

MultiNet for OpenVMS Messages, Logicals, and DECnet Applications

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This guide lists common messages encountered when running MultiNet as well as a comprehensive list of MultiNet logicals with descriptions, and information on using TCP/IP Services for DECnet Applications.

Revision/Update: This manual supersedes the *MultiNet Messages and Logicals Reference, V4.4*

Operating System/Version: VAX/VMS V5.5-2 or later, OpenVMS VAX V6.0 or later, or OpenVMS Alpha V6.1 or later

Software Version: MultiNet V5.0

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Framingham, Massachusetts
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Preface

This document contains information you might find helpful when using MultiNet for OpenVMS.

- Chapter 1 contains general information about problem solving; console and MultiNet messages; message values for UNIX and OpenVMS; and about getting more information about an error.
- Chapter 2 contains a description of the MultiNet error messages.
- Chapter 3 contains MultiNet logicals with descriptions.
- Chapter 4 contains the utility return codes PING and RCP.
- Chapter 5 contains error codes.
- Chapter 6 contains general information on DECnet Application Services.
- Chapter 7 contains information on configuring DECnet Application Services.
- Chapter 8 contains NOT-CONFIG commands.

This Preface also contains more information in the next sections about getting help directly from Process Software Customer Support.

Obtaining Customer Support

Process Software provides customer support if you have a current Maintenance Service Agreement. If you obtained MultiNet from an authorized distributor or partner, you receive your customer support directly from them.

You can contact Customer Support by:

- Sending electronic mail (see the section *Sending Electronic Mail*).
- Calling the Customer Support Specialist (see the section *Calling Customer Support*).
- Fax a description of your problem to the Customer Support Group (see the section *Contacting Customer Support by Fax*).

Before Contacting Customer Support

Before you call, or send e-mail or a fax, please:

- 1 Verify that your Maintenance Service Agreement is current.

- 2 Read the online Release Notes, available either in BookReader format or in SY\$HELP:MULTINETnnn.RELEASE_NOTES (nnn) is the current MultiNet software version installed on your system.
- 3 Have the following information available:
 - Your name
 - Your company name
 - Your e-mail address
 - Your voice and fax telephone numbers
 - Your Maintenance Agreement Number
 - OpenVMS architecture
 - OpenVMS version
 - MultiNet layered products and versions
- 4 Have complete information about your configuration, error messages that appeared, and problem specifics.
- 5 Be prepared to let an engineer connect to your system either with TELNET or by dialing in using a modem. Be prepared to give the engineer access to a privileged account to diagnose your problem.

You can obtain information about your OpenVMS architecture, OpenVMS version, MultiNet version, and layered products with the MULTINET SHOW /LICENSE command. For example:

```
$ MULTINET SHOW /LICENSE
```

```
Process Software MultiNet V5.0, VAXstation 4000-90, OpenVMS VAX V7.1
```

In this example:

- The machine or system architecture is VAX.
- The OpenVMS version is V7.1.
- The MultiNet version is V5.0.

You can use the following table as a template to record the relevant information about your system.

Required Information	Your System Information
Your name Company name Your e-mail address Your voice and fax telephone numbers System architecture OpenVMS version MultiNet version MultiNet optional software components: - MultiNet NFS Client - MultiNet NFS Server - MultiNet Secure/IP Client - MultiNet Secure/IP Server - TCP/IP applications - Online documentation - MultiNet Programmer's Kit	 VAX Alpha Installed? Yes No Installed? Yes No Installed? Yes No Installed? Yes No Installed? Yes No Installed? Yes No Installed? Yes No Installed? Yes No

Sending Electronic Mail

For many questions, electronic mail is the preferred communication method. Customer support via electronic mail is available to customers with a current support contract. Send electronic mail to support@process.com

At the beginning of your mail message, include the information listed in the section *Before Contacting Customer Support*. Continue with the description of your situation and problem specifics. Include all relevant information to help your Customer Support Specialist process and track your electronic support request.

Electronic mail is answered Monday through Thursday from 8:30 a.m. to 7:00 p.m., and on Friday from 8:30 a.m. to 5:00 p.m. United States Eastern Time.

Calling Customer Support

For regular support issues, call 800-394-8700 or 508-628-5074 for support Monday through Thursday from 8:30 a.m. to 7:00 p.m., and on Friday from 8:30 a.m. to 5:00 p.m. United States Eastern Time.

For our customers in North America with critical problems, an option for support 7 days per week, 24 hours per day is available at an additional charge. Please contact your account representative for further details.

Before calling, have available the information described in *Before Contacting Customer Support*. When you call, you will be connected to a Customer Support Specialist.

Be prepared to discuss problem specifics with your Customer Support Specialist and to let that person connect to your system.

If a Specialist is not available immediately, your call will be returned as soon as possible.

Contacting Customer Support by Fax

You can send fax transmissions directly to Customer Support at 508-879-0042.

