

# DECserver 300

---

**digital™**

**Problem Solving**

Order No. AA-NE42A-TE

# DECserver 300

---

## Problem Solving

June 1989

This manual describes problem solving tools and procedures for the DECserver 300 terminal server. It is intended for the server manager.

Supersession/Update Information:      This is a new manual.

Software Version:                          DECserver 300 V1.0

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

**digital**<sup>™</sup>

The information in this document is subject to change without notice and should not be construed as a commitment by Digital Equipment Corporation. Digital Equipment Corporation assumes no responsibility for any errors that may appear in this document.

The software described in this document is furnished under a license and may only be used or copied in accordance with the terms of such license.

No responsibility is assumed for the use or reliability of software on equipment that is not supplied by Digital or its affiliated companies.

Copyright © 1989 by Digital Equipment Corporation  
All Rights Reserved.  
Printed in U.S.A.

The following are trademarks of Digital Equipment Corporation:

DEBNA	DEVA	Q-Bus
DEBNET	DEUNA	Rainbow
DEC		RSX
DECconnect	LAN Bridge	RSX-11M-PLUS
DECnet	LA120	ThinWire
DECserver	LN01	ULTRIX-32
DECUS	LN03	UNIBUS
DELNI	LQP02	VAX
DELUA	MASSBUS	VAXcluster
DELQA	Micro/RSX	VAXmate
DEMPR	MicroVAX	VAXstation
DEQNA	PDP	VMS
DESOA	Professional	

---

# Contents

## Preface

## 1 Introduction to DECserver 300 Problem Solving

## 2 Troubleshooting Tools

2.1	The Console Port .....	2-1
2.2	The DECserver 300 Self-Test .....	2-2
2.3	Types of Errors — Fatal and Non-Fatal .....	2-2
2.4	The Seven-Segment Status Display .....	2-2
2.4.1	Diagnostic Status and Error Codes .....	2-4
2.4.2	Server Software Status Codes .....	2-6
2.5	DECserver 300 TEST Commands .....	2-8
2.5.1	The TEST SERVICE Command .....	2-8
2.5.2	The TEST PORT Command .....	2-9
2.5.3	The TEST LOOP Command .....	2-9

## 3 What to Do First

## 4 Problems on All Ports

4.1	Status Display Is Off — No DC Voltage .....	4-1
4.2	Diagnostic Dot Is Off — Fatal Error or Test in Progress .....	4-2
4.3	Diagnostic Dot Blinking (Non-Fatal Error) .....	4-2
4.3.1	Error Messages 920 and 921 .....	4-3
4.3.2	Error Message 922 and 923 .....	4-3
4.3.3	Error Messages 930 and 931 .....	4-4
4.3.4	Error Messages 935 and 936 .....	4-4
4.3.5	Error Messages 925 and 926 .....	4-5
4.3.6	Error Messages 941, 942, 950, and 952 — Code 9 on Status Display .....	4-5
4.4	Insufficient Memory Resources .....	4-8
4.5	No Console Messages .....	4-9
4.6	Down-Line Loading Problems — Code 3 on the Status Display .....	4-10
4.6.1	Down-Line Load Starts, Then Fails .....	4-10
4.6.2	Down-Line Load Does Not Start .....	4-12
4.7	Message Number 913 Appears .....	4-16
4.8	Server Port or Port Device Hardware Problems .....	4-18

## 5 Problems with Individual Port Devices

5.1	Check These Things First .....	5-1
5.2	An Interactive Terminal Is Not Working .....	5-3
5.3	A PC File Transfer Fails .....	5-7
5.4	A Line Printer Fails at a Remote-Access Port .....	5-8

## 6 Problems with Service Nodes

6.1	Message Timing Problem .....	6-2
6.2	LAT Protocol Errors .....	6-3
6.3	Authorized Groups Mismatch .....	6-4
6.4	Server Capacity Exceeded .....	6-4

6.5	Service Node Software Not Running .....	6-5
6.6	Service Node Not Available .....	6-5

## 7 Problems with the Ethernet

## 8 Digital Equipment Corporation Service

8.1	Before You Contact Digital Equipment Corporation .....	8-1
8.2	Repackaging a DECserver for Shipping .....	8-2
8.3	Forwarding Up-Line Dump Data .....	8-2

## Index

## Figures

1-1	Network Components .....	1-1
1-2	Composition of Network Components .....	1-2
2-1	DECserver 300 Seven-Segment Status Display .....	2-3

## Tables

2-1	Self-Test Diagnostics Status and Error Codes .....	2-5
2-2	Server Software Status Codes .....	2-6
5-1	Port Device Problem — Check These Things First .....	5-1
5-2	Port Device Problem — Check These Things First .....	5-2



---

# Preface

*DECserver 300 Problem Solving* describes how to troubleshoot the DECserver 300 system software and hardware. The manual also describes the troubleshooting tools and their use.

## Intended Audience

The manual is intended mainly for the server manager, but also Digital Equipment Corporation training, field service, and manufacturing personnel. Knowledge of Ethernet local area networks is a prerequisite for using the manual effectively.

## Document Structure

- |           |   |
|-----------|---|
| Chapter 1 | Briefly introduces DECserver 300 problem solving.   |
| Chapter 2 | Describes the troubleshooting tools and the hardware and software features that are useful for troubleshooting. |
| Chapter 3 | Describes the initial steps to take when you see a problem.   |
| Chapter 4 | Describes how to troubleshoot problems that involve all the server ports.                                       |
| Chapter 5 | Describes how to troubleshoot problems that affect one or more, but not all, ports and port devices.            |
| Chapter 6 | Describes problems involving communication with service nodes on the Ethernet.                                  |
| Chapter 7 | Describes problems on the Ethernet interface.   |
| Chapter 8 | Describes how to use Digital Equipment Corporation maintenance services.  |

## Graphic Conventions Used In This Guide

To use this manual effectively, familiarize yourself with the conventions discussed below. The following conventions apply to numbers:

- All numbers are decimal unless otherwise noted.
- All ethernet addresses are given in hexadecimal.

---

Convention	Meaning
<i>special type</i>	This special type in examples indicates system output or user input.
<i>Red type</i>	Red type in examples indicates user input.
UPPERCASE	Uppercase letters in command lines indicate keywords that must be entered. You can enter them in either uppercase or lowercase.; You can abbreviate command keywords to the first three characters or the minimum unique abbreviation.
<i>lowercase italics</i>	Lowercase italics in command syntax or examples indicate variables for which either the user or the system supplies a value.
<span style="border: 1px solid black; padding: 2px;">Key</span>	Indicates that you press the specified key.
<span style="border: 1px solid black; padding: 2px;">CTRL/x</span>	Indicates that you should hold the CONTROL key down and press the key specified by the <i>x</i> . The server displays the key combination as <i>^x</i> .
/	This indicates related alternative commands or options. For example, SET/DEFINE PORT refers to the SET PORT and/or DEFINE PORT command(s).

---

# Introduction to DECserver 300 Problem Solving

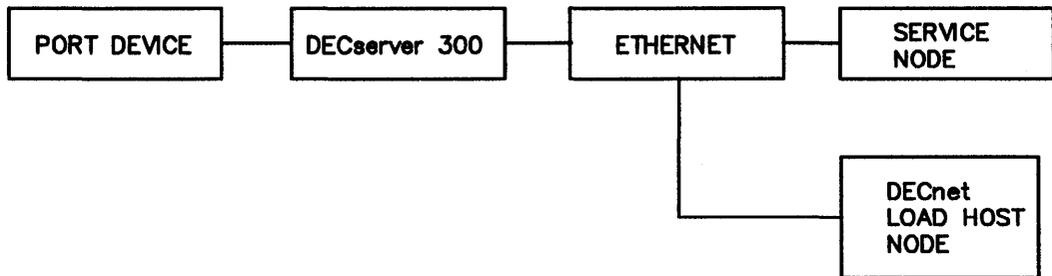
Problem solving, or troubleshooting, of the DECserver 300 unit involves isolating server problems from port device or network problems.

A problem can derive from a failure in one of the five network components shown in Figure 1-1. Each network component is broken down into its parts as shown in Figure 1-2. In Figure 1-2, hardware devices are represented by solid-line rectangles. Software is represented by rectangles outlined with dashed-line rectangles.

Some external components and parts are customer-replaceable, but most parts must be replaced by a qualified Digital Equipment Corporation service representative.

