Receive data
6	DSR (data set ready) signal can be used for DSR logout (to end a session on power-down), flow control for printers, or status signal check for printers.

1.3.3 Power Supply

The power supply is rated at 75 W. The power supply is factory set to operate from either a 120- or a 240-Vac power source.

1.3.4 Fans

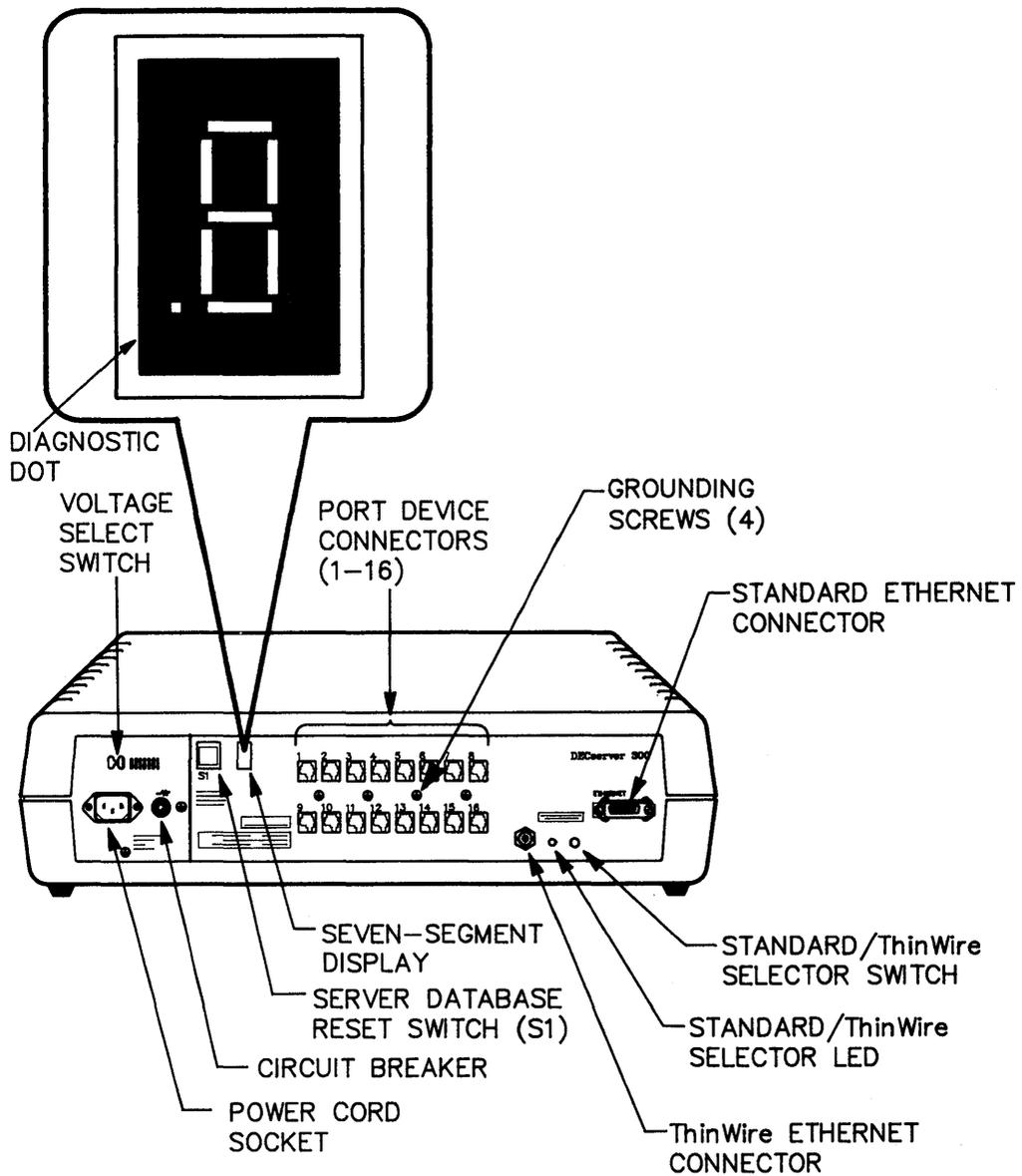
Two fans are located inside the server box. The fans circulate the air from outside the server box to the components on the inside. To prevent a reduction in airflow, ensure that the server air vents do not get blocked.

1.3.5 Controls, Indicators, and Connectors

The server controls and indicators provide a way to run controlled power-up procedures for diagnostic purposes, and to check the status of the server. The server connectors allow power, device, and network connections to the server. All the server indicators, controls, and connectors are located at the rear of the server (see Figure 1-3).

Table 1-2 describes each of the server controls. Table 1-3 describes each of the server indicators. Table 1-4 describes each of the server connectors.

Figure 1-3: Server Controls, Indicators, and Connectors



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Table 1-2: Server Controls

Control	Description
Server database reset switch (S1)	This switch, in conjunction with power-up, restores the factory-set parameters in the server's database. The factory-set parameters include server system characteristics, system password, and other parameters associated with the serial line ports.
Voltage select switch	This switch sets the input voltage to the range required (100 to 120 Vac or 220 to 240 Vac).
Circuit breaker	This circuit breaker protects the power supply against excessive current. Press to reset.
Standard/ThinWire selector switch	This switch selects either standard or ThinWire Ethernet.

Table 1-3: Server Indicators

Indicator	Description
Seven-Segment Display	This display provides error and status information. If a fault occurs, the code displayed can be used to help identify the cause of the fault. The <i>DECserver 300 Problem Solving</i> manual provides a definition of the status and error codes, including fatal errors.
Diagnostic Dot	When lit, the diagnostic dot indicates that there are no fatal errors. When off, the dot indicates either a fatal error or that the server is running self-test. When blinking, the dot indicates that a non-fatal error was detected. Refer to the <i>DECserver 300 Management</i> manual for a description of the non-fatal errors.
Standard/ThinWire selector LED	This LED lights to indicate that the Ethernet connector is configured to accept a ThinWire Ethernet connection.

Table 1–4: Server Connectors

Connector	Description
Standard Ethernet connector	This single 15-pin female D-connector is used to connect to a standard Ethernet local area network using a transceiver cable.
ThinWire Ethernet connector	This single female BNC connector is used to connect to a ThinWire Ethernet local area network using a ThinWire cable and T-connector.
Port device connectors	These are 16, 6-pin female modified modular jack (MMJ) connectors used to connect devices to the server.
Power cord receptacle	The server power cord plugs into this receptacle.
Grounding screws	These screws provide grounding points for shielded cables.

1.4 Server Firmware

The server firmware resides in read-only memory (ROM), located on the main logic module in the server. The firmware controls the server during power up (before software is loaded into the server), and contains diagnostic programs used to test the server. The firmware consists of the following components:

- A diagnostic self-test program that tests the server hardware.
- A Maintenance Operation Protocol (MOP) program that supports functions such as down-line loading of the server image and up-line dumping of the server memory.

1.5 Server Software

The DECserver 300 operational software is contained in the DECserver 300 software image. The software image resides on a load host. The image file with several other distribution files make up the DECserver 300 software distribution kit.

The DECserver 300 hardware unit is delivered with no operational software. Without this software, which you order separately, the unit can run only its ROM-based diagnostics.

1.5.1 Down-Line Loading from Load Hosts

The DECserver 300 system does not support any storage devices. As a result, the server relies on load hosts to down-line load its software image. When the server is initialized, the software image is down-line loaded from a load host to the server.