Before faxing comments or questions, complete the steps in *Before Contacting Customer Support* and include all your system information at the beginning of your fax message. Continue with the description of your situation and problem specifics. Include all relevant information to help your Customer Support Specialist process and track your fax support request.

Faxed questions are answered Monday through Thursday from 8:30 a.m. to 7:00 p.m., and on Friday from 8:30 a.m. to 5:00 p.m. United States Eastern Time.

Obtaining Online Help

Extensive information about MultiNet is provided in the MultiNet help library. For more information, use the following command:

```
$ HELP MULTINET
```

MultiNet Frequently Asked Questions List

You can obtain an updated list of frequently asked questions (FAQs) and answers about MultiNet products from the Process Software home page located at <http://www.support.process.com/multinet.html>.

Accessing the MultiNet Public Mailing List

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- **Info-MultiNet@process.com**
- **MultiNet-Announce@process.com**

The **Info-MultiNet@process.com** mailing list is a forum for discussion among MultiNet system managers and programmers. Questions and problems regarding MultiNet can be posted for a response by any of the subscribers. To subscribe to Info-MultiNet, send a mail message with the word "SUBSCRIBE" in the body to Info-MultiNet-request@process.com. The information exchanged over Info-MultiNet is also available via the USENET newsgroup vmsnet.networks.tcp-ip.multinet.

You can retrieve the Info-MultiNet archives by anonymous FTP to [ftp.multinet.process.com](ftp://ftp.multinet.process.com). The archives are located in the directory [INFO-MULTINET].

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The **MultiNet-Announce@process.com** mailing list is a one-way communication (from Process Software to you) used for the posting of announcements relating to MultiNet (patch releases, product releases, etc.). To subscribe to MultiNet-Announce, send a mail message with the word "SUBSCRIBE" in the body to MultiNet-Announce-request@process.com.

Process Software World Wide Web Server

Electronic support is provided through the Process Software World Wide Web server, which you can access with any World Wide Web browser; the URL is <http://www.process.com> (select Customer Support).

Obtaining Software Patches Over the Internet

Process Software provides software patches in save set and ZIP format on its anonymous FTP server, `ftp.multinet.process.com`. For the location of software patches, read the `.WELCOME` file in the top-level anonymous directory. This file refers you to the directories containing software patches.

To retrieve a software patch, enter the following commands:

```
$ MULTINET FTP /USERNAME=ANONYMOUS/PASSWORD="emailaddress"
FTP.MULTINET.PROCESS.COM
```

A message welcoming you to the Process Software FTP directory appears next followed by the FTP prompt. Enter the following at the prompts:

```
FTP.MULTINET.PROCESS.COM>
CD [CUSTOMER_SUPPORT.SOFTWARE_UPDATES_VMS.Vnn]
FTP.MULTINET.PROCESS.COM>GET update_filename
```

- *emailaddress* is your e-mail address in the standard *user@host* format.
- *nn* is the version of MultiNet you want to transfer.
- *update_filename* is the name of the file you want to transfer.

To transfer files from Process Software directly to an OpenVMS system, you can use the GET command without any other FTP commands. However, if you need to transfer a software patch through an intermediate non-OpenVMS system, use BINARY mode to transfer the files to and from that system.

In addition, if you are fetching the software patch in save set format, make sure the save set record size is 2048 bytes when you transfer the file from the intermediate system to your OpenVMS system:

- If you use the GET command to download the file from the intermediate system, use the FTP **RECORD-SIZE 2048** command before transferring the file.
- If you use the PUT command to upload the file to your OpenVMS system, log into the intermediate system and use the FTP quote site **rms reysize 2048** command before transferring the file.

Process Software also supplies UNZIP utilities for OpenVMS VAX and Alpha for decompressing ZIP archives in the `[THIRD_PARTY_TOOLS.VMS]` directory. To use ZIP format kits, you need a copy of the UNZIP utility.

The following example shows how to use the UNZIP utility, assuming you have copied the appropriate version of UNZIP.EXE to your current default directory.

```
$ UNZIP := $SYS$DISK:[ ]UNZIP.EXE
```

```
$ UNZIP filename.ZIP
```

Use VMSINSTAL to upgrade your MultiNet system with the software patch.

Documentation Comments

Your comments about the information in this guide can help us improve the documentation. If you have corrections or suggestions for improvement, please let us know.

Be as specific as possible about your comments: include the exact title of the document, version, date, and page references as appropriate.

You can send your comments by e-mail to: techpubs@process.com or mail the completed form to:

Process Software
959 Concord Street
Framingham, MA 01701-4682
Attention: Marketing Manager

You can also fax the form to us at 508-879-0042.

Your comments about our documentation are very much appreciated.

PART I MultiNet Error Messages

Chapter 1	Troubleshooting
Chapter 2	MultiNet Messages

Chapter 1

Troubleshooting

This chapter describes how to find and prevent errors. Additional troubleshooting information is listed in the document *MultiNet Messages* and in the *MultiNet for OpenVMS Installation and Administrator's Guide*.