**Figure 1-1: Network Components**

---



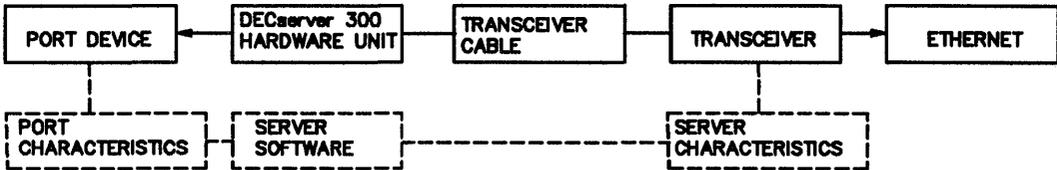
---

LKG-2690-89

**Figure 1-2: Composition of Network Components**



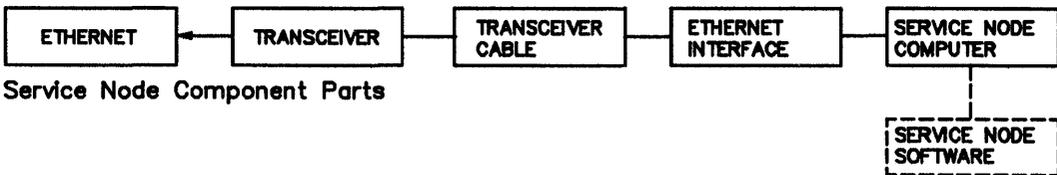
**Terminal Component Parts**



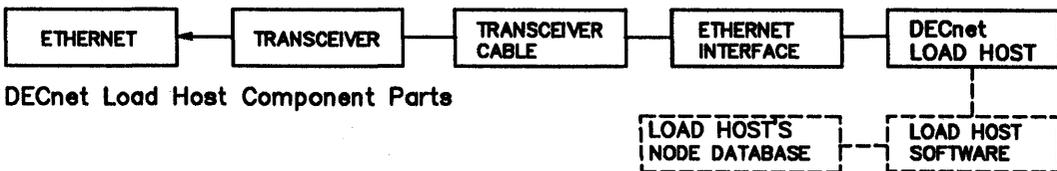
**DECserver 300 Component Ports**



**Ethernet Component Parts**



**Service Node Component Parts**



**DECnet Load Host Component Parts**

LKG-2691-89

---

## Troubleshooting Tools

This chapter describes some DECserver 300 terminal server features designed to help you in troubleshooting.

### 2.1 The Console Port

For the effective troubleshooting of problems involving server initialization or down-line loading, you should have a port set up as the console port. The port should have an interactive terminal connected to it. The console port terminal displays status messages that make troubleshooting easier. For installation of your DECserver 300 unit, the console terminal must be configured to operate with a speed of 9600 bits per second (bps) and a character size of 8 bits with no parity. After installation, you can use the `DEFINE/SET PORT` commands to set up the console port with other values for speed, character size, and parity. Port 1 is the default console port. Notice that the factory-set defaults establish port 1 as the console port. The *DECserver 300 Management* manual has more details about the console port.

### 2.2 The DECserver 300 Self-Test

The DECserver 300 diagnostic self-test performs a number of DECserver 300 hardware tests. Self-test executes whenever the DECserver initializes. You can initialize the server in a number of ways: (1) by powering up the server, (2) by executing the `INITIALIZE` command, (3) by executing a `NCP LOAD` or `TRIGGER` command on a DECnet load host, and (4) by pressing `CTRL/P` on the console port terminal if there was an error that prevented down-line loading during the most recent self-test.

The results of self-test are indicated on the server's seven-segment status and error display (refer to Section 2.3).

## **2.3 Types of Errors — Fatal and Non-Fatal**

A fatal error means that your DECserver 300 terminal server is defective and cannot be used until it is repaired at Digital Equipment Corporation Service Center.

A non-fatal error means that you can continue to use your server. The following are typical non-fatal errors that occur during self-test:

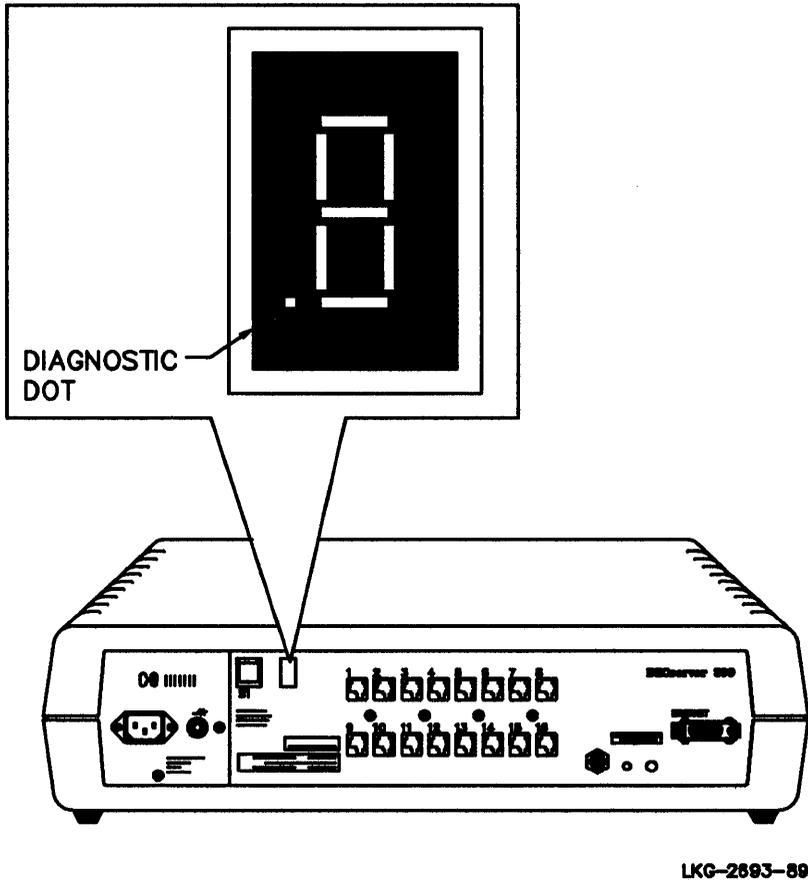
- One or more ports failed the server's self-test.
- The Ethernet external loopback test failed.

## **2.4 The Seven-Segment Status Display**

The DECserver 300 seven-segment status display is located on the control/indicator panel of the server unit (see Figure 2-1). The seven-segment status display is also referred to as the status display. The status display shows status and error codes that indicate whether the server is operating properly or whether it has failed. In case of failure, the error code helps you isolate the fault. Tables 2-1 and 2-2 describe the status and error codes. The status display also has a diagnostic dot which indicates whether hardware errors were encountered for the server during self-test. This dot also indicates the severity of a hardware error (see Section 2.4.1). A pattern also appears in the status display to indicate that the server software is running.

**Figure 2-1: DECserver 300 Seven-Segment Status Display**

---



The codes displayed by the status display fall into two general categories:

- Diagnostic status and error codes—these codes are displayed while the server self-test diagnostics are running.
- Server software status codes—these codes are displayed after successful completion of server diagnostics and initiation of the down-line load request for server software.

### 2.4.1 Diagnostic Status and Error Codes

The seven-segment status display indicates which test is running during self-test. Each test has a code (see Table 2-1). During self-test, the display counts down from code F through code 5, while each successive block of tests is carried out. If a fatal error occurs during self-test, self-test stops, and the code that corresponds to the failing test flashes off and on. An exception to this is that self-test stops when the Ethernet external loopback test fails. Although this is a non-fatal hardware error, self-test stops, code 9 flashes, and the diagnostic dot blinks in the status display.

After self-test, the diagnostic dot (See Table 2-1) indicates the following:

- If the diagnostic dot remains off after the self-test, there is a fatal hardware error.
- If the diagnostic dot is blinking, there is a non-fatal hardware error. For non-fatal hardware errors, an error message appears on a terminal attached to the console port (see Section 2.1).
- If the diagnostic dot is on and is not blinking, self-test did not detect any hardware errors.

A DSR/DTR error is an example of a non-fatal hardware error. With this error, the following activities occur:

- The diagnostic dot blinks.
- The console terminal displays an error message.

**Table 2–1: Self-Test Diagnostics Status and Error Codes**

<b>Seven–Segment Status Display</b>	<b>Indication</b>
<b>DIAGNOSTIC CODES</b>	
OFF	Indicates no power or a broken display.
F	Indicates that the bootstrap test is running; tests core RAM and basic CPU functionality.
E	Indicates that the RAM subsystem tests are running.
D	Indicates that the interrupt subsystem tests are running.
C	Indicates that the timer tests are running.
B	Indicates that the ROM subsystem tests are running.
A	Indicates that the Ethernet subsystem tests are running; tested in internal loopback.
9	Indicates that Ethernet subsystem tests are running; tested in external loopback.
7	Indicates that the asynchronous subsystem test is running; tested in internal loopback.
5	Indicates that the system exerciser test is running.
Diagnostic dot (.) is on.	Indicates that no errors were encountered during self-test.
Diagnostic dot (.) is blinking.	Indicates that one or more non-fatal errors were detected during self-test.
Diagnostic dot (.) is off.	Indicates that a fatal error was detected during self-test. The display flashes the code for the test encountering the fatal error.

## 2.4.2 Server Software Status Codes

The server's software status codes indicate one of the following activities:

- Requesting a down-line load
- Deferring a down-line load request
- Loading the server software
- Requesting an up-line dump of the server software
- Dumping the server software
- Running the server software

Table 2-2 shows the software status codes and explains what each code means. It also explains the pattern that appears in the display.