A **load host** is a system that has the following files from the software distribution kit:

- The DECserver 300 software image
- A release notes file
- A procedure and a data file to configure servers in the load host node database, including the DECnet database

For the VMS operating system, the distribution kit also has files used by the Terminal Server Manager (TSM) product.

A load host down-line loads the DECserver 300 software image to the server and receives up-line dumps from it. Load hosts must be DECnet systems on the same Ethernet as the server. Each load host must have an operating system that is supported by the DECserver 300 product. The DECserver 300 system supports the VMS and ULTRIX-32 operating systems.

1.5.2 DECserver 300 Databases

The server has a permanent database and an operational database. These databases contain all the information the server requires to function.

When the server is down-line loaded for the first time, the databases contain identical default settings for the server, service, and port characteristics that control the operation of the server, its services, and its ports. These default values are called factory set defaults, and you can replace any of them in one or both databases to customize the operation of your server. You can also display the values currently stored in the databases.

Only privileged users can modify server and service characteristics. Secure and nonprivileged users can modify some port characteristics.

NOTE

There are other databases on the server. For example, the directory of available services is a database located elsewhere in dynamic memory. However, you cannot directly alter these databases using server commands.

1.5.2.1 Operational Database

At server initialization, the operational database is a copy of the values in the permanent database.

You can use SET commands to modify these values to suit your current operations. Changes to the server, service, and port characteristics in the operational database take effect immediately. Server and service characteristics remain in effect until you change them again or until the server is reinitialized. Changes to the port characteristics in the operational database stay in effect until they are changed again, until server initialization, or until the port is logged out. Note that logout differs for local-access ports and for remote-access ports, and are described as follows:

- Logout for local-access ports

Logout occurs when an interactive port user enters the server LOGOUT command or the service node logout command (for a dedicated port). Notice that the logout command for users of multisessions is LOGOUT PORT. The port's operational characteristics then revert to those in the permanent database.

- Logout for remote-access ports

Logout occurs when the remote-access session terminates; for example, when a printing task is completed on a server printer controlled by a service node application program. The port's operational characteristics then revert to those in the permanent database.

1.5.2.2 Permanent Database

In contrast to values in the operational database, values set in the permanent database remain constant through initializations, power losses, and port logins. Whenever you initialize the server, the values stored in the permanent database are loaded into the operational database. Whenever you log out a port, the values stored in the permanent database for that port are loaded into the operational database.

You can customize your permanent server configuration or a port's permanent configuration by using the DEFINE command to change the permanent database. When you define port characteristics, they become operational the next time the affected port is logged out. Changes to server and to service characteristics become operational after the next server initialization. Your modifications to the permanent database remain in the database until they are changed again or until you reset the server to its factory-set defaults. Refer to the *DECserver 300 Management* manual for details.

1.5.2.3 Resetting Characteristics to Factory Specifications

Factory-set defaults for port, server, and service characteristics do not reside on the DECserver 300 software image on a load host. The default values are stored in ROM on the DECserver 300 hardware unit. You can change the data for all characteristics in the permanent and operational databases to the factory-set defaults by using the DECserver 300 reset procedure. Refer to the *DECserver 300 Management* manual for details of this procedure.

1.5.3 Software Requirements

The software requirements for installing and operating the DECserver 300 system are as follows:

- DECserver 300 distribution software is installed on each DECserver 300 system load host.
- DECnet Phase IV software is installed on each DECserver 300 system load host (not required for ULTRIX-32 systems).
- LAT service node software is installed on all LAT service nodes that communicate with DECserver 300 devices.

1.6 Communications Standard

The server supports the EIA-423-A communications standard. The server is compatible with EIA-232-D devices when using an EIA-423-A to EIA-232-D adapter. The DECserver 300 terminal server also supports DSR/DTR signaling (refer to Section 1.3.2).

EIA-423-A is an unbalanced interface that does not use modem controls and is referred to as data-leads-only communications. The EIA-423-A standard requires electrical overstress (EOS) and electrostatic discharge (ESD) protection circuitry. The signal characteristics differ from EIA-232-D, allowing longer distances to be achieved. Most EIA-232-D terminals, printers, and so on can be adapted (using an active or passive adapter) for compatibility with EIA-423-A wiring.

1.7 Server Specifications

This section lists the following server specifications:

- Physical
- Environmental
- Power
- Cabling (power, network, and device connection)

1.7.1 Physical

The DECserver 300 hardware should be placed at least 45 centimeters (18 inches) above the floor. Allow for 15 centimeters (6 inches) of airspace around the server air vents.

Table 1-5 shows the size and weight of the server.

Table 1-5: Server Size and Weight

Dimension	Requirement
Height	11.7 centimeters (4.6 inches)
Width	49.3 centimeters (19.4 inches)
Depth	31.2 centimeters (12.3 inches)
Weight	5.4 kilograms (11.9 pounds)

1.7.2 Environmental

The site where the server is to be installed must be compatible with the server's environmental requirements. Table 1-6 identifies the environmental requirements for the server.

Table 1-6: Environmental Requirements

Parameter	Minimum	Maximum
Temperature †		
Operating	5°C (41°F)	50°C (122°F)
Nonoperating	-40°C (-40°F)	66°C (151°F)
Maximum temperature change per hour	N/A	20°C (36°F)
Altitude		
Operating	N/A	2438 meters (8000 feet)
Nonoperating	N/A	4877 meters (16000 feet)
Relative humidity		
Operating (noncondensing)	10%	95%
Nonoperating (noncondensing)	10%	95%

†If you are operating the server above 2.4 kilometers (8000 feet), decrease the operating temperature specification by 1.8°C for each 1000 meters (1°F for each 1000 feet).

1.7.3 Power

The DECserver 300 power requirements are identified in Table 1-7.

Table 1-7: Power Requirements

Parameter	DSRVF-BA	DSRVF-BB
Voltage range	100-120 Vac (3-wire, single phase)	220-240 Vac
Frequency	50 to 60 Hz	50 to 60 Hz
Line current	1.0 A	0.5 A
Power	75 W	75 W

1.7.4 Cabling

All cables should reach the server without being strained. Table 1-8 contains the maximum cabling distances for network and power connections. Table 1-9 contains the maximum cabling distances for device connections.

Table 1-8: Maximum Network and Power Cabling Distances

From	To	Maximum Distance	Cable Type
Server	Transceiver	50 meters (164 feet)	BNE3x-xx standard transceiver cable ¹
Server	Transceiver	12.5 meters (41 feet)	BNE4x-xx office transceiver cable ¹
Server	DESPR/DEMPR	185 meters (606 feet) ²	H8243-A cable
Server	Power outlet	1.8 meters (6 feet)	Server power cable

¹Standard transceiver cable (BNE3x-xx) and office transceiver cable (BNE4x-xx) can be interconnected. However, the cable attenuation (electrical characteristics) for the office transceiver cable is greater than that of the standard transceiver cable by a factor of four. For example, 2 meters (6.6 feet) of office transceiver cable is electrically equivalent to 8 meters (26.2 feet) of standard transceiver cable.

²This distance assumes that there is no other device in the ThinWire segment.