Problem Solving

To prevent problems, run MULTINET CHECK and MULTINET X11DEBUG at periodic intervals. These commands are described in the *MultiNet for OpenVMS Administrator's Reference*. The CHECK command verifies your configuration is correct. The X11DEBUG command verifies your current X (X Window System) configuration is correct for X support over MultiNet.

If a problem occurs, capture OPCOM messages and look up the message in Chapter 2 of this book. Also, examine the index for messages that might be contained in another message string. If you cannot find the message, contact Process Software Technical Support as described in the Preface section *Obtaining Technical Support*.

Because "R" services problems constitute a majority of system problems, ensure all new user login command procedures and the system login command procedure contain these lines at the top of the file:

```
$ verify = 'f$verify(0)'  
$ if fmode() .eqs. "OTHER" then exit
```

Be sure to insert the single quote before F\$VERIFY and specify OTHER in uppercase.

Console Messages

Problems are reported to the system console and must be resolved by the system manager. This section provides guidance for the system manager in resolving common faults in the operation of networking software.

To display console messages on your terminal, enter the following command:

```
$ REPLY/ENABLE=NETWORK/TEMP
```

To suppress the display of these messages on your terminal, enter:

§ **REPLY/DISABLE**

Three types of messages appear on the system console:

- 1 Messages that occur when the MultiNet software is initialized. MultiNet reports a variety of configuration and version information, including the software versions and the Ethernet addresses the networking software thinks are its own.
- 2 Warnings that occur during system operation. These vary in severity, and may or may not indicate a severe problem that should be corrected.
- 3 Warning or trace information from various servers, such as the MULTINET_SERVER process.

Getting More Information About an Error

To get more data when an error message appears, but additional information is unavailable:

- 1 Choose a user name with full privileges and at least as much quota as the SYSTEM account.
- 2 Stop the MULTINET_SERVER process.
- 3 Use the following commands to start the server as the chosen user name:

```
§ SET PROCESS/NAME=MULTINET_SERVER
§ RUN MULTINET:SERVER
```

Leave this process logged in and running the server. When an error occurs, a traceback or error message should appear.

Other sources of information are in the log files shown in Table 1-1.

Table 1-1 Log Files to Review for More Information

Service	Error Log Name
DECwindows	SYSS\$MANAGER:DECW\$SERVER_0_ERROR.LOG
FTP server	SYSS\$LOGIN:FTP_SERVER.LOG
MultiNet Server	MULTINET:SERVER.LOG
NFS Client	SYSS\$MANAGER:NFS_MOUNT.LOG
OPCOM	SYSS\$MANAGER:OPERATOR.LOG
POP2	SYSS\$LOGIN:POP2_SERVER.LOG
POP3	SYSS\$LOGIN:POP3_SERVER.LOG
R Services	MULTINET:USER_ACCESS.LOG
SMTP	MULTINET:SERVER-SMTP.LOG MULTINET:SMTP.LOG

Table 1-1 Log Files to Review for More Information (Continued)

Service	Error Log Name
SSH	SSH_LOG:SSHD.LOG MULTINET:SSHD_MASTER.LOG
TELNET	TELNET.LOG (resides in the directory from which TELNET is invoked) MULTINET:MODEM_ACCESS.LOG MULTINET:USER_ACCESS.LOG
TRACEROUTE	MULTINET:USER_ACCESS.LOG
XDM	MULTINET:XDM-ERRORS.LOG
WHOIS	MULTINET:USER ACCESS.LOG

UNIX errno Message Values

Table 4-1 lists the UNIX (errno) errors alphabetically, and Table 4-2 lists the errors by number. You can find additional information about errno values in the error message sections that follow. Use the index to locate entries that pertain to the errno value you need to find.

MultiNet Error Messages

In the following sections, error messages are listed alphabetically by the first word in the message. Special characters at either the start of a message or embedded within the message are ignored. For example, a message starting with "?Unknown" is listed in the "U" section.

OpenVMS Error Values

In the message listings in Chapter 2, if a message contains either "vms_hex_error" or "vms_error_value," you can display a message string for the error value with the following command:

```
$ WRITE SYS$OUTPUT F$MESSAGE value
```

If the value is in hexadecimal, preface it with %x in the WRITE statement; if it is octal, preface it with %o.

For additional information, refer to the OpenVMS error message manual.

Chapter 2

MultiNet Messages

This document contains displayed messages and messages published in other books in the MultiNet documentation set.

Absurdly long client literal user=*user* host=*host*

Facility: IMAP Server

Meaning: The client sent a very long command to the server. Usually, this is indicative of a broken client or a possible attack against the server.

Action: Verify the source host is a valid working client.

accept_decnet: \$ASSIGN error (status=*vms_error_value*)

Facility: X11-Gateway

Meaning: The X11-Gateway failed while attempting to accept the DECnet connection from the DECnet client.

Action: Translate *vms_error_value* in the OpenVMS error manual.

accept_decnet: \$TRNLNM error (status=*vms_error_value*)

Facility: X11-Gateway

Meaning: The X11-Gateway failed while attempting to translate the Network Connect Block.