**Table 2-2: Server Software Status Codes**

Seven-Segment Status Display	Indication
<b>SOFTWARE STATUS CODES</b>	
4	Indicates that the server is requesting a down-line load of the server image.
3	Indicates that down-line load requests are deferred.
2	Indicates that the server image is being down-line loaded.
1	Indicates that the server is requesting an up-line dump of server memory.
0	Indicates that server memory is being dumped to a host computer.
Pattern*	Indicates that the software is running.

\*One segment in the display moves continuously to form a figure-of-eight pattern.

On power-up, the server turns on the seven segments in the status display (looks like an 8). These segments and the diagnostic dot appear for approximately 0.5 second. Then, self-test begins executing. During self-test, the display shows which test is currently running. After two minutes, you can determine if the server is running properly. If it is running properly, the server attempts to load the server software from the host and shows status code 4 in the status display. Once the server software is loaded and is running properly, the figure-of-eight pattern appears in the status display. If the server is not running properly, refer to Chapters 4 through 7.

## 2.5 DECserver 300 TEST Commands

The **TEST SERVICE** command lets you test the communications between a port on your DECserver and a service node that offers a service. The **TEST PORT** command lets you test a server port or port device. The **TEST LOOP** command lets you test communication between the server and any DECnet node. Refer to the *Terminal Server Commands and Messages* manual for details on using these commands.

### 2.5.1 The TEST SERVICE Command

The **TEST SERVICE** command establishes a special LAT session between the server port issuing the command and the service node and port you specify. You cannot use the **TEST SERVICE** command if Multisessions is enabled at the port where you are issuing the command.

Data is transmitted to the service node and is looped back for integrity checking by the server. The user then receives a status message.

Data can be looped back from the service node in one of three ways:

- By the service node at the protocol level
- By using internal loopback at the specified port
- By using an external loopback connector at the specified port

By default, a loopback is performed at the protocol level. The DECserver 300 hardware supports internal loopback and external loopback.

Some service nodes may not support internal loopback. The system displays an error message when you request a loopback type that is not supported by the remote node you specified.

External loopback requires that you place a loopback connector in the specified port on the specified node.

The TEST SERVICE command can be issued from a remote host by using the Remote Console feature.

#### NOTE

The TEST SERVICE command does not apply to all terminal server products. See the *Software Product Description* (SPD) for the server you are trying to test.

### 2.5.2 The TEST PORT Command

The TEST PORT command sends a stream of data to the internal port hardware, the external port hardware, or to the port device. When you specify that the data be sent to the internal or external port hardware, the data is looped back, and the DECserver sends a status message to the port where TEST PORT was issued. (You must use a DECserver port loopback connector for the external test.)

When you specify that the data be sent to the port device, the data appears as output on the device itself. The user examines the data for errors.

#### NOTE

If you do not specify a value for the COUNT option in the TEST PORT command, the default count is in effect, and 23 lines are displayed. You can stop the test by pressing **BREAK** or the local switch character.

With the Remote Console Facility (RCF), you can stop the test using the local switch character.

### 2.5.3 The TEST LOOP Command

The TEST LOOP command tests communication between a server and a DECnet node.

If an Ethernet component is not working normally, the test displays, at your terminal, one or more error messages indicating the fault. See the DECnet documentation of the DECnet node for a list and explanation of all the error messages generated by the loopback tests.

You can also run circuit-level loop-assist tests to check more complex problems with Ethernet circuits. Loop-assist tests loop data between a source node and a destination node on the Ethernet; the tests use a third node on the Ethernet to relay the data.

This third node is called an assistant node; it is physically located between the source and the destination nodes. You can use the assistant node in three ways:

- The assistant node relays the test data on the way to the destination node (transmit assist).
- The assistant node relays the test data on the way back from the destination node (receive assist).
- The assistant node relays the test data both on the way to and from the destination node (full assist).



---

## What to Do First

This chapter presents the first troubleshooting procedures to follow when you discover a problem with your DECserver 300 system. This chapter then refers you to a troubleshooting procedure. First, determine whether or not the problem affects all ports.

When the problem involves all the ports:

1. If the seven-segment status display is off, go to Section 4.1.
2. If fatal bugcheck message 913 appears on the console terminal, stop and refer to Section 4.7. When a condition generates error message 913, the server automatically initializes.
3. If interactive users can enter server commands, have them finish their active sessions and then log out from the server. If users cannot enter commands at their port devices, go to step 4.
4. Power up the DECserver 300 unit by unplugging and replugging the server power cord. The server executes a self-test. After approximately two minutes, the diagnostic dot stays off, blinks, or goes on.
  - a. If the diagnostic dot stays off, see Section 4.2.
  - b. If the diagnostic dot blinks, see Section 4.3.
  - c. If the diagnostic dot stays on, refer to Sections 4.4, 4.5, and 4.7 unless code 3 appears in the status display. If status code 3 appears, go to Section 4.6.

5. If the problem does not affect all ports but affects an individual port, see Chapter 5.
6. If a problem is evident from an error message on a terminal, check the error message in the *Terminal Server Commands and Messages* manual.

---

## Problems on All Ports

You should read Chapter 3, “What to Do First,” before you read this chapter. This chapter describes what to do after initialization when you have problems on all ports.

### 4.1 Status Display Is Off — No DC Voltage

**Problem** Power is not reaching the DECserver.

**Correction:** Check that the voltage selection switch is set appropriately. If this switch is set incorrectly for the voltage used in your country, your server might be damaged.

**Correction:** Secure the power cable at the server and at the wall outlet.

**Correction:** Check the wall outlet using another electrical device, or plug the server into another outlet. If you have fuses for your wall outlet or power cord, check these fuses.

**Correction:** Ensure that the voltage select switch is properly set. The correct level for North America is 120V; for most other countries, 240V is the correct voltage level. At installation, the control/indicator panel has a label covering the proper voltage setting. Peel off the label and set the select switch to the appropriate voltage. For more detailed instructions, refer to the *DECserver 300 Hardware Installation* manual for the correct setting.

**Correction:** Check the circuit breaker on the rear of the server. If the white center button of the circuit breaker pops out, a voltage overload has occurred. Unplug the power cord to power off the unit. Then, reset the circuit breaker by pressing in the white button on the back of the server. Finally, plug the power cord in to power-up the unit. If the circuit breaker trips more than once, you must return the server to Digital Equipment Corporation for replacement.

**Correction:** Check for a defective server power cord. You can use the power cord from a Digital Equipment Corporation terminal as a temporary replacement.

**Problem** The DECserver 300 hardware unit is defective.

**Correction:** Contact your local Digital Equipment Corporation sales office for service or replacement. See Chapter 8.

## 4.2 Diagnostic Dot Is Off — Fatal Error or Test in Progress

If the diagnostic dot remains off for longer than two minutes after self-test begins, there is a fatal hardware error. Contact your local Digital Equipment Corporation sales office for service or replacement. See Chapter 8.

## 4.3 Diagnostic Dot Blinking (Non-Fatal Error)

If the diagnostic dot blinks after self-test execution, the server has detected a non-fatal hardware error during self-test. The primary indication is a message that appears on the console terminal port, port 1 by default. Refer to Section 2.1 for information about setting up the console terminal.

The following sections list the error messages that coincide with the blinking of the diagnostic dot. Each error message or set of error messages is followed by one or more probable problems and corrective actions.

### 4.3.1 Error Messages 920 and 921

Local -920- Parameter checksum error on port(s) *n*

Local -921- Factory-set parameters will be applied to port(s) *n*

**Problem** The permanent characteristics for the indicated port do not pass the internal checksum test. The factory-set defaults will be applied when the server image is down-line loaded.

**Correction:** Enter the DEFINE PORT command to reset the server characteristics to values of your choice. Then reinitialize the server again using the INITIALIZE command.

**Correction:** Reset the server characteristics using the software reset switch (S1) on the back of the server. First, unplug the server power cord. Then, press and hold the reset switch in while you reinsert the server power cord. Continue to hold the reset switch in for one second after power up.

Resetting S1 causes the factory-set port characteristics to be reloaded into the server permanent database. If resetting S1 fails to correct the problem, the server memory that stores the server characteristics is faulty. Return the server to Digital Equipment Corporation for repair or for replacement. See Chapter 8.

### 4.3.2 Error Message 922 and 923

Local -922- Port hardware error on port(s) *n*

Local -923- Port(s) *n* will be disabled

**Problem** These messages indicate a port hardware error.

**Correction:** There is no corrective procedure for this condition. Only the identified port is disabled. The other ports on your server remain functional when this error occurs on a port. Contact your local Digital Equipment Corporation sales office for service or replacement. See Chapter 8.

### 4.3.3 Error Messages 930 and 931

Local -930- Server parameters checksum error

Local -931- Factory-set server parameters will be applied

**Problem** The server characteristics in the permanent database are corrupted. The factory-set defaults will be applied when the server image is down-line loaded.

**Correction:** Enter the DEFINE SERVER command to reset the server characteristics to values of your choice. Then reinitialize the server with the INITIALIZE command.