Table 1-9: Maximum Device Cabling Distances

From	To	Line Speed	Maximum Distance	Cable Type
Server	EIA-423-A device	4.8 Kb	1200 meters (4000 feet)	H8245 or H8246 (24 AWG, 4 pair, twisted pair)
		9.6 Kb	900 meters (3000 feet)	
		19.2 Kb	300 meters (1000 feet)	
Server	EIA-232-D device	4.8 Kb	75 meters (250 feet)†	24 AWG, twisted pair
		9.6 Kb	75 meters (250 feet)†	
		19.2 Kb	15 meters (50 feet)†	
Server	EIA-232-D device	4.8 Kb	15 meters (50 feet)†	BC16E‡
		9.6 Kb	15 meters (50 feet)†	
		19.2 Kb	15 meters (50 feet)†	

†The H3105 active adapter provides an EIA-423-A interface; therefore, use the cabling distances specified between the server and an EIA-423-A device when you use the H3105 adapter.

‡The BC16E cable is not recommended for distances greater than 15 meters (50 feet).

Network Connection

The server can connect to either a ThinWire or a standard Ethernet LAN. In either case, ensure that the cable used to connect to the Ethernet LAN can connect to the server without being strained.

For ThinWire configuration, the server can connect directly to the ThinWire network, or to a ThinWire network device such as the ThinWire Ethernet Multiport Repeater (DEMPR). If the server is to connect directly to a ThinWire LAN, the LAN cable must be prepared to connect to the server.

For a standard Ethernet configuration, the server must connect to one of Digital Equipment Corporation's transceiver products, such as a Digital Ethernet Transceiver, DELNI local network interconnect, or a DEC0M broadband transceiver. If an Etherjack junction box is used to house transceiver cable interconnection points, the box should be installed following the instructions provided with the Etherjack installation kit.

Port Device Connection

The server connects directly to EIA-423-A port devices or to EIA-232-D port devices through an adapter. Each port device connects to the server by means of one of the 16 MMJ connectors.

For more information about port device wiring guidelines, refer to the *DECserver 300 Hardware Installation* manual.

Configurations

The server can be used in a variety of ways to connect users to network resources. This flexibility enables network managers to use computer and network equipment more efficiently.

This chapter provides examples of how servers can be configured in a network. This chapter also provides a list of devices that are supported by the server, how devices connect to the server, and examples that shows how the server connects to a variety of Ethernet LAN configurations.

2.1 Port Device Configurations

This section lists the devices supported by the DECserver 300 system, and how the devices are configured for use on the network.

There are two basic ways in which the server can be configured: (1) Servers can provide interactive terminal users with access to services offered by the network, (2) Servers can offer services to local and remote interactive terminal users. Note that the server can have some ports configured to support interactive terminals while other ports are configured to offer services.

Details on implementing the configurations described in this section are provided in the *DECserver 300 Management* manual. For more information about LAT networks, refer to *Local Area Transport (LAT) Network Concepts*.

2.1.1 Port Devices Supported

All EIA-423-A devices connect to the female MMJ connectors at the rear of the DECserver 300 hardware. EIA-232-D devices can also connect to the MMJ connectors by means of an EIA-232-D to EIA-423-A MMJ adapter.

The server supports most terminals, personal computers, and printers manufactured by Digital Equipment Corporation.

The DECserver 300 does not support modems or connections to non-LAT hosts. Refer to the *DECserver 300 Software Product Description* for a more complete list of supported devices.

Terminals

The server supports the following Digital terminals:

- LA12, LA34, LA35, LA36, LA38,
- VT52
- VT101, VT102, VT125, VT131
- VT220, VT240, VT241
- VT320, VT330, VT340
- VT382 (when accessed from a VMS/Hanzi system)
- VT80 (when accessed from a VMS/Japanese system)
- VT282, VT284, VT286, VT382 (when accessed from a VMS/Japanese system)

Personal Computers

The DECserver 300 system supports Digital and non-Digital personal computers in either terminal emulation mode or file transfer mode.

The supported Digital personal computers include:

- Professional 325, Professional 350, Professional 380
- Rainbow 100A, Rainbow 100B, Rainbow 100+
- DECmate II and III
- VAXmate

The supported non-Digital personal computers include:

- IBM PC
- IBM PC/XT
- IBM PC AT

Printers

The DECserver 300 system supports Digital and non-Digital printers that use EIA-423-A and EIA-232-D serial ports.

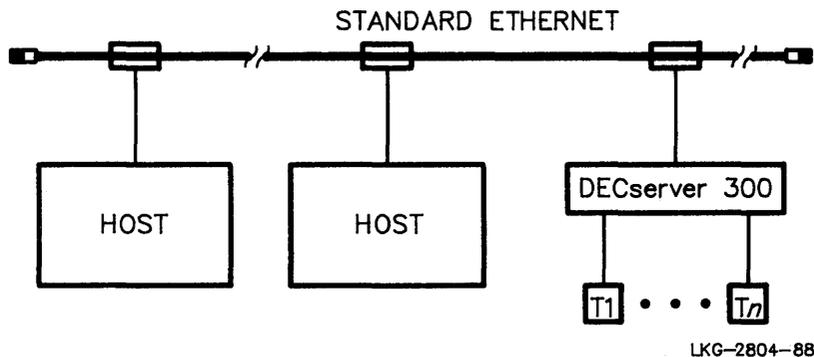
Digital printers supported by the DECserver 300 system include:

- DCT01, DCT03 (DECtalk)
- LA50, LA200, LA210
- LG01S, LG02 (graphics printers)
- LN01S and LN03S (laser printers)
- LPC01 (Ink Jet Printer)
- LQP02, LQP03 (letter-quality printers)
- LXY12-DA, LXY22-DA (graphics printers)

2.1.2 Used as a Terminal Server for Digital Terminals

In this conventional server configuration, local interactive terminal users use the server to access services located on the Ethernet LAN. Figure 2-1 illustrates this concept. In this configuration, terminal users can access one or more host computers on the Ethernet LAN, or IBM host computers through a DECnet/SNA Gateway.

Figure 2-1: Used as a Terminal Server for Digital Terminals



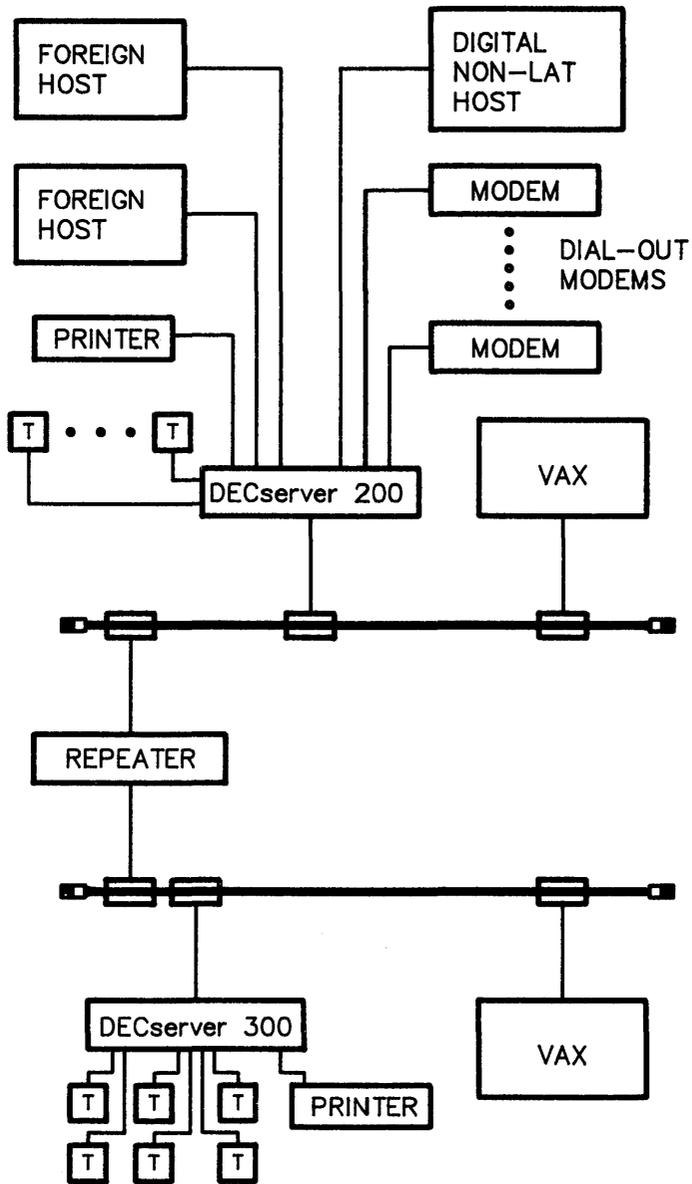
2.1.3 Used to Offer Services to Remote and Local Users