Action: Translate *vms_error_value* in the OpenVMS error manual.

accept_tcp: \$ASSIGN error (status=*vms_error_value*)

Facility: X11-Gateway

Meaning: The X11-Gateway failed while attempting to accept the TCP/IP connection from the IP client.

Action: Translate *vms_error_value* in the OpenVMS error manual.

accept_tcp: Error! Server port number is below 6000 (*port*)

Facility: X11-Gateway

Meaning: The server was configured incorrectly in MULTINET CONFIGURE /SERVERS with a port number below 6000.

Action: Use MULTINET CONFIGURE /SERVERS to modify the service so the port number is at least 6010 (ports 6000 to 6009 are reserved).

accept_tcp: getpeername error (errno=*errno_value*)

Facility: X11-Gateway

Meaning: The X11-Gateway failed during a call to **getpeername()** while accepting the IP connection.

Action: Translate *errno_value* using Table B-2.

accept_tcp: getsockname error (errno=*errno_value*)

Facility: X11-Gateway

Meaning: The X11-Gateway failed during a call to **getsockname()** while accepting the IP connection.

Action: Translate *errno_value* using Table B-2.

accept_tcp: setsockopt error (errno=errno_value)**Facility:** X11-Gateway**Meaning:** The X11-Gateway failed during a call to **setsockopt()** while accepting the IP connection.**Action:** Translate *errno_value* using Table B-2.**access denied****Facility:** IMAP Server**Meaning:** The user does not have access to the requested mail file.**Action:** Verify the permissions on the user's mail file.**Access_File I/O error, VMS Status = hex_vms_error****Facility:** MultiNet NFS Server**Meaning:** The server failed to open a file. Find the message associated with the *vms_error_value*, as shown in Section 1.6.**Action:** Retry the operation.**append to folder failed****Facility:** IMAP Server**Meaning:** The server could not write a temporary file while trying to copy or append to a folder.**Action:** Check that there is sufficient disk space and that the server has sufficient privileges to write to the user's mail directory.**Authenticated user=user host=host****Facility:** IMAP Server**Meaning:** A user was authenticated successfully with the server.**Action:** None.

Auto-filing of INBOX messages not completed

Facility: IMAP Server

Meaning: The server encountered an error while trying to file read messages after closing the INBOX. The warning is associated with another message providing additional information.

Action: File the remaining messages manually.

%BACKUP-E-OPENOUT, error opening disk as output -RMS-E-CRE, ACP file create failed

Facility: BACKUP

Meaning: The file name was mapped to an alternate name because the characters in the file name were not compatible with the file-naming conventions of an OpenVMS host.

Action: Use the following command to mount the disk:

```
$ NFSMOUNT/SEMANTICS=VMS_FILENAMES
```

Refer to the *Administrator's Guide* for more information. Enter the following command to list file name mapping information:

```
$ HELP MULTINET FILE_NAME_CHARACTER_MAP
```

Bad address (EFAULT)

Facility: MultiNet NFS Server

Meaning: The OpenVMS XQP returned an unexpected SS\$_ACCVIO error status.

Action: Contact Technical Support.

Bad address-address

Error-%MAIL-E-ERRACTRNS, error activating transport username

Facility: SMTP

Meaning: This message appears when attempting to send DECnet mail over SMTP:

```
smtp% "username%nodename.decnet@host "
```

Action: Use the following format instead:

```
SMTP%nodename::username
```

If this does not meet your needs, customize the MULTINET_ROOT:[MULTINET.EXAMPLES]USER_SMTP_DISPATCH.C file. Search for #ifdef DECNET_ADDRESS_HACK and add code to accommodate your needs.

Bad instance: *name-value*

Facility: MULTINET KERBEROS PASSWORD

Meaning: The specified host instance name was incorrect or not in the Kerberos database when associating a service with a host.

Action: Check the spelling and rerun MULTINET KERBEROS PASSWORD. If the spelling is correct, use MULTINET KERBEROS DATABASE EDIT to ensure the instance name is in the database; add the instance name if it is not.

Bad name: *name-value*

Facility: MULTINET KERBEROS PASSWORD

Meaning: The specified user name is incorrect or is not in the Kerberos database.

Action: Check the spelling and rerun MULTINET KERBEROS PASSWORD. If the spelling is correct, use MULTINET KERBEROS DATABASE EDIT to ensure the user name is in the database; add the username if it is not.

Bad realm: *name-value*

Facility: MULTINET KERBEROS PASSWORD

Meaning: The specified realm name is incorrect or is not listed in the MULTINET:KERBEROS.CONFIGURATION file.

Note! The realm name is case-sensitive.

Action: Check the spelling, ensure the realm name is in MULTINET:KERBEROS.CONFIGURATION, and then rerun MULTINET KERBEROS PASSWORD.