**Correction:** Reset the server characteristics using the software reset switch (S1) on the back of the server. First, unplug the server power cord. Then, press and hold the reset switch in while you reinsert the server's power cord. Continue to hold the reset switch in for one second after power up. If this action fails to correct the problem, the memory used to store the characteristics is faulty. Return the server to Digital Equipment Corporation for repair or for replacement. See Chapter 8.

### 4.3.4 Error Messages 935 and 936

Local -935- Service characteristics checksum error

Local -936- Service will be disabled

**Problem** The service characteristics in the permanent database are not operational. The factory-set defaults are operating.

**Correction:** Enter the DEFINE SERVICE command to reset the service characteristics to values of your choice. Then reinitialize the server again using the INITIALIZE command.

**Correction:** Reset the service characteristics using the software reset switch (S1) on the back of the server. First, unplug the server power cord. Then, press and hold the reset switch while you reinsert the server power cord. If this action fails to correct the problem, the memory used to store the characteristics is faulty. Return the server to Digital Equipment Corporation for repair or for replacement. See Chapter 8.

### 4.3.5 Error Messages 925 and 926

Local -926- DSR/DTR hardware error on port(s) *n*  
Local -925- Port(s) *n* may be used with data leads only

**Problem** These messages appear together. They indicate a hardware error with the DSR/DTR circuitry for a particular port. The ports can be used only with data leads.

**Correction:** There is no corrective action for this condition. Return the server to Digial Equipment Corporation for repair or for replacement.

### 4.3.6 Error Messages 941, 942, 950, and 952 — Code 9 on Status Display

The following error messages indicate an Ethernet external loopback error. This error is also indicated by code 9 in the status display. An Ethernet loopback error usually indicates that the server is not connected properly to its transceiver. These messages may also indicate that the transceiver is faulty.

Local -941- Transceiver loopback error  
Local -942- Image load not attempted  
Local -950- Troubleshooting procedures should be followed  
Local -952 - Enter ^P to restart self-test

**Problem** The incorrect Ethernet port has been selected for the Ethernet loopback test.

**Correction:** If you are using the Standard Ethernet cable, ensure that the Ethernet port selector switch is in the OUT position. If you are using the ThinWire Ethernet cable, ensure that the selector switch is pushed IN and that the ThinWire Ethernet LED is on. If the Ethernet port selector switch is pushed IN and the Thinwire LED is not illuminated, contact your local Digital Equipment Corporation sales office for service or replacement.

**Problem** In standard ThickWire Ethernet mode, there is a problem in the transceiver cabling between the server and the coaxial cable.

**Correction:** Check the transceiver cable that runs from the server to the transceiver, to the DELNI, or to the Etherjack. Ensure that there is a secure connection at both ends of the cable. Check the cable for damage. If the cable is damaged, replace the cable.

**Correction:** Disconnect the server from the transceiver cable. Attach a 12-22196-02 Standard Ethernet loopback (not supplied with server) to the Standard Ethernet port. Then, perform the following procedure:

1. Initialize the server by pressing **CTRL/P** on your console terminal, or by unplugging and reinserting the DECserver power cord.
2. Wait 20 seconds for self-diagnostic test to complete, then observe the status of the diagnostic dot:
  - a. If the diagnostic dot continues to blink and the error messages reappear after the self-test, the server is faulty. Return the server to Digital Equipment Corporation for repair or for replacement.
  - b. If the diagnostic dot stays on without blinking, go to step 3 to isolate and to determine the faulty unit.
3. Unplug the Ethernet loopback connector from the Ethernet connector on the server.
4. Reconnect the transceiver cable to the Ethernet connector on the server.
5. Disconnect the other end of the transceiver cable from the DELNI, from the Etherjack, or from the transceiver on the Ethernet coaxial cable.
6. Plug the Ethernet loopback connector into the transceiver cable.
7. Initialize the server by pressing **CTRL/P** on the console terminal, or by unplugging and reinserting the DECserver power cord. Wait 20 seconds for the self-test to complete.
  - a. If the diagnostic dot continues to blink and the error messages reappear after self-test, the transceiver cable is faulty.

- b. If the diagnostic dot stays on without blinking, there is a problem with the DELNI, the Etherjack, or the Ethernet transceiver.

**Problem**

In Thinwire Ethernet mode, there is a problem in the on-board transceiver, the Thinwire cabling, or the Thinwire termination.

**Correction:** Correct this problem with the following procedure:

1. Disconnect the Ethernet cables from the server. Notice that this disrupts Ethernet traffic if the cables are connected to a ThinWire segment.
2. Attach a T connector and two terminators (supplied with the server) to the ThinWire Ethernet port.
3. Select the ThinWire port by pushing in the selector switch, and ensure that the ThinWire LED is illuminated.
4. Initialize the server by pressing CTRL/P on your console terminal, or by unplugging and reinserting the DECserver power cord.
5. Wait 20 seconds for self-diagnostic test to complete, then observe the status of the diagnostic dot:
  - a. If the diagnostic dot continues to blink and the error messages reappear after the self-test, the server is faulty. Return the server to Digital Equipment Corporation for repair or for replacement.
  - b. If the diagnostic dot stays on without blinking, there is a problem with the ThinWire cabling or the ThinWire termination.

## 4.4 Insufficient Memory Resources

The server has a limited pool of memory, and with large networks or many port sessions, it is possible to exhaust this memory. When server memory is exhausted, the server's database cannot hold additional information. Refer to the *DECserver 300 Management* manual for a discussion about memory management.

**Problem** The server cannot store any more information about service nodes.

**Or** The server cannot complete a host-initiated request or create queue entries for host-initiated requests.

In order to determine the corrective action for this problem, you need to look at the Resource Errors in the SHOW SERVER STATUS display. Resource Errors indicate the number of times an internal data structure could not be created due to the lack of system memory. If Resource Errors is incrementing, server memory is full. Refer to the following corrections if the Resource Errors is incrementing in the display:

**Correction:** Adjust groups to restrict the least-used nodes from being stored in the server's database.

**Correction:** Check that the voltage selection switch is set appropriately. If this switch is set incorrectly for the voltage used in your country, your server might be damaged.

**Correction:** Restrict memory usage by adjusting the server's node, session, and queue limits.

**Correction:** After adjusting groups and the node, session, and queue limits, free up additional memory space by purging some service nodes from server memory. The server's node purge mechanism allows you to do this (see the *DECserver 300 Management* manual).

**Correction:** Find the port sessions that have the status Disconnecting or Disconnected in SHOW SESSIONS. Disconnect these sessions at the port and then log out the same ports provided they have no other sessions.

## 4.5 No Console Messages

The console port terminal has no display when the server initializes.

**Problem** The port to which the terminal is physically connected is not defined as the console port.

**Correction:** Refer to the *DECserver 300 Management* manual for information on setting up a console port. Check the setup by entering the `SHOW SERVER CHARACTERISTICS` command to list the console port. Ensure that the device is physically connected to that port on the server unit.

**Problem** The console terminal is faulty.

**Correction:** Refer to Chapter 5 for troubleshooting procedures for individual port devices.

**Problem** The internal characteristics for the console port terminal and for the console port are not compatible.

**Correction:** Refer to Chapter 5 for troubleshooting procedures for individual ports.

### Note

For DECserver 300 installation, the console terminal must operate at 9600 bps, and the character size must be 8 bits, no parity. After installation, use the `DEFINE/SET PORT` commands to set the console port with values for speed, character size, and parity.

## 4.6 Down-Line Loading Problems — Code 3 on the Status Display

Code number 3 on the status display indicates a failure to load the server image after several attempts.

Two sequences of 900 series message on the console terminal indicate down-line loading problems. Each is covered in the following sections.

### Note

Have event logging enabled for events 0.3 and 0.7 on all DECnet load hosts that may be down-line loading the server. Refer to the DECnet load host documentation for information about event logging, or see the system manager for the DECnet load host.

### 4.6.1 Down-Line Load Starts, Then Fails

The following sequence of messages appears on the console terminal at regular intervals:

```
Local -953- Attempting to locate load host [frame-format]
Local -955- Host host-address located [frame-format]
Local -956- Requesting load from host host-address
Local -912- Load failure, timeout
```

**Problem** The directory with the software image on the load host is not defined. This problem relates to VMS hosts only. For example, on a load host running VMS, the logical symbol MOM\$LOAD that must point to the DECserver load directory is not defined.

**Correction:** On VMS systems, the logical symbol MOM\$LOAD must be defined so that it points to SYSSYS-ROOT:[DECSERVER], the location of the server image file. Issue the following command to see if MOM\$LOAD is defined to point to SYSSYSROOT:[DECSERVER].

```
$ SHOW LOGICAL MOM$LOAD
```

If SYSSYSROOT:[DECSEVER] is not defined for MOM\$LOAD, then have the system manager enter the following statement in the system startup file on the load host, and then execute the command. Here, *current-search-string* is any other equivalence string(s) defined for MOM\$LOAD, if any.

```
$ DEFINE/SYSTEM/EXEC/NAME_ATTRIBUTE=NOALIAS/NOLOG -  
_ $ MOM$LOAD "current-search-string", SYSSYSROOT: [DECSEVER]
```

**Problem** The server has been incorrectly configured on the load host, or the server distribution software has been improperly installed.