The server can be configured to offer services to users located locally and remotely on the network. Such configurations can help make a limited resource, such as a graphics printer, available to all users on the local area network.

Server managers can define a server port or a group of ports to offer a particular service. A user on the same server or any other server on the same extended LAN can connect to a particular service by specifying the service name. If several ports are set up to offer the same service, then users requesting that service are given the next available port offering the service.

Figure 2-2 shows an example in which any terminal user on a DECserver 300 terminal server can access services that are not directly connected to the DECserver 300 terminal server, such as foreign (non-Digital) host systems, a Digital non-LAT host system, and printers. The DECserver 300 terminal server user can also access services offered by the same DECserver 300 terminal server.

Figure 2-2: Server Configured to Offer Services to Users



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2.2 Network Configurations

The server can easily connect to most broadband, baseband, and ThinWire Ethernet local area networks. The examples in this section show some typical Ethernet LAN configurations using a DECserver 300 terminal server.

2.2.1 Networks with Terminal Servers

Careful server implementation is essential for effective distributed processing on Ethernet local area networks. Figure 2-3 shows a sample of an extended Ethernet local area network that includes several DECserver communication servers. The figure illustrates how the implementation of DECserver terminal server systems makes computer resources available to most users on the extended LAN.

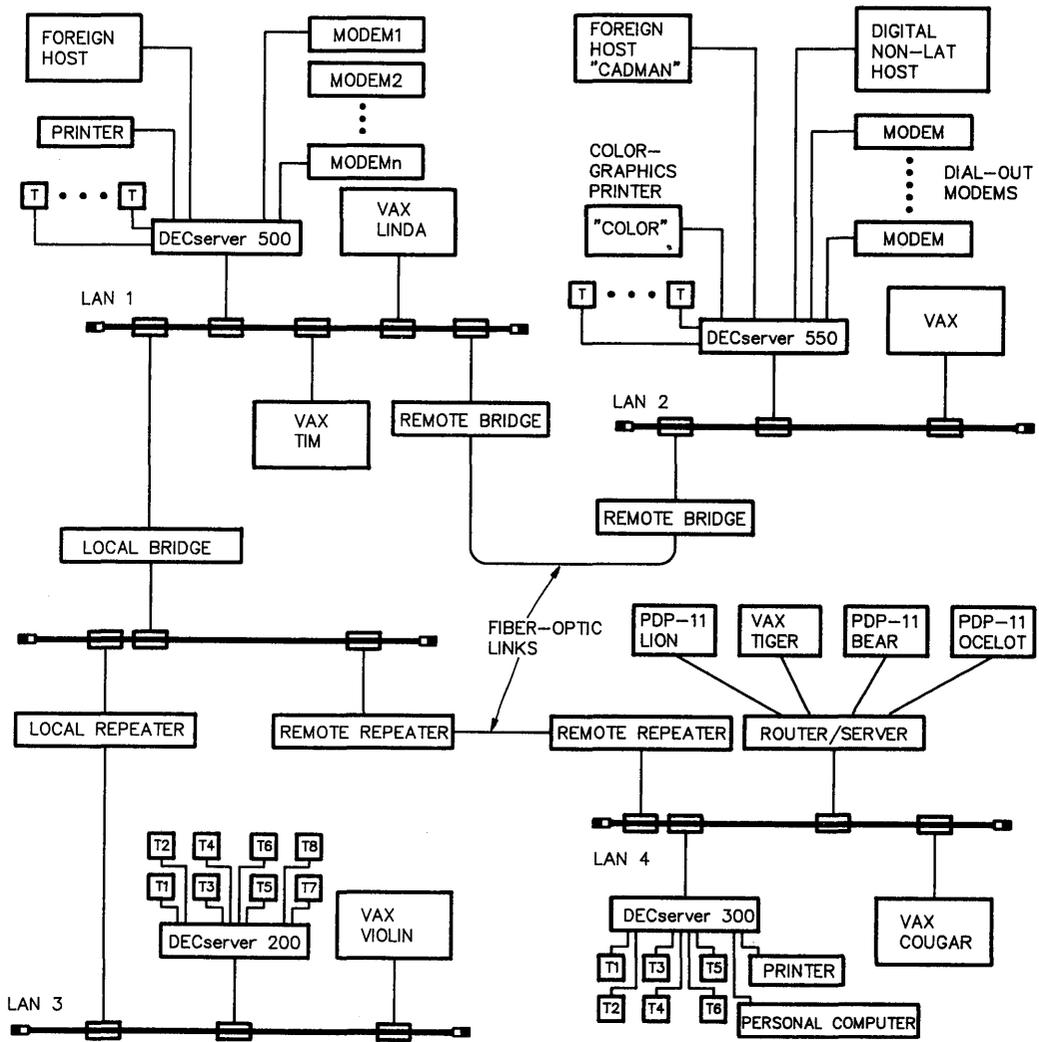
NOTE

The extended LAN configuration shown in Figure 2-3 is for illustrative purposes only. An actual extended LAN might have many more nodes and users than are shown in the figure.

The following examples are based on the configuration shown in Figure 2-3.

- Terminal user T1 on LAN 4 connects to foreign host CADMAN on LAN 2 by issuing the server command `CONNECT CADMAN`. Similarly, terminal user T5 on LAN 3 connects to MODEM2 on LAN 1 by issuing the server command `CONNECT MODEM2`.
- Any properly configured LAT service node can request connections to printers that are attached to DECserver 200, 300, 500, or 550 hardware. However, the LAT service node must be connected to the same extended LAN. For example, node VIOLIN on LAN 3 can queue a print job to the color graphics printer on LAN 2 whose service name is COLOR. However, nodes TIGER and OCELOT on LAN 4 cannot perform this operation because they are not on the extended LAN.

Figure 2-3: Example of a Network with Servers

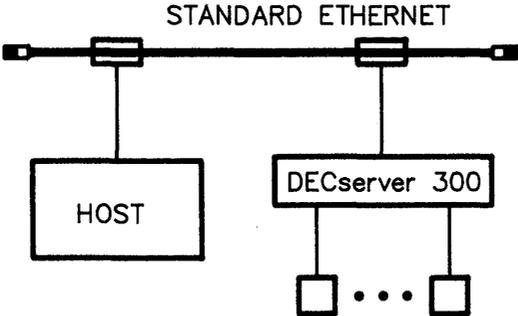


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2.2.2 Direct Standard Ethernet Connection

The server can connect directly to a transceiver on a standard Ethernet coaxial cable as shown in Figure 2-4, or it can connect through an Etherjack junction box. Such connections are the simplest and most economical to implement and to maintain.