BRTOOFAR, destination 000001D2 is too far for branch operand and got on 18, RMTDRIVER\ECOSSET, eco level 1 already set

Facility: PATCH

Meaning: These messages display during a successful PATCH session, and are generated by PATCH.

Action: No action is required.

Buffer didn't grow: Saved_eof = n, eof = n

Facility: MultiNet NFS Server

Meaning: The server could not allocate enough virtual memory to cache file contents.

Action: Reduce the setting of the server's MAXIMUM-FILECACHE-BUFFERS parameter, or increase the size of the server process' pagefile quota (using AUTHORIZE) or the setting of the OpenVMS system parameter VIRTUALPAGECNT (using SYSGEN/AUTOGEN).

Buffer extend failed!

Facility: MultiNet NFS Server

Meaning: The server could not allocate enough virtual memory to cache file contents.

Action: Reduce the setting of the server's MAXIMUM-FILECACHE-BUFFERS parameter, or increase the size of the server process' pagefile quota (using AUTHORIZE) or the setting of the OpenVMS system parameter VIRTUALPAGECNT (using SYSGEN/AUTOGEN).

Buffer extend failed in read!

Facility: MultiNet NFS Server

Meaning: The server could not allocate enough virtual memory to cache file contents.

Action: Reduce the setting of the server's MAXIMUM-FILECACHE-BUFFERS parameter, or increase the size of the server process' pagefile quota (using AUTHORIZE) or the setting of the OpenVMS system parameter VIRTUALPAGECNT (using SYSGEN/AUTOGEN).

Buffer_Flush I/O error, VMS Status = *vms_hex_error***Facility:** MultiNet NFS Server**Meaning:** The server failed to write data back to a file.**Action:** Retry the operation.**Buffer incorrectly in bitmap; vbn=*n*****Facility:** MultiNet NFS Server**Meaning:** A sanity check in the NFS server failed indicating a coding error.**Action:** Contact Technical Support.**Buffer *n* incorrectly in bitmap****Facility:** MultiNet NFS Server**Meaning:** A sanity check in the NFS server failed indicating a coding error.**Action:** Contact Technical Support.**Buffer_Read I/O error, VMS Status = *vms_hex_error*****Facility:** MultiNet NFS Server**Meaning:** The server failed to read data from a file.**Action:** Retry the operation.**BYE host Fatal mailbox error: *error message*****Facility:** IMAP Server**Meaning:** A fatal error has occurred. See error message for further details.**Action:** Re-connect to the server.

Byte order is *value*

Facility: X11-Gateway

Meaning: value is an X protocol code; either "B" for "Big-Endian" or Most Significant Byte format, or "L" for "Little-Endian" or Least Significant Byte format. This identifies the byte order being used between the X client and server.

Action: Informational message; no action is required.

**Can't build data connection:
%MULTINET-F-ECONNREFUSED, Connection refused.**

Facility: FTP

Meaning: This error can be caused by two processes competing for the same connection or by two FTP commands being invoked in rapid succession.

Action: Retry the operation.

Can't create subscription database

Facility: IMAP Server

Meaning: The server could not create a file to store folder subscriptions.

Action: Check that there is sufficient disk space and that the server has sufficient privileges to write to the user's mail directory.

Can't create subscription temporary file

Facility: IMAP Server

Meaning: The server encountered an error while trying to subscribe or unsubscribe a folder.

Action: Check that there is sufficient disk space and that the server has sufficient privileges to write to the user's mail directory.

Can't open database: error *error_number***Facility:** KERBEROS**Meaning:** The specified database name was incorrect or could not be found.**Action:** If you specified a database name on the command line, ensure the spelling is correct. If you did not specify a database name, ensure the MULTINET:KERBEROS_PRINCIPAL.DAT database file is available; otherwise, restore the database from your backup source.**Can't resize free storage****Facility:** IMAP Server**Meaning:** The IMAP server has run out of memory. This is a result of trying to read an extremely large message.**Action:** Increase the process quotas for the IMAP server and restart the server.**Can't write subscription temporary file****Facility:** IMAP Server**Meaning:** The server encountered an error while trying to subscribe or unsubscribe a folder.**Action:** Check that there is sufficient disk space and that the server has sufficient privileges to write to the user's mail directory.**Cannot connect to MR****Facility:** SMTP Message Router**Meaning:** After you stop and restart the Message Router transfer service, this message may appear when SMTP attempts to deliver local mail.**Action:** If the Message Router is available, you must restart all SMTP execution queues that deliver messages to the Message Router.

```
§ SHOW QUEUE/FULL MULTINET_SMTP_QUEUE
```

```
Generic server queue MULTINET_SMTP
  /GENERIC=(SMTP_SYS1,SMTP_SYS2,SMTP_SYS3) /OWNER=[SYSTEM]
  /PROTECTION=(S:RSM,O:RSD,G:R,W:R)
```

```
$ STOP/QUEUE/RESET SMTP_SYS1
$ START/QUEUE SMTP_SYS1
$ STOP/QUEUE/RESET SMTP_SYS2
$ START/QUEUE SMTP_SYS2
$ STOP/QUEUE/RESET SMTP_SYS3
$ START/QUEUE SMTP_SYS3
```

cannot rename new empty folder list

Facility: IMAP Server

Meaning: The server encountered an error while trying to update the list of empty folders (either when a new folder is created, an empty folder is deleted, or the last message of folder is deleted).