**Correction:** Perform the procedures outlined in Section 4.6.2.

**Problem** The server characteristic SOFTWARE has been changed. The new file name for the server software image is not defined on the load host.

**Correction:** The server SOFTWARE characteristic should be defined as SH1601ENG. The *DECserver 300 Management* manual explains how to reset SOFTWARE to SH1601ENG. The load host system manager can ensure that the file name on the load host is correct. For example, the file specification for the server software on a VMS load host should be MOM\$LOAD:SH1601ENG.SYS.

**Problem** The transceiver unit or transceiver Ethernet tap is faulty.

**Correction:** Remove and reinstall the transceiver in a new location. Initialize by pressing **CTRL/P** on the console terminal, or by unplugging and reinserting the DECserver power cord. If the diagnostic dot stays on and is not blinking, the new Ethernet tap is working, and the DECserver 300 unit will function properly. If the error messages persist, the transceiver is probably faulty. Replace the transceiver.

## 4.6.2 Down-Line Load Does Not Start

The following message appears on the console terminal:

```
Local -953- Attempting to locate load host [frame-format]
Local -951- DECserver will retry operation in n seconds
```

**Problem** The load host does not contain a node database entry for the server, or the load host does not contain the proper node information.

**Correction:** Verify that:

- The load host contains a node entry for the server.
- All information pertaining to down-line loading is correct.

For a VMS load host, do the following:

1. Execute the command file DSVCONFIG.COM in the directory with the logical name SYSSYSROOT:[DECSERVER]. This is the procedure used to configure a DECserver 300 unit in the load host database.
2. Enter number 1 in the menu of options. This option displays the DECnet address, the DECnet node name, the Ethernet address, and the up-line dump file for the server. For example:

DECnet Address	DECnet Name	Server Type	Service Circuit	Ethernet Address	Load File	Dump File
55.126	LAT004	DS300	UNA-0	08-00-2B-02-24-43	SH1601ENG.SYS	DS3LAT004.DMP

If this information is wrong, run DSVCONFIG.COM and choose items 2, 3, or 4 from the menu of options.

3. Enter the following NCP command using the DECnet node name of the server. This command lists the server characteristics that are stored in the load host database.

```
NCP> SHOW NODE LAT004 CHARACTERISTICS
```

The following is an example of display information generated by this command:

```
Node Volatile Characteristics as of 2-JUL-1989 16:40:53
Remote node = (LAT004)
Service circuit = UNA-0
Hardware address = 08-00-2B-02-24-43
Load file = SYS$SYSROOT:[DECSERVER]SH160LENG.SYS
Dump file = SYS$SYSROOT:[DECSERVER]DS3LAT004.DMP
```

If the information in step 3 is entered completely and accurately, the server is configured properly on the load host. If not, the system manager can use DSVCONFIG.COM.

**Problem** The directory with the software image on the load host is not defined. This problem relates to VMS hosts only. For example, on a load host running VMS, the logical symbol MOM\$LOAD that must point to the DECserver load directory is not defined.

**Correction:** On VMS systems, the logical symbol MOM\$LOAD must be defined so that it points to SYS\$SYSROOT:[DECSERVER], the location of the DECserver image file. Issue the following command to see if MOM\$LOAD is defined to point to SYS\$SYSROOT:[DECSERVER].

```
$ SHOW LOGICAL MOM$LOAD
```

If SYS\$SYSROOT:[DECSERVER] is not defined for MOM\$LOAD, then have the system manager enter the following statement in the system startup file on the load host, and then execute the command. Here, *current-search-string* is any other equivalence string(s) defined for MOM\$LOAD, if any.

```
$ DEFINE/SYSTEM/EXEC/NAME_ATTRIBUTE=NOALIAS/NOLOG -
$_MOM$LOAD "current-search-string", SYS$SYSROOT:[DECSERVER]
```

**Problem** The DECnet load host for the server is not available.

**Correction:** Ensure that the DECnet load host is available on the network. Ensure that the load host has the network properly defined and that the state of the Ethernet circuit is ON. Use the load host Network Control Program (NCP), as documented in the load host DECnet documentation, to verify that:

- The network is up.
- The Ethernet connection is on.
- Service is enabled on the service circuit.

The following is an example of the NCP commands needed to perform these checks and the NCP output:

```
NCP> SHOW EXECUTOR STATUS
Node Volatile Status as of 19-JUL-89 13:12:00
Executor node = 5.0(BOSTON)
State          = on
Physical address = AA-00-04-00-06-10
NCP> SHOW ACTIVE LINES STATUS
Active Line Volatile Status as of 19-JUL-89 13:12:15
Line          State
UNA-0         on
NCP> SHOW ACTIVE CIRCUITS STATUS
Active Circuit Volatile Status as of 19-JUL-89 13:12:25
Circuit      State      Loopback      Adjacent      Block
Name         Node         Size
UNA-0        on                               4.37(LAB01)   576
```

```
NCP> SHOW ACTIVE CIRCUIT CHARACTERISTICS
```

```
Active Circuit Volatile Characteristics as of 19-JUL-89  
13:13:02
```

```
Circuit = UNA-0
```

```
State                = on  
Service              = enabled  
Designated router    = 4.1 (TWO)  
Cost                 = 3  
Router priority      = 16  
Hello timer          = 15  
Type                 = Ethernet  
Adjacent node        = 4.1 (TWO)  
Listen timer         = 45
```

**Problem** The server load host is not on the same Ethernet as the DECserver 300.

**Correction:** The network manager must assign a node on the same Ethernet as the server to be a load host for the DECserver 300 unit. Have the system manager on the load host add the server to the load host database by running the DSVCONFIG procedure.

**Correction:** Reconfigure the network to ensure that the load host is on the same physical Ethernet as the server.

**Problem** Transmissions between the DECserver 300 unit and the load host fail due to Ethernet problems.

**Correction:** Have the system manager of a DECnet Phase IV node execute the NCP LOOP CIRCUIT command, specifying the DECserver 300 unit as the specified node. The NCP facility shows the results of the loopback test at the DECnet node.

## 4.7 Message Number 913 Appears

If message number 913 appears on the console port terminal, it means that the server hardware detected an internal fatal error, called a fatal bugcheck.

A software problem, or bug, is likely to cause only intermittent fatal bugchecks of the server software. Your unit may operate again for a period of time, then fail again. If there is more than one server on the Ethernet, the problem may affect all the units.

If the fatal error was a hardware error, the problem is probably isolated to one server. The hardware problem may be intermittent and only affect the unit occasionally.

After a fatal bugcheck, the server automatically executes its self-test and requests a down-line load of the server software. If the diagnostic dot is off or blinking after the self-test, see Section 2.3. Notice that after a fatal bugcheck, the server attempts to up-line dump the server software if the server's DUMP characteristic is set up as enabled.

**Problem** A fatal hardware error has been detected.

**Correction:** There is no corrective procedure for this problem. If the failures happen often enough to be disruptive, return the unit to Digital Equipment Corporation and install a replacement. Record the values for the five parameters in the 913 error message. Forward this information and the server up-line dump file to Digital Equipment Corporation (see Chapter 8). Up-line dumping after a fatal bugcheck is discussed below.

If the replacement unit works, a hardware error probably caused the first unit to crash.

Two nonstandard self-tests can help you confirm a hardware failure in the original unit. If you can enter commands at a port, execute these tests by issuing the following INITIALIZE commands:

```
INITIALIZE DIAGNOSE FULL
```

```
INITIALIZE DIAGNOSE FULL COUNT number
```

The *Terminal Server Commands and Messages* manual has the complete command description for the INITIALIZE command.

Use the first command to check for a hardware error that causes a crash each time you use the server (nonintermittent error). Use the second to check for intermittent errors. The diagnostic dot indicates the result in the same manner as it does for the standard self-test.

The self-test for the first command takes about 20 seconds. The time required for the self-test generated by the second command depends on the value you specify for *number*. When you increase *number* by 1, you add about 20 seconds to the length of the test. For example, a value of 180 for *number* generates a test that lasts about 1 hour.

**Problem** A fatal software error is detected. The diagnostic dot stays off after the automatic self-test execution.

**Correction:** There is no correction for this problem. Record the values for the five parameters in the error message. Send this data in a software performance report (SPR), and the dump file to Digital Equipment Corporation. See Chapter 8.

After a fatal bugcheck, the server attempts an up-line dump of its memory to a load host on the Ethernet. The server reinitializes and loads the server image. If there are several load hosts defined, the address of the one accepting the up-line dump can be determined using the SHOW SERVER STATUS command. The Ethernet address of the dump host appears in the display along with the crash information from the fatal bugcheck message. Normally, the dump is directed to the host that loaded the server image.

The file name of the dump file on the host is:

DS3nnnnnn.DMP

Here *nnnnnn* is the DECnet name for the DECserver 300 unit on the load host. For example, a DECserver 300 unit with a DECnet name of LAT004 generates a dump file at SYS\$SYSROOT:[DECSERVER]DS3LAT004.DMP on a VMS host.