Figure 2-4: Direct Connection to a Network

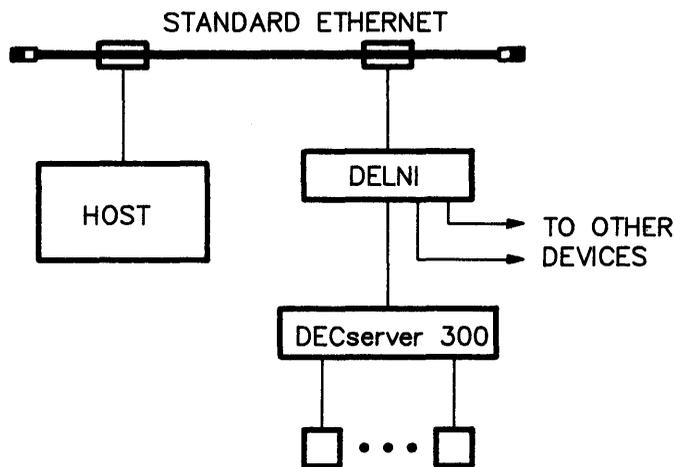


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2.2.3 Network Connection Through a DELNI Network Concentrator

The server can connect to a network through a DELNI network concentrator. In the configuration shown in Figure 2-5, the DELNI network concentrator connects multiple devices to a standard Ethernet coaxial cable using a single transceiver.

Figure 2-5: Network Connection Through a DELNI Network Concentrator

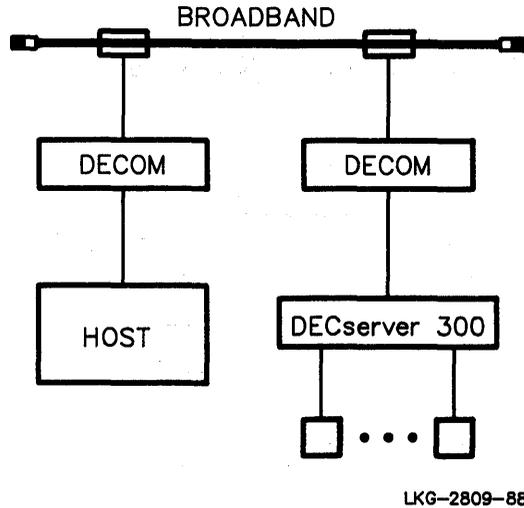


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2.2.4 Connection to Broadband Ethernet Network

The server can connect to a broadband Ethernet network. Figure 2-6 shows a server that is connected to a DECOM broadband transceiver. The transceiver connects to a tap on a broadband Ethernet cable.

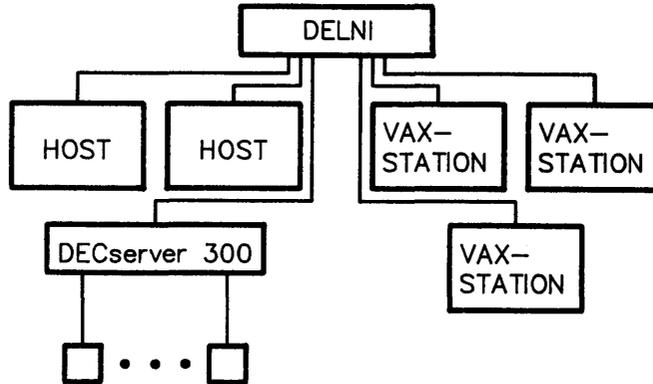
Figure 2-6: Connection to a Broadband Ethernet Network



2.2.5 Connection to a DELNI-Based Network

The server can connect to a DELNI-based network. In the configuration shown in Figure 2-7, the DELNI-based network does not use an Ethernet coaxial cable.

Figure 2-7: Connection to a DELNI-Based Network

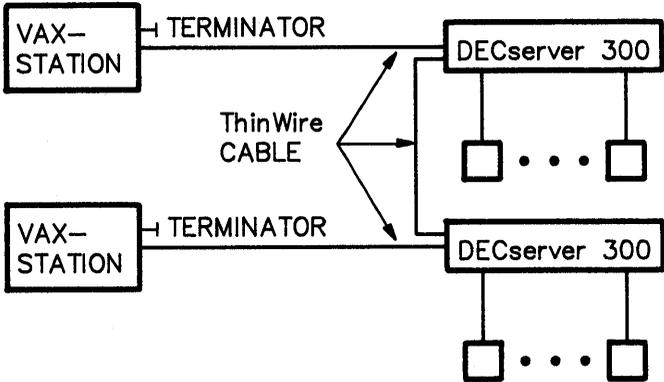


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2.2.6 Connection to a Stand-Alone ThinWire Network

The server can connect directly to a ThinWire local area network. In the configuration shown in Figure 2-8, the server connects to a stand-alone ThinWire segment.

Figure 2-8: Connection to a ThinWire Ethernet Stand-Alone Segment

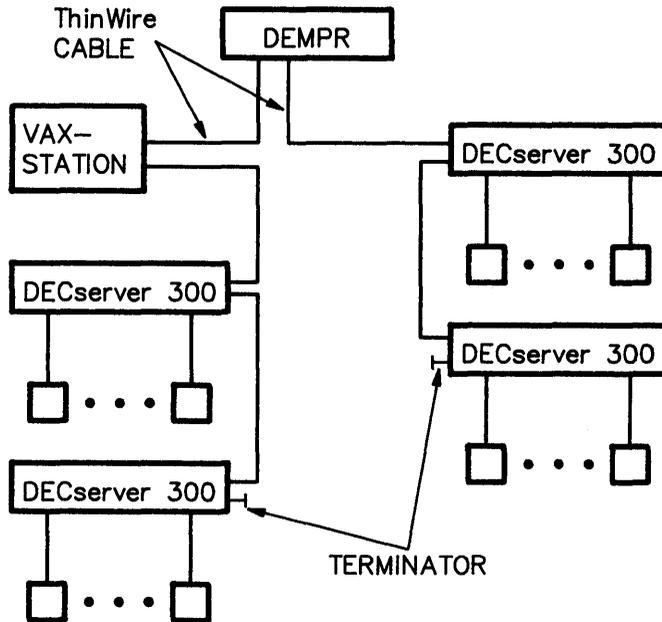


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2.2.7 ThinWire Network Connection Through a DEMPR Device

The server can connect to a ThinWire local area network through a DEMPR device. Figure 2-9 shows an example of the server connecting to a DEMPR device.

Figure 2-9: ThinWire Network Connection Through a DEMPR Device



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Reconfiguration

Your server is designed to accommodate your changing business needs. As the number of people or devices using computer resources grows, you can reconfigure the server or add port devices (up to 16) to meet your needs.

3.1 Assessing Your Needs

In planning for future needs, you should determine the server's current capacity and decide whether you need to attach additional devices or whether you need another server.

3.2 Connecting Additional Port Devices to an Existing Server

In many cases, unused server ports are available to connect additional devices. When you connect a device to a server port, the port must be properly configured to support the device being connected, and the communication characteristics of the device should be set to match the port characteristics. For information about setting the device characteristics, refer to the operating instructions for the specific device.