Action: Check that there is sufficient disk space and that the server has sufficient privileges to write to the user's mail directory.

cannot save old empty folder list

Facility: IMAP Server

Meaning: The server encountered an error while trying to update the list of empty folders (either when a new folder is created, an empty folder is deleted, or the last message of a folder is deleted).

Action: Check that there is sufficient disk space and that the server has sufficient privileges to write to the user's mail directory.

cannot update folder database

Facility: IMAP Server

Meaning: The server encountered an error while trying to update the list of empty folders (either when a new folder is created, an empty folder is deleted, or the last message of a folder is deleted).

Action: Check that there is sufficient disk space and that the server has sufficient privileges to write to the user's mail directory.

cannot write sequential mail**Facility:** IMAP Server**Meaning:** The server could not write a temporary file while trying to copy or append to a folder.**Action:** Check that there is sufficient disk space and that the server has sufficient privileges to write to the user's mail directory.**CLI-E-IMGNAME, image file *filename*****Action:** SYSGEN**Meaning:** If this message is followed by "virtual address space is full," the VIRTUALPAGECNT parameter is set too low. If the message is followed by "exceeded quota," the installation completed correctly, but you need to raise your PGFLQUOTA and recompile the host tables.**Action:** If the problem is with the quota, try raising it to 50000.
If the error is with address space, raise VIRTUALPAGECNT, reboot the host, and recompile the host tables.**%CLI-F-SYNTAX, error parsing 'SNMP_HOST'****-CLI-E-ENTNF, specified entity not found in command tables****Facility:** SNMP**Meaning:** The DCL command tables are corrupted.**Action:** Log out and log in again, or enter the following command:

```
§ SET COMMAND MULTINET:MULTINET.CLD
```

Client NFS: Unknown attribute *nn***Facility:** NFS**Meaning:** There is an inconsistency between POSIX and the MultiNet NFS Client.**Action:** This is a bug in the POSIX code. HP states the bug will be fixed in a future release of POSIX (possibly V1.2).

Client not authorized to access server

Facility: X Window System

Meaning: The server node has not authorized properly the gateway node to access it.

Action: Fix the security on the server using the Security dialog box from the Options pull-down menu in the Session Manager.

CNXMAN, lost connection to host *node*

Facility: NFS

Meaning: When NFS is busy, the OpenVMS host seems to hang and cluster members display this message.

Action: This problem is caused by an Ethernet controller failing when it is overwhelmed by extra activity. Contact the controller's manufacturer.

Command not understood: Lexical error.

Facility: FTP

Meaning: This message appears while attempting to use MGET.

Action: This error is not returned by MultiNet. Rerun FTP with the /VERBOSE qualifier to display more information that may explain the cause.

command stream end of file while reading char user=*user* host=*host*

Facility: IMAP Server

Meaning: The connection to the client closed unexpectedly.

Action: None.

command stream end of file while reading line user=*user* host= *host*

Facility: IMAP Server

Meaning: The connection to the client closed unexpectedly.

Action: None.

Compiler bugcheck. Submit an SPR with a problem description.

Facility: CC

Meaning: A header file was not found.

Action: Use the following command to determine the header file that must be included:

```
$ CC/LIS/SHO=ALL file_name
```

The missing header file is listed at the end of the file.

complete_decnet: Inbound \$QIO IOSB (status=*vms_error_value*)

Facility: X11-Gateway

Meaning: The X11-Gateway failed while attempting to complete a read operation on the DECnet channel.

Action: Translate *vms_error_value* in the OpenVMS error manual. This error occurs because:

- The DECnet network failed or
- The client or server closed the connection or
- The client or server crashed or all three must happen

complete_decnet: Outbound socket error (errno=*errno_value*)

Facility: X11-Gateway

Meaning: The X11-Gateway failed while attempting to write data on the IP channel.

Action: Translate *errno_value* using Table B-2. This error occurs because:

- The IP network failed
- The client or server closed the connection
- The client or server crashed

complete_tcp: Inbound End Of File

Facility: X11-Gateway

Meaning: The X11-Gateway received an End Of File while attempting to complete a read operation on the IP channel. This often occurs when a connection is shut down normally.

complete_tcp: Inbound \$QIO IOSB (status=*vms_error_value*)

Facility: X11-Gateway

Meaning: Translate *vms_error_value* in the OpenVMS error manual. The X11-Gateway failed while attempting to read the IP channel.

Action: This error occurs because:

- The IP network failed
- The client or server closed the connection
- The client or server crashed

complete_tcp: \$QIOW IOSB Outbound Error (status=*vms_error_value*?)

Facility: X11-Gateway

Meaning: The X11-Gateway failed while attempting to write to the DECnet channel.