If error message 914 appears on the console port terminal more than four times, the up-line dump is not successful. There may be Ethernet transmission problems inhibiting transmissions between the server and the load host. Refer to Chapter 7.

## **4.8 Server Port or Port Device Hardware Problems**

If you have only a few devices attached to a DECserver, individual port or port device problems may appear to be a single problem affecting all ports. If the problems in Sections 4.1 to 4.7 do not apply, troubleshooting is isolated to the port devices or the server port hardware.

Follow the troubleshooting procedures for individual port devices as detailed in Chapter 5. If you solve the problem, repeat the procedure for all the devices.

---

## Problems with Individual Port Devices

This chapter discusses troubleshooting for problems that appear to affect individual DECserver 300 ports or port devices.

### 5.1 Check These Things First

When you have a problem with any kind of port device, first check the items in NO TAG. If necessary, take the corrective actions specified in the table. If the problem persists, go to the section that addresses your problem.

**Table 5–1: Port Device Problem — Check These Things First**

---

Device power	Check the power indicator for the port device. If it is off, do the following: (1) be sure the terminal is plugged into an active outlet, (2) check that the power switch is on, (3) if the device has a fuse, replace it; if the device has a circuit breaker, reset it. If the power indicator stays off for more than one minute, assume that the device is faulty.
Device cable	<p>Be sure the device cable is secure on the server port and on the port device. If the cable is spliced, be sure all junctions are secure.</p> <p>Check all device cable connections at couplers, at adapters, and at the cable concentrator (harmonica). The <i>DECserver 300 Hardware Installation</i> manual shows you where these auxiliary devices are typically located between the port device and the port.</p> <p>Inspect the cable for cuts and/or crimps. Use another cable.</p> <p>Be sure not to exceed the maximum allowable length for the cable you are using. Refer to the <i>DECserver 300 Hardware Installation</i> manual for your DECserver 300 unit.</p>

**Table 5-2: Port Device Problem – Check These Things First**

---

Speed for port and port device match

Match the device speed to the port speed stored in the server and port device database. You can set the device speed to the port speed, or you can modify the port speed to match the device speed. DECserver 300 units support the following speeds: 75, 110, 134, 150, 300, 600, 1200, 1800, 2000, 2400, 4800, 9600, and 19,200 bps. If your device does not offer one of these baud rates, you cannot use the device with a DECserver 300 unit.

If you intend to use the autobaud feature with the device, the input and the output speeds of the device must match. See the *DECserver 300 Management* manual. However, the DECserver 300 unit does offer split-speed operation. When using split-speed, you must match the input speed of the device with the output speed of the server port. The output speed of the device must match the input speed of the server port.

Character size

Match the device parity and the character size to the values for and parity for the port in the server database. You can set the device parity and the character size to match the character size and parity in the server database. Alternatively, you can modify the database to match the device character size and parity.

The server supports devices with odd, even, mark, and no parity. It supports character sizes of 7 and 8 bits. If your device does not offer these options, you will not be able to use the device with a DECserver 300 unit.

If you use the autobaud feature (see the *DECserver 300 Management* manual), the parity and the character size settings of the device must be one of the following:

- 8 bits and no parity
- 7 bits and even parity

If your device does not offer these parameters, you cannot use autobaud. You must set speed, character size, and parity for the port to match those for the port device.

---

## 5.2 An Interactive Terminal Is Not Working

An interactive terminal can be a terminal with a video monitor (CRT) and keyboard, a printer with a keyboard, or a personal computer in terminal emulation mode. If a user has a problem with a terminal, FIRST carry out the checks described in NO TAG. If the problem persists, find the problem in the following problem and correction discussions.

**Problem** There is no video display, and the terminal is nonresponsive.

**Or** A working terminal no longer responds.

**Correction:** At a working port, enter the SHOW PORT CHARACTERISTICS command for the port where the problem device is attached. See if the problem port is set up for autobaud operation. If the device parameters are not properly set, the server will not allow autobaud operation. If using autobaud, the port device must be set in one of the following configurations:

- A character size of 8 bits, no parity or a character size of 7 bits, even parity
- An input and output speed set to: 75, 110, 134, 150, 300, 600, 1200, 1800, 2000, 2400, 4800, 9600, or 19200 bps

**Correction:** If a port has a dedicated service and the service is not available, the attached device will appear not to respond. Use another port to verify if a dedicated service is set up for the problem port. If a service is set up, verify that the service is available. If the service is available, verify that the problem port and the service have a common service group.

**Correction:** At a privileged port, enter the SHOW PORT *n* STATUS command for the port with the problem. Check the XOFFED status field in the display. If this field says YES, the server port has XOFFED communications. The *DECserver 300 Management* manual has more information about this field. Try a “clear comm” on the device, or log out twice at a privileged port (the second log out bypasses any flow problems).

**Correction:** See if the port hardware is faulty. Plug the port loopback connector supplied with your hardware unit into the port connector on the control/indicator panel. From another terminal, enter the TEST PORT LOOPBACK EXTERNAL command using the faulty port number. You must disconnect the terminal to install the loopback connector.

You can also specify an internal loopback to check the internal port hardware. Use the TEST PORT LOOPBACK INTERNAL command.

#### **Note**

When you use the TEST PORT command for loopbacks, the input and the output speeds for the port must be the same. Be sure you also use the H3103 port loopback connector.

Check the error counters when the test is completed. If the error counters are nonzero for either loopback option, the port is faulty. Return the DECserver 300 unit to Digital Equipment Corporation (see Chapter 8.).

If you do not specify a value for the COUNT option in the TEST PORT command, the default count is in effect, and 23 lines are displayed.

You can stop the test by pressing **BREAK** or the local switch character. With the Remote Console Facility (RCF), you can stop the test using the local switch character.

**Correction:** Make sure that the ACCESS characteristic for the problem port is set up as LOCAL or DYNAMIC. (Use the SHOW PORTS CHARACTERISTICS display for the problem port to check this.) If the port has dynamic access, set the INTERRUPTS characteristic to ENABLED.

With ACCESS LOCAL, the terminal user can always use the terminal interactively. With ACCESS DYNAMIC and INTERRUPTS ENABLED, the user can stop a remote session and then use the terminal interactively. With ACCESS set up as REMOTE or NONE, the terminal does not respond to user input.

**Problem** Nonsense characters appear.

**Correction:** At a working port, enter the `SHOW PORT CHARACTERISTICS` command for the port where the problem device is attached. See if the problem port is set for autobaud operation. If the device parameters are not properly set, the server will not allow autobaud operation. If using autobaud, the port device must be set in one of the following configurations:

- A character size of 8 bits, no parity or character size 7 bits, even parity
- An input and output speed set to: 75, 110, 134, 150, 300, 600, 1200, 1800, 2000, 2400, 4800, 9600, or 19,200 bps

**Correction:** See if the port hardware is faulty. Plug the port loopback connector supplied with your hardware unit into the port connector on the control/indicator panel. From another terminal, enter the `TEST PORT LOOPBACK EXTERNAL` command using the faulty port number. You must disconnect the terminal to install the loopback connector.

You can also specify an internal loopback to check the internal port hardware. Use the `TEST PORT LOOPBACK INTERNAL` command.

#### **Note**

When you use the `TEST PORT` command for loopbacks, the input and the output speeds for the port must be the same. Be sure you also use the H3103 port loopback connector.

Check the error counters when the test is completed. If the error counters are nonzero for either loopback option, the port is faulty. Return the DECserver 300 unit to Digital Equipment Corporation (see Chapter 8.).

If you do not specify a value for the `COUNT` option in the `TEST PORT` command, the default count is in effect, and 23 lines are displayed.

You can stop the test by pressing **BREAK** or the local switch character. With the Remote Console Facility (RCF), you can stop the test using the local switch character.

**Problem** Not all characters are displayed or printed.

**Correction:** Enable flow control for the port. This ensures that characters are not lost because of insufficient buffer space at the server port or port device. You can set up the XON/XOFF characters as flow control characters. You can also specify that the DSR/DTR signals implement flow control (you need to enable the DSR flow control characteristic for the port). Use the FLOW CONTROL options for the SET PORT and the DEFINE PORT commands as explained in the *Terminal Server Commands and Messages* manual. Be sure that the flow control characters or signals you choose for the DECserver port are also enabled on the terminal. Refer to the terminal operator's guide.

Use the SHOW/MONITOR PORT *n* CHARACTERISTICS command to display the values currently set for flow control. The SHOW/MONITOR PORT *n* STATUS command displays the operating condition of the port, including the XOFF status and DSR signals being asserted or read by the server.

**Problem** The terminal is nonoperational.

**Correction:** Switch the terminal to off-line mode (refer to the operator's manual). If the problem persists when you enter characters, the terminal is probably faulty. Verify the operation of the terminal at another location. Use the same device characteristics when verifying the operation.

**Correction:** Verify that the users' ports have group access to the service. Check both AUTHORIZED GROUPS and GROUPS. At least one group on the users' ports should match the service groups of the destination service node.

**Correction:** Verify that a port offering the service is available. Specify the service name in a SHOW SERVICE command on the user's server, and examine the service rating. If it is zero, all ports offering the service are in use.