Privileged and nonprivileged users can determine the characteristics of a port by using a terminal (connected to any device port) to enter a SHOW PORT command.

3.3 Reconfiguring an Existing Server

At times, it is necessary for the privileged user to change (reconfigure) the communications characteristics of a port or a group of ports on the server. The characteristics of each port (such as transmit speed, receive speed, flow control, and so on) tailor the port to meet the needs of the particular device connected to it. Port hardware is configured by the server software when the server image is down-line loaded to the server.

Ports can be reconfigured temporarily or permanently. Users can make temporary and permanent changes by using the terminal connected to their port. A temporary change remains in effect until the port is logged out or until the server is rebooted. A permanent change remains in effect through initializations, power losses, and logins. Refer to *DECserver 300 Use* manual for the proper commands to reconfigure your port.

The terminal server manager can make temporary and permanent changes to the server ports with the *DEFINE* command. For more information about changing port, server, and service characteristics, refer to *DECserver 300 Management* manual.

3.4 Adding Servers to the Network

Your Digital Equipment Corporation sales representative can advise you on what equipment to order to meet your particular needs.

How to Use the Documentation

This chapter provides an overview of the DECserver 300 terminal server manuals and explains the differences between reference, procedural, and quick reference documentation. Also, this chapter contains a brief summary of each DECserver 300 and Terminal Server Manager (TSM) document.

4.1 Organization of the Documentation

To make it easier for you to find and use the information provided in the various server documents, the information is organized and presented in three types of documents: reference, procedural, and quick reference.

4.1.1 Reference Documentation

Reference documents include introductory information such as local area transport concepts, hardware and software overviews, and product specific information such as commands, error messages, cables, and accessories. These documents are formatted so that information can be easily located. You should become familiar with their content and then refer to them only when you need specific information.

Reference documents are listed as follows:

- *DECserver 300 Software Product Description*
- *DECserver 300 Introduction*
- *Local Area Transport (LAT) Network Concepts*
- *Terminal Server Commands and Messages*
- *Terminal Server Glossary*

- *DECserver 300 Release notes*
- *Server On-Line Help (reference)*

4.1.2 Procedural Documentation

Procedural documents include procedures for performing server tasks such as installation, management, and problem solving. Separate documents are provided for each major task. Each document is written in a step-by-step format and is to be used to perform the task specified in its title. The reference information included in these documents applies only to the task supported by the document. For example, *DECserver 300 Management* contains several reference chapters that apply specifically to server management.

Table 4-1 lists the major tasks and the documents that support them.

Table 4-1: Tasks and Supportive Documentation

Task	Document
Server hardware installation	<i>DECserver 300 Hardware Installation</i>
Server software installation	<i>DECserver 300 Software Installation (op-sys)</i> <i>DECserver 300 Identification Card</i>
Server use	<i>DECserver 300 Use</i> <i>Server On-Line Help (tutorial)</i>
Server management	<i>DECserver 300 Management</i>
Server problem solving	<i>DECserver 300 Problem Solving</i>

4.1.3 Quick Reference Documentation

Quick reference documents provide brief summaries of server commands in a pocket-size format. The *DECserver 300 Identification Card* is used to record identification information while installing the server hardware. They are provided for server use, management, and installation.

These documents are listed as follows:

- *DECserver 300 Identification Card*
- *Terminal Server User's Reference Card*
- *DECserver 300 Commands Quick Reference*

4.2 Documents Used to Perform Each Task

Figure 4-1 through Figure 4-5 show the documents that you use to perform each task.

Figure 4-1: Hardware Installation

Procedural Documents

*DECserver 300
Hardware
Installation*

Quick Reference

*DECserver 300
Identification
Card*

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Figure 4-2: Server Use

Reference Documents

*DECserver 300
On-Line Help*

*Terminal Server
Glossary*

*DECserver 300
Introduction*

Procedural Documents

*DECserver 300
Use*

*DECserver 300
On-Line Help*

Quick Reference

*Terminal Server
User's Quick
Reference Card*

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Figure 4-3: Software Installation

Reference Documents

*DECserver 300
Software Product
Description*

*DECserver 300
Release Notes*

*DECserver 300
Introduction*

*Terminal Server
Glossary*

Procedural Documents

*DECserver 300
Software
Installation
(op sys)*

Quick Reference

*Decserver 300
Identification
Card*

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Figure 4-4: Server Management

Reference Documents

*DECserver 300
Software Product
Description*

*Local Area
Transport (LAT)
Concepts*

*DECserver 300
Introduction*

*DECserver 300
Release Notes*

*DECserver 300
On-Line Help*

*Terminal Server
Commands and
Messages*

*Terminal Server
Glossary*

Procedural Documents

*DECserver 300
Management*

Quick Reference

*DECserver 300
Commands Quick
Reference*

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Figure 4-5: Problem Solving

Reference Documents

*Local Area
Transport (LAT)
Concepts*

Procedural Documents

*DECserver 300
Problem Solving*

*DECserver 300
Introduction*

*Terminal Server
Glossary*

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4.3 Description of Server Documents

This section describes the documents in the DECserver 300 software and hardware documentation sets. Related documents are also described.

4.3.1 DECserver 300 Software Document Set

These documents ship with the DECserver 300 software.

- *DECserver 300 Software Product Description*

Describes the DECserver 300 system, including a list of features, devices supported, and system restrictions.
- *DECserver 300 Introduction*

Describes the DECserver 300 system, including the hardware and software components. This manual also provides order codes, how to use the documentation, and information on server configurations. This document is intended for all users of server documentation.
- *DECserver 300 Software Installation (op-sys)*

Explains how to install the DECserver 300 distribution software, how to establish down-line load hosts, and how to verify the DECserver 300 system installation. In the title, *op-sys* is the name of the load host operating system. This manual is intended for the load host system manager and the server manager.
- *DECserver 300 Management*

Describes all the initial and day-to-day management tasks required of the DECserver 300 manager. The topics cover all the information needed to configure the ports and to customize the permanent and operational databases of the server. This manual is intended for the DECserver 300 manager.
- *DECserver 300 Use*

Describes the user interface and the general functions of the server. This manual gives complete information for using all nonprivileged server commands. It is intended for users of interactive terminals connected to DECserver 300 ports.
- *Terminal Server User's Reference Card*

Describes on a reference card the most frequently used server commands.

- *Terminal Server Commands and Messages*
Describes the usage and syntax of all terminal server commands (privileged and nonprivileged). This guide also lists and describes all status and error messages issued by the server. This reference is intended for the server manager but is useful for terminal users who want more detailed reference information.
- *DECserver 300 Commands Quick Reference*
Summarizes all privileged and nonprivileged server commands and characteristics in a pocket-size mini-reference. This reference is intended as a memory jog of command syntaxes for both privileged and nonprivileged users.
- *DECserver 300 Problem Solving*
Describes the server's troubleshooting tools and procedures. It explains how to isolate and correct server faults. This guide is intended for the server manager.
- *Terminal Server Glossary*
Defines terms used in server documentation. This document is intended as a reference tool for all users of server documentation.
- *Local Area Transport (LAT) Network Concepts*
Presents information about LAT networks. It discusses LAT concepts and definitions, and provides guidelines to coordinate the configuration, performance, and troubleshooting of LAT servers and service nodes.

4.3.2 DECserver 300 Hardware Document Set

These documents ship with the DECserver 300 hardware.