Action: Translate *vms_error_value* in the OpenVMS error manual. This error occurs because:

- The DECnet network failed or
- The client or server closed the connection or
- The client or server crashed or all three must happen

complete_tcp: \$QIOW Outbound Error (status=*vms_error_value*)

Facility: X11-Gateway

Meaning: The X11-Gateway failed while attempting to write to the DECnet channel.

Action: Translate *vms_error_value* in the OpenVMS error manual. This error occurs because:

- The DECnet network failed or
- The client or server closed the connection or
- The client or server crashed or all three must happen

Connection refused**Facility:** TELNET or FTP**Meaning:**

- 1 A port you are trying to access with TELNET, FTP, or an "R" service is disabled.
- 2 The MultiNet server on the target host has not been started.

Action: If the port is disabled, inform the system manager and retry later.
 If the MultiNet Server is not running, have the system manager enter the following commands:

```
$ REPLY/ENABLE=NETWORK/TEMPORARY
$ @MULTINET : START_SERVER
```

Watch for messages that might indicate problems with the server. If any appear, note the messages and diagnose the problem or contact Technical Support.

%COPY-E-OPENOUT, error opening *name* as output
-RMS-F-DEV, error in device name or inappropriate device type for operation

Facility: RCP

Meaning: A file sent to a remote host has the wrong file name syntax, or the remote login file displays information that confuses the "R" service.

Action: Ensure the remote host file name has the following format:

```
hostname::directory
```

Also ensure any OpenVMS login command procedures contain the following two lines at the top of each file:

```
$ verify = 'f$verify(0)'  
$ if f$mode() .eqs. "OTHER" then exit
```

Be sure to insert a single quote before F\$VERIFY and specify OTHER in uppercase.

Could not open alternate database name**Facility:** MULTINET KERBEROS DATABASE EDIT

Meaning: The specified database name could not be opened.

Action: Supply the correct name, verify you have file access permissions, and retry the command.

could not remove old empty folder list

Facility: IMAP Server

Meaning: The server encountered an error while trying to update the list of empty folders (either when a new folder is created, an empty folder is deleted, or the last message of a folder is deleted).

Action: Check that there is sufficient disk space and that the server has sufficient privileges to write to the user's mail directory.

Couldn't create database multinet:kerberos_principal, code=17

Facility: Kerberos

Meaning: An attempt to run MULTINET KERBEROS DATABASE INIT failed.

Action: The database already exists. Refer to the *Administrator's Guide* for Kerberos command information.

Couldn't bind to control socket:

%MULTINET-F-EADDRNOTAVAIL, Can't assign requested address

Facility: TALK

Meaning: You are using an incorrect version of TALK. On Sun workstations and other hosts that have a different byte-ordering scheme than OpenVMS architectures, TALK does not work.

Action: Use **ntalk** on the Sun host or TALK/OLD on the OpenVMS host. A copy of NTALK is supplied on the MultiNet CD-ROM in the [CONTRIBUTED-SOFTWARE.APPLICATIONS.NTALK] directory. This command is also available in the public domain. The NTALK directory contains documentation describing how to access the file. NTALK is distributed as a UNIX **tar** file. Follow these steps to make it available for use:

- 1 Copy the NTALK **tar** archive to a UNIX host.
- 2 Use **tar** to retrieve the archived files.
- 3 Run **make** to compile the files into binary source. (The **make** file assumes the UNIX **cc** compiler is available.)

Couldn't create file**Facility:** MULTINET KERBEROS DATABASE SRVTAB**Meaning:** The *server*-NEW-KERBEROS.SRVTAB file could not be created.**Action:** Verify you have write permission in the current directory and there is sufficient disk space.**Couldn't create temp database *temp_file*: code****Facility:** MULTINET KERBEROS DATABASE LOAD**Meaning:** An internal system error occurred while attempting to create a temporary file during a **load** operation. *temp_file* is a temporary file created by MULTINET KERBEROS DATABASE LOAD. The *code* value is the contents of the **errno** variable from the failed operation, which occurred when opening the database file, the directory containing the database file, or a *.pag* file.**Action:** Contact Technical Support.**Couldn't get master key.****Facility:** MULTINET KERBEROS DATABASE NEW_MASTER_KEY**Meaning:** The specified master key value is incorrect, or the key value could not be read from the file created by MULTINET KERBEROS DATABASE STASH.**Action:** Ensure the MULTINET:KERBEROS.MASTER_KEY file is available and you can read it. Then rerun the utility and specify the correct master key.**Couldn't read master key.****Facility:** MULTINET KERBEROS DATABASE SRVTAB, MULTINET KERBEROS DATABASE EDIT**Meaning:** The specified master key value is incorrect, or the key value could not be read from the file created by MULTINET KERBEROS DATABASE STASH.**Action:** If you used MULTINET KERBEROS DATABASE STASH, ensure the MULTINET:KERBEROS.MASTER_KEY file is available and you can read it. Then rerun the utility and specify the correct master key.