**Correction:** You can use the `TEST SERVICE` command to test communication between the server port and the service node offering the requested service. See Section 2.4.1. (You cannot use the `TEST SERVICE` command if `Multisessions` is enabled at the port where you are issuing the command.) You can specify the node and the port where the service is offered in the `TEST SERVICE` command. Whatever form of the command you use, the DECserver displays the results of the test at the privileged port.

Specify `LOOPBACK INTERNAL` with `TEST SERVICE` to have the data looped back to your server from the internal hardware at the port you specify (or at the port the server chooses if you do not specify one).

### 5.3 A PC File Transfer Fails

A user can operate a personal computer (PC) as a DECserver 300 port device. The user can transfer files to and from service nodes or to and from remote PCs that are attached locally to service nodes.

Successful file transfers between a port user's PC and a service node depend on the LAT software running on the service node.

Service node software that supports data transparency for file transfers is included with VMS V5.0 operating systems and with certain other operating systems. Ask your service node system manager which systems have data transparency support.

**Problem**      The file transfer fails. A VMS service node with data transparency support does not automatically enable data transparency for the file transfer.

**Correction:** Use the `CONNECT` command to start a session with the service node. Enter `SET SESSION PASSALL` or `SET SESSION PASTHRU` in local mode. Use `PASSALL` for binary file transfers, `PASTHRU` for ASCII file transfers. `RESUME` the session and restart the file transfer using the service node file transfer utility.

**Problem** A file transfer fails with a service node that does not have data transparency support.

**OR** A file transfer fails with a PC attached locally to a service node.

**Correction:** In local mode, enter SET SESSION PASSALL or SET SESSION PASTHRU. Use PASSALL for binary file transfers, PASTHRU for ASCII file transfers. RESUME the session and restart the file transfer using the file transfer utility of the service node or of the remote PC.

**Correction:** Refer to the service node or to the remote PC documentation for information on setting characteristics for file transfers. For example, on a VMS service node, use the following command to set the characteristics. (The command example shown is in continuation format.)

```
$ SET TERMINAL /PASSALL/NOHOSTSYNC/NOTTSYNC/NOBROADCAST -  
_ $ /EIGHTBIT/NOWRAP
```

## 5.4 A Line Printer Fails at a Remote-Access Port

A line printer is a port device attached to a remote-access port. A problem in one of the following areas can cause VMS-initiated printing jobs to fail:

- The printer is set up incorrectly on the VMS service node.
- The printer is set up incorrectly on your DECserver 300 unit.
- The printer device or its server port is malfunctioning.

The LAT/VMS documentation that comes with your operating system tells the system manager how to address printer problems at the service node. Section 4.7 discusses problems involving the printer device and its port. The following material discusses problems related to setting up the printer on your DECserver 300 unit.

**Problem** VMS-initiated PRINT tasks do not execute on the printer. The printer stalls; a “checkpointed” error message appears in the VMS SHOW QUEUE/FULL display.

**Correction:** The printer port must have the ACCESS port characteristic set up to REMOTE or to DYNAMIC. Use the DEFINE PORT command to assign this value for ACCESS, then use the LOGOUT command to log out the port.

**Correction:** Ensure that the printer port and the service node have at least one group code that matches.

**Correction:** The application port on the VMS service node is not correctly mapped to the remote-access port on the server. Ensure that the VMS system manager has the correct value for the server NAME characteristic and for the port NAME characteristic. If you set up the printer as a service on one or more ports, make sure the system manager has the correct service name.

**Problem** Garbled characters or nonsense characters are printed in VMS host-initiated print requests.

**Correction:** Check the AUTOBAUD characteristic for the printer port. Ensure that it is defined as DISABLED.

Verify that the parity and character-size characteristics for the printer match those set up for the port. Some printers come with 7-bit, MARK parity; the default server port setting is 8-bit, no parity. In this case, these printers may work initially, but flow control causes a failure.

**Problem** VMS host-initiated printing sessions are disconnected before printing tasks are completed.

**Correction:** With ACCESS DYNAMIC at the port and INTERRUPTS ENABLED, local users can disconnect remote sessions and start local sessions. Determine whether printing requirements justify the port used exclusively for a printer. If so, use the DEFINE PORT or the SET PORT command to set ACCESS to REMOTE.

**Correction:** With ACCESS DYNAMIC you can limit the local user's access by setting INTERRUPTS to DISABLED. Then the port user cannot stop ongoing remote sessions.

**Correction:** If SIGNAL CHECK is enabled, the print queue stalls with a suspended printing error whenever the printer is powered off during a remote session. The server logs out the port when the attached printer is powered off. The users might have to reenter their PRINT commands after you turn on the printer. The system manager might also have to issue queue management commands.

**Problem** Host-initiated requests in the server queue are delayed in being connected to a printer on an ACCESS DYNAMIC port.

**Correction:** No printing tasks can execute until a local user disconnects service sessions and the port is logged out. You can define the port characteristic INACTIVITY LOGOUT as ENABLED. Then if a local user has no active sessions, the server logs the user out automatically when the INACTIVITY TIMER expires. Assign a value to INACTIVITY TIMER with the SET SERVER or the DEFINE SERVER command.

**Correction:** If printing requirements justify it, set ACCESS to REMOTE so that only remote sessions are serviced at the port.

**Problem** Nothing is printed out on a printer.

**Correction:** If the printer does not support DSR signals, set signal check to disabled. When signal check is enabled for a printer, the printer waits for the DSR signal before printing.

**Problem** Queued print jobs are lost when the printer is powered down.

**Correction:** If the printer asserts DSR when it is powered up, set signal check to enabled. Signal check works only if DSR logout is disabled. Note that you cannot use DSR flow control with signal check.

---

## Problems with Service Nodes

Problems can occur between the DECserver 300 unit and one or more service nodes. If the problem involves more than one service node and more than one server, there may be an Ethernet problem (refer to Chapter 7). If the problem occurs during communication with a single service, the problem is probably with the service node hardware, including the Ethernet interface. The problem may also be in the service node LAT software residing on the service node.

Users often depend on error messages to identify service node problems. The messages indicate that a connection cannot be established or why a service session has been terminated.

## 6.1 Message Timing Problem

Connections between the DECserver 300 unit and a service node may fail because of timing problems involving messages transmitted between the server and the service node. Either of the following two messages indicates that the service node exceeded a time-out limit. Either of the next two messages indicates that the value of the server circuit timer is out of a specified range.

Local -201- Connection to *service-name* not established  
No response within timeout period

Local -206- Connection to *service-name* terminated  
No response within timeout period

**Problem**      The service node exceeded a time-out limit.

**Correction:** Attempt to reconnect to the service. This condition means that the service node has crashed or is otherwise unreachable. You can check the node status using the SHOW NODE SUMMARY command with the node name. Report the problem to the service node system manager.

Local -224- Connection to *service-name* not established  
Circuit timer out of range

Local -264- Connection to *service-name* terminated  
Circuit timer out of range

**Problem**      The server circuit timer value is out of the range specified by the service node system manager.

**Correction:** Determine the correct circuit timer range. Enter the SET SERVER CIRCUIT TIMER command to reset the timer value. Refer to the *DECserver 300 Management* manual. With the circuit timer value set, enter the new timer value with DEFINE SERVER CIRCUIT TIMER. This command places the new value in the permanent database.

## 6.2 LAT Protocol Errors

A service node or the server detected messages that violate the LAT protocol. One of the following error messages may appear:

```
Local -202- Connection to service-name not established  
Communication protocol error
```

```
Local -207- Connection to service-name terminated  
Communication protocol error
```

**Problem** The server received a message indicating a protocol error from a service node. A connection attempt fails, or an existing session terminates.

**Correction:** Attempt to reconnect to the service. This condition indicates a problem with the LAT software on the service node. Report the problem to the service node system manager.

```
Local -226- Connection to service-name not established  
Invalid message or slot received
```

```
Local -266- Connection to service-name terminated  
Invalid message or slot received
```

**Problem** The service node is receiving server messages that violate the LAT protocol.

**Correction:** Use the CONNECT command. If connection to the service fails, initialize the server to down-line load the server software. If the error messages reappear for CONNECT, submit an SPR to Digital Equipment Corporation.

### 6.3 Authorized Groups Mismatch

The following messages at a port may indicate that the port and the service node do not have a group in common.

Local -711- Service *service-name* not known

Local -716- Access to service *service-name* denied

Local -725- Access to node *node-name* denied

**Problem** There is no match between a service node group and any of the current groups set up for the port.

**Correction:** Confirm the mismatch by entering the SHOW SERVICES *service-name* command at the port. If the service node does not appear in the display, the groups do not match.

Determine the groups that are enabled for the service node. Then adjust the AUTHORIZED GROUPS list for the port as described in the *DECserver 300 Management* manual.

### 6.4 Server Capacity Exceeded

The following messages at a port may indicate that the server capacity has been exceeded.