- *DECserver 300 Hardware Installation*
Describes environmental requirements for the DECserver 300 terminal server and the installation of the hardware. This guide is intended for the hardware installer.
- *DECserver 300 Identification Card*
Provides the space to record identification information for the DECserver 300 terminal server. This card is intended for the network manager, the software installer, and the server manager.

4.3.3 User Documentation Set

You can order a user documentation kit for each person who uses any of Digital's interactive terminals at a server port. These documents are also part of the software document set. The kit contains the following:

- *DECserver 300 Use*
- *Terminal Server User's Reference Card*

4.3.4 On-Line Documentation

Extensive on-line documentation is included on the software media:

- On-Line Help (consisting of tutorial Help and reference Help)
- DECserver 300 Release Notes

After the server is initialized (booted), on-line Help is available for anyone using a terminal on the server. The person with server management responsibility should read the release notes. The *DECserver 300 Software Installation* manual tells you how to print the release notes.

4.3.5 Terminal Server Manager Documents

If you have the Terminal Server Manager (TSM) software, read the documentation for this product before you look at the DECserver 300 documents. TSM affects the way you install and manage servers.

- *Terminal Server Manager Software Installation Guide*
Explains how to install the TSM software, an optional network management product, which is installed onto a VMS system running DECnet-VAX. This guide is intended for the installer and network manager.
- *Guide to Terminal Server Manager*
Explains how to run the TSM software. This guide is intended for the network manager.

Ordering Information

5.1 Ordering Instructions

Use the following procedures to order hardware, software, or documentation.

5.1.1 Hardware and Software

You can order either software or hardware from Digital Equipment Corporation in one of two ways:

- Call your Digital sales representative. The sales representative ensures that the parts you need are delivered and, if necessary, installed when and where you need them.
- Use the *DECdirect* catalog. You can call your order in to DECdirect, or you can complete and mail in the enclosed order form. If you elect to contact DECdirect by telephone, you should fill out the order form in the catalog before placing the call. This ensures that you have all of the information required to place your order.

5.1.2 Documentation

You can order either software or hardware documentation from Digital Equipment Corporation as follows. How you order depends on whether you are a customer or a Digital employee.

Customer Ordering Procedures for All Documentation

If you are a customer, refer to Table 5-1 and Table 5-2 for ordering information.

Table 5-1: How To Order By Phone

If You Live In	Call
USA	(800) DIGITAL
Puerto Rico	(809) 754-7575 x2012
Canada	(800) 267-6215

Table 5-2: How To Order By Mail

If You Live in	Write To
USA or Puerto Rico ¹	Digital Equipment Corporation, P.O. Box CS2008, Nashua, New Hampshire 03061
Canada	Digital Equipment of Canada LTD., 940 Belfast Road, Ottawa, Ontario, Canada K1G 4C2 Attn: A&SG Business Manager
Other	Digital Equipment Corporation, A&SG Business Manager, c/o Digital's local subsidiary or approved distributor

¹Any prepaid order from Puerto Rico must be placed with the Local Digital Subsidiary: (809) 754-7575 x2012

Digital Employee Ordering Procedures for Software Documentation

If you are a Digital employee, use the "Internal Software Order Form" to order software documentation kits. The form is available from office services and the Software Supply Business (SSB). Complete the form according to instructions and mail it.

Digital Employee Ordering Procedures for Hardware Documentation

If you are a Digital employee, you can place your order for hardware manuals by telephone, VAXmail, or DECmail as follows:

- Telephone number: (508) 351-4323 (DTN: 234-4323)
- DECmail address: ORDER @NRO

- VAXmail address: NEST::ORDER

NOTE

If you use electronic MAIL, DECmail is preferred to VAXmail.

5.2 Software Order Numbers

This section lists order codes for the DECserver 300 software-related products.

A license to run the DECserver 300 software is included with the DECserver 300 hardware. However, the software on the appropriate distribution media must be purchased for the host that will be the down-line load host for the server.

Table 5-3 lists order codes for DECserver 300 software and supporting documentation.

Table 5-3: DECserver 300 Software Order Codes

Option	VMS Order Code	ULTRIX-32 Order Code
Media and software documentation kit¹		
1600 BPI Magnetic Tape	QA-VTUAA-HM	QA-VTVAA-HM
TK50 Magnetic Tape	QA-VTUAA-H5	QA-VTVAA-H5
Media only		
1600 BPI Magnetic Tape	QA-VTUAA-BM	QA-VTVAA-BM
TK50 Magnetic Tape	QA-VTUAA-B5	QA-VTVAA-B5
Software Documentation Kit	QA-VTUAA-GZ	QA-VTVAA-GZ
User Documentation Kit	QA-VTUAB-GZ	QA-VTUAB-GZ

¹The following processors are not supported as downline-load hosts for VMS 5.0 and later: MicroVAX I, VAXstation I, VAX-11/725, and VAX-11/782.

5.3 Hardware Order Numbers

This section lists order codes for the DECserver 300 hardware and hardware-related products.

5.3.1 DECserver 300 Shipment

Each DECserver 300 shipment includes the following:

- DECserver 300 hardware
- BNC T-connector
- BNC 50-ohm terminators (2)
- Software license (not included in U.S.A. shipments)
- H3103 loopback connector
- Country kit (must be ordered separately outside of the U.S.A.)

The hardware order codes for the DECserver 300 terminal server are as follows:

DSRVF-BA	120 Vac (includes DSRVF-KA country kit)
DSRVF-BB	240 Vac (does not include country kit)

5.3.2 DECserver 300 Country Kits

The DECserver 300 country kits consist of:

- Power cord
- *DECserver 300 Hardware Installation* manual
- *DECserver 300 Identification Card*
- Blank ID labels for cables
- Rack mount kit
- FTZ card (Austria and Germany only)

Table 5-4 lists the country-specific order codes for DECserver 300 shipments.

Table 5-4: DECserver 300 Country Kit Order Codes

Country	Order Code
Australia	DSRVF-KZ
Austria	DSRVF-KG
Belgium	DSRVF-LA
Canada (English and French)	DSRVF-KA
Denmark	DSRVF-KD
Finland	DSRVF-LA
France	DSRVF-LA
Germany	DSRVF-KG
Holland	DSRVF-LA
Italy	DSRVF-KI
India	DSRVF-LJ
Israel	DSRVF-KT
Japan	DSRVF-KJ
New Zealand	DSRVF-KZ
Norway	DSRVB-LA
Spain	DSRVF-LA
Sweden	DSRVF-LA
Switzerland (French and German)	DSRVF-LB
United Kingdom	DSRVF-KE
United States	DSRVF-KA

5.3.3 DECserver 300 Accessories

Table 5-5 lists order codes for accessories that are available for the DECserver 300 hardware.

Table 5-5: DECserver 300 Accessory Order Codes

Accessory	Order Code
Standard Ethernet loopback connector—Tests the DECserver 300 standard Ethernet port and the transceiver cable.	12-22196-02
ThinWire Ethernet loopback connector (consists of one T connector (H8223) and two terminators (H8225))—Tests the DECserver 300 ThinWire Ethernet port and the ThinWire cable.	H8223/ H8225
Ethernet turnaround connector—For testing transceiver and transceiver cable.	H4080
MMJ loopback connector—Tests the DECserver 300 MMJ ports.	H3103
ThinWire strain relief clamp—Supports the ThinWire cable loop.	12-29702-01
Etherjack kit—Covers and secures transceiver cable connections.	DEXJK
Wall/partition mounting bracket kit—for mounting the DECserver 300 server to walls or office partitions	H039
Rack mount kit—for mounting the DECserver 300 in standard rack cabinets	H041-AA
EIA-423-A to EIA-232-D active converter	H3105
DECconnect SER cable—unshielded	BC23P-10
DECconnect SER cable—shielded	BC23R-10
H3104—cable concentrator (unshielded)	H3104
H3104—cable concentrator (shielded)	H3125

5.3.4 Digital Office Cable (BC16E) and Adapters

Various cables and adapters are available to support EIA-423-A and EIA-232-D signaling used with the DECserver 300 ports.

Table 5-6 identifies the order codes for the office cable and adapters.

Table 5-6: Digital Office Cable and Adapter Order Code

Product Description	Order Code
10-foot terminated 6-conductor cable	BC16E-10
25-foot terminated 6-conductor cable	BC16E-25
50-foot terminated 6-conductor cable	BC16E-50
MMJ loopback connector	H3103
Package of 50 MMPs	H8220
1000-foot spool of unterminated 6-conductor cable	H8240
Crimping tool for attaching MMPs to BC16E 6-conductor cable	H8241
25-pin EIA-232-D to EIA-423-A passive adapter (female to MMJ, for terminals)	H8571-A
9-pin EIA-232-D to EIA-423-A passive adapter (female to MMJ, for printers)	H8571-B
25-pin EIA-232-D to EIA-423-A passive adapter (male to MMJ, for terminals)	H8571-C
25-pin EIA-232-D to EIA-423-A passive adapter (male to MMJ, for printers)	H8571-D
25-pin EIA-232-D to EIA-423-A passive adapter (male to MMJ, for LJ250 color printers)	H8571-E
6-conductor cable coupler	H8572
DECconnect SER cable—unshielded	BC23P-10
DECconnect SER cable—shielded	BC23R-10
H3104—cable concentrator (unshielded)	H3104
H3104—cable concentrator (shielded)	H3125

Table 5-6 (Cont.): Digital Office Cable and Adapter Order Code

Product Description	Order Code
Non DECconnect:	
Male to 50-way champ connector to eight MMPs†	MOD-TAP 24-665-13
MMP to RJ12 (socket)†	MOD-TAP 09-100-650

†These adapters can be used for interconnection with non-DECconnect wiring schemes.

5.3.5 Standard Ethernet Transceiver Cables

Two types of transceiver cables are available for standard Ethernet connection: FEP and PVC. FEP cabling is for use in return air conduits. PVC cabling is for use in air spaces that are not environmentally controlled. The large diameter of the FEP cable results in a lower signal loss per length of cable than the smaller diameter of the PVC transceiver cable. Two styles of connectors are available: a straight connector and a right-angle connector.

The BNE3x-xx cable is available as an FEP or a PVC cable, and is available in lengths of 5 meters (16.4 feet), 10 meters (32.8 feet), 20 meters (65.6 feet), and 40 meters (131.2 feet). The following lists the types of available BNE3x-xx cables:

- BNE3A-xx PVC, straight-connector transceiver cable
- BNE3B-xx PVC, right-angle connector transceiver cable
- BNE3C-xx FEP, straight-connector transceiver cable
- BNE3D-xx FEP, right-angle connector transceiver cable
- BNE3H-xx PVC, straight-connector, 802.3-compliant transceiver cable
- BNE3K-xx PVC, right-angle connector, 802.3-compliant transceiver cable
- BNE3L-xx FEP, straight-connector, 802.3-compliant transceiver cable
- BNE3M-xx FEP, right-angle connector, 802.3-compliant transceiver cable

The BNE4x-xx office transceiver cable is available in PVC versions for use in nonenvironmental airspaces. The smaller diameter of this cable makes it ideal for use in office environments; however, the smaller diameter of the cable also results in a cable signal loss that is four times greater than that of BNE3x-xx transceiver cables. The following lists the types of available BNE4x-xx cables:

- BNE4A-xx PVC, straight-connector transceiver cable
- BNE4B-xx PVC, right-angle connector transceiver cable
- BNE4C-xx PVC, straight-connector, 802.3-compliant transceiver cable
- BNE4D-xx PVC, right-angle connector, 802.3-compliant transceiver cable

The BNE4x-xx cables are available in lengths of 2 meters (6.6 feet) and 5 meters (16.4 feet).

5.3.6 ThinWire Ethernet Cables

Two types of ThinWire coaxial cable are available for ThinWire Ethernet connection: FEP and PVC. FEP cabling is for use in return air conduits. PVC cabling is for use in air spaces that are not environmentally controlled. Table 5-7 lists the order codes and cable lengths for bulk ThinWire cables.

The ThinWire cable does not include BNC connectors. They must be ordered separately. Two male BNC connectors are needed for each ThinWire cable section to be installed—one on each end. The order code for male ThinWire BNC connectors is H8222A.

Table 5-7: ThinWire Coaxial Cable Order Codes

Type	Length	Order Code
PVC	304.8 meters (1000 feet) role	H8243-A
FEP	304.8 meters (1000 feet) role	H8244-A

5.4 Documentation Order Numbers

This section lists order codes for the DECserver 300 software and hardware documents.

5.4.1 Software Documentation

For software manuals, use the documentation kit order number. There are software kits for two operating systems: VMS and ULTRIX-32.

VMS Software Documentation Kit

The DECserver 300 VMS documentation kit order number is QA-VTUAAGZ. The kit contains one of each of the following manuals:

- *DECserver 300 Software Product Description*
- *DECserver 300 Introduction*
- *DECserver 300 Software Installation (VMS)*
- *DECserver 300 Use*
- *Terminal Server User's Reference Card*
- *DECserver 300 Management*
- *Terminal Server Commands and Messages*
- *DECserver 300 Commands Quick Reference*
- *Local Area Transport (LAT) Network Concepts*
- *DECserver 300 Problem Solving*
- *Terminal Server Glossary*

ULTRIX-32 Software Documentation Kit

The DECserver 300 ULTRIX-32 documentation kit order number is QA-VTVAA-GZ. This kit contains the same manuals as the VMS documentation kit except that the ULTRIX-32 kit contains the *DECserver 300 Software Installation (ULTRIX-32)* instead of the VMS version.

User Software Documentation Kit

The user documentation kit order number is QA-VTUAB-GZ. This kit is intended for terminal users and contains only two manuals: the *DECserver 300 Use* manual and the *Terminal Server User's Reference Card*.

Terminal Server Manager Documentation Kit

The Terminal Server Manager (TSM) documentation kit order number is QA-VDHAA-GZ. This kit is intended for installer and manager of the TSM software product and contains two manuals: the *Guide to Terminal Server Manager* and the *Terminal Server Manager Software Installation Guide*.

If you have TSM software, you can order additional manuals.

5.4.2 Hardware Documentation

Two hardware documents ship with the DECserver 300 hardware, but extra copies can be ordered separately. The order code for the *DECserver 300 Hardware Installation* is EK-A0366-IN. The order code for the *DECserver 300 Identification Card* is EK-A0368-IC.

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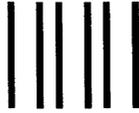
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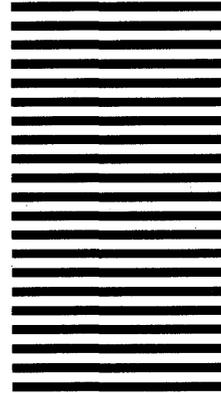
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