Local -711- Service *service-name* not known

Local -716- Access to service *service-name* denied

Local -725- Access to node *node-name* denied

**Problem** The server node limit has been reached, so there is no room to store additional service nodes.

**Correction:** Either increase the server node limit, or use group codes to restrict the number of service nodes for which the server stores information.

## 6.5 Service Node Software Not Running

One of the following error messages may appear:

```
Local -711- Service service-name not known
```

```
Local -715- Service service-name not currently available
```

**Problem** The LAT service node software is not running on any service node offering the service.

**Correction:** Ask the system manager of a node that offers the service to restart the service node software. The *DECserver 300 Software Installation* manual and the documentation for the service node operating system contain details about the procedure. For VMS systems, refer to the LAT documentation that comes with your operating system.

**Problem** The number of service nodes on the network exceed the value for the server's node limit characteristic.

**Correction:** Use group codes to restrict the number of service nodes in the server database, or raise the server node limit.

## 6.6 Service Node Not Available

The following message may appear when a user tries to connect to a service:

```
Local -715- Service service-name not currently available
```

**Problem** A service node has shut down, possibly due to a system crash.

**Correction:** Attempt to connect to the service. If other service nodes offer the service, the server establishes a session. If no session is established, contact the system manager of the nonoperational service node.



---

## Problems with the Ethernet

This chapter contains guidelines for monitoring the Ethernet using the `SHOW SERVER COUNTERS` display. The `SHOW SERVER COUNTERS` data is the primary source for detecting Ethernet problems. You can use the `MONITOR SERVER COUNTERS` command to get a continuously updated screen display of server counters. The *DECserver 300 Management* manual describes the counters and possible error indications. Note that Ethernet problems can also be indicated by down-line load or up-line dump failures.

- Problem**     The counters listed on the right hand column of the `SHOW COUNTERS` display exceed guidelines. The guidelines for the counters are described in Chapter 9 of the *DECserver 300 Management* manual.
- Or**             Message 915 on the console port terminal indicates that a transmission failed after several attempts during a down-line load or an up-line dump.
- Or**             Down-line loads or up-line dumps fail intermittently.

**Correction:** Use the privileged TEST LOOP command to test the circuits between the DECserver 300 unit and any node on the Ethernet. The command syntax is discussed in detail in Chapter 2 of the *Terminal Server Commands and Messages* manual. The server software sends a message to your port device to indicate whether the loop test is successful or not. Message 512 indicates a successful test. Message 513 appears if the returned data was corrupted or if the test timed out with no response from the target node. If TEST LOOP fails, work with your network manager to resolve the Ethernet problem.

**Correction:** Ask the load host system manager to check the host Ethernet counters. If the counters indicate an Ethernet problem, the system manager can use the NCP LOOP CIRCUIT command to test the Ethernet between the load host and the DECserver 300 unit. If the test indicates a problem, contact the network manager.

---

## Digital Equipment Corporation Service

This chapter presents guidelines to follow before you contact Digital Equipment Corporation about a problem with your DECserver 300 hardware. It also has instructions for returning your DECserver 300 hardware and tells what to return if you have a problem with your DECserver 300 software.

The hardware and software service options available from Digital Equipment Corporation are described in the *DECserver 300 Hardware Installation* manual. One hardware option and one software option operate on a DECserver 300 system. Contact your Digital Equipment Corporation sales representative for more information.

### 8.1 Before You Contact Digital Equipment Corporation

To ensure a prompt solution:

- Be sure the load host contains a node entry for the server.
- Be sure you have used the procedures described in this chapter.
- Use a terminal or other port device to perform troubleshooting procedures. A console terminal provides useful information about problems involving server initialization and down-line loading.
- Record your server serial number, its software version number, and the information on the Engineering Change Order (ECO) status label.
- If possible, record the symptoms when the server failed. Record the troubleshooting steps you took and the results of these steps.

- If you are reporting a software problem, up-line dump the server memory by using the privileged CRASH command. The up-line dump file is useful for finding internal logic errors in the software. See Section 8.3 for details on how to send crash dump files to Digital Equipment Corporation.

## **8.2 Repackaging a DECserver for Shipping**

If you return the DECserver 300 unit to Digital Equipment Corporation for repair or for replacement, pack the unit carefully. If possible you should use the original shipping carton and packaging material.

## **8.3 Forwarding Up-Line Dump Data**

If a fatal bugcheck, message 913, caused an up-line dump of the server memory image (see Section 4.7), send the dump file to Digital Equipment Corporation.

Copy the file to a 1600 bits per inch (bpi) magnetic tape. Indicate the format of the copy (BACKUP, FLX, etc.) on the medium. Forward the data to the address available from your Digital Equipment Corporation representative.

## C

### Communication problems

- between server and a DECnet node, 2-8, 2-9, 7-1
- between server port and service node, 2-8, 6-1
- involving more than one server and/or service node, 7-1

### Console port

- in troubleshooting, 2-1
- terminal speed for installation, 2-1

## D

Data transparency, 5-7

Diagnostic dot, function of, 2-4

Digital Equipment Corporation service, 8-1

Down-line loading problems, 7-1

DSR signal, using on printers, 5-10

## E

Error 201 or 206, 6-2

Error 202 or 207, 6-3

Error 224 or 264, 6-2

Error 226 or 266, 6-3

Error 711 or 715, 6-5

Error 711, 716, or 725, 6-4

Error 715, 6-5

Error 913, 3-1

Error 915, 7-1

Error messages displayed on terminal, 6-1

Ethernet component problem, indication of, 2-9

Ethernet problems, 7-1

## F

Fatal bugcheck message, 3-1

Fatal error, indication of, 2-2

File transfers, troubleshooting for, 5-7

## I

Initializing the DECserver, 2-2

Interactive terminal problem, 5-3

## L

- LAT
  - composition of network components, 1-2
  - network components, 1-1
- LAT protocol errors, 6-3
- Loopback
  - circuit-level loop-assist, 2-9
  - external, 2-8
  - internal, 2-8
  - protocol level, 2-8

## M

- Message timing problems, 6-2

## N

- Network components, 1-1
  - composition of, 1-2
- Node limit exceeded, 6-4
- Non-fatal error, indication of, 2-2

## P

- PC file transfer failure, 5-7
- Port, testing of, 2-9
- Port problems, 5-1
  - file transfer problem, 5-7
  - interactive terminal problem, 5-3
    - pointer to solution, 3-1
  - printer problem, 5-8
  - what to do first, 5-1
- Printers
  - troubleshooting, 5-8
  - using signal check, 5-9

- Problem on all ports, 3-1

## R

- RCF, Remote Console Facility, 2-9
- Remote Console Facility, RCF, 2-9
- Repackaging a DECserver for shipping, 8-2
- Reporting problems to Digital Equipment Corporation, 8-1
- Returning your DECserver to Digital Equipment Corporation, 8-2

## S

- Self-test, Diagnostic self-test, 2-2
- Server capacity exceeded, 6-4
- Service group mismatch, 6-4
- Service node problems, 6-1
- Service node software not running, 6-5
- Service node unavailable, 6-5
- SET SESSION command, 5-7
- Seven-segment status display, 2-2
- Status and error codes, in seven-segment LED display, 2-3
- Status messages, 2-1

## T

- Terminal problem, 5-3
- TEST commands, 2-8
- TEST LOOP Command, 7-2
- TEST LOOP command, 2-9

TEST PORT command, 2-9

TEST SERVICE command, 2-8

Testing

DECserver 300 self-test, 2-2

with TEST PORT command, 2-9

with TEST SERVICE command, 2-8

Testing communication

between server and a DECnet node, 2-8,

2-9, 7-2

between server port and service node, 2-8

Troubleshooting

tools for, 2-1

what to do first, 3-1

## U

Up-line dumping, sending data to Digital  
Equipment Corporation, 8-2

Up-line dumping problems, 7-1



### READER'S COMMENTS

What do you think of this manual? Your comments and suggestions will help us to improve the quality and usefulness of our publications.

Please rate this manual:

	Poor			Excellent	
Accuracy	1	2	3	4	5
Readability	1	2	3	4	5
Examples	1	2	3	4	5
Organization	1	2	3	4	5
Completeness	1	2	3	4	5

Did you find errors in this manual? If so, please specify the error(s) and page number(s).

---

---

---

---

General comments:

---

---

---

---

Suggestions for improvement:

---

---

---

---

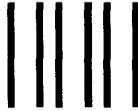
Name \_\_\_\_\_ Date \_\_\_\_\_

Title \_\_\_\_\_ Department \_\_\_\_\_

Company \_\_\_\_\_ Street \_\_\_\_\_

City \_\_\_\_\_ State/Country \_\_\_\_\_ Zip Code \_\_\_\_\_

DO NOT CUT - FOLD HERE AND TAPE



NO POSTAGE  
NECESSARY  
IF MAILED  
IN THE  
UNITED STATES

**BUSINESS REPLY LABEL**

FIRST CLASS PERMIT NO. 33 MAYNARD MASS.

POSTAGE WILL BE PAID BY ADDRESSEE

**digital**

**Networks and  
Communications Publications**

550 King Street

Littleton, MA 01460-1289



DO NOT CUT - FOLD HERE