Couldn't store *principal.instance*; load aborted

Facility: MULTINET KERBEROS DATABASE LOAD

Meaning: An error prevented access to the database during a load operation.

Action: Ensure there is sufficient disk space for the database file. If there is, contact Technical Support.

Couldn't translate VMS error 828

Facility: MultiNet NFS Server

Meaning: There is a corrupted directory under the mount point. OpenVMS error 828 is:

```
%SYSTEM-W-BADIRECTORY, bad directory file format
```

Action: Fix the directory.

Couldn't translate VMS error *vms_hex_error*

Facility: MultiNet NFS Server

Meaning: This message appears with one of the other messages on this list. The server could not translate the XQP code into an equivalent UNIX error number, and the error code will be reflected to the client as an EIO message.

Action: Refer to the OpenVMS error message manual.

**%CREATE-E-OPENOUT, error opening *file* as output
-RMS-E-WLK, device currently write locked**

Facility: NFSMOUNT

Meaning: You tried to modify a locally-mounted file system using NFSMOUNT/NOWRITE, and the NFS server is handling an ROFS (read-only-file-system error, the NFS equivalent of WRITLCK).

Action: Re-establish the mount point if write access is required.

%CREATE-E-READERR, error reading SYS\$INPUT.;
-RMS-F-RER, file read error

Facility: TELNET

Meaning: The TELNET buffer overran when information was cut and pasted into a file.

Action: Use the SET TERM/HOSTSYNC command before you create a file with pasted information. Then use SET TERM/NOHOSTSYNC to ensure commands such as Ctrl/Y work correctly.

Create_File I/O error, VMS Status = *vms_hex_error*

Facility: MultiNet NFS Server

Meaning: The server failed to create a file.

Action: Retry the operation.

Create_File Write error, VMS Status = *vms_hex_error*

Facility: MultiNet NFS Server

Meaning: The server failed to write the initial block of a directory file or the contents of a symbolic link file.

Action: Retry the operation.

Cross-device link (EXDEV)

Facility: MultiNet NFS Server

Meaning: The client tried to link or rename directories or files across mount points, using the "link" or "rn" commands.

Action: The server does not allow clients to perform these operations.

Database rename failed: error error_number

Facility: MULTINET KERBEROS DATABASE LOAD

Meaning: While loading the database, an error occurred when the system attempted to rename the database file from a temporary name to the name specified on the command line. The working file name is the name specified in the command line with a hyphen (-) suffix. This error indicates the specified file may have been deleted by another process or write permissions were not available on the MULTINET: directory.

Action: Ensure write permissions are available on the MULTINET: directory.

Date Invalid

Facility: MULTINET KERBEROS DATABASE EDIT

Meaning: The specified expiration date was not in the form of yyyy-mm-dd.

Action: Correct the information and enter the new date.

**%DCL-W-ACTIMAGE, error activating image MULTINET:COMPILE_HOST_TABLE
-CLI-E-IMGNAME, image file *filename***

Facility: VMSINSTAL

Meaning: If this message is followed by "virtual address space is full," the VIRTUALPAGECNT parameter is set too low. If the message is followed by "exceeded quota," the installation completed correctly, but you need to raise your PGFLQUOTA and recompile the host tables.

Action: If the problem is with the quota, try raising it to 50000.
If the error is with address space, raise VIRTUALPAGECNT, reboot the host, and recompile the host tables.

**DCL-W-ACTIMAGE, error activating image MULTINET_TOPS_LIBRARY
-CLI-E-IMAGEFNF, image file not found *filename***

Facility: TELNET

Meaning: This message can occur after installing and configuring MultiNet, but before MultiNet has started.

Action: Start MultiNet with the following command:

```
    $ @MULTINET:START_MULTINET
```

Also ensure any logical names created during the installation are defined with the /EXECUTIVE_MODE qualifier.

**%DCL-W-ACTIMAGE, error activating image MULTINET_VMS_SHAREABLE
-CLI-E-IMGNAME, image file *filename* -SYSTEM-W-SYSVERDIF, system version
mismatch; please relink**

Facility: Variable

Meaning: You upgraded OpenVMS but did not re- install MultiNet. MultiNet has a number of images that are operating system-dependent. You must re-install MultiNet whenever you install a new "major" release of OpenVMS.

Action: Re-install MultiNet. You do not have to reconfigure MultiNet. However, if you want to reconfigure MultiNet, answer **Yes** to the following installation question:

```
    * Configure MultiNet TCP/IP after installation [No]
```

Deaccess I/O error, VMS Status = *vms_hex_error*

Facility: MultiNet NFS Server

Meaning: The server failed to close a file.

Action: Retry the operation.

DECnet Connection is from *server::user* for server *name*

Facility: X11-Gateway

Meaning: The DECnet connection from the client was directed to *server_name*. The connection came from node *decnet_server, username*.

Action: Informational message; no action is required.

**dectermport failed to find language, XOpenDisplay("") returned NULL
%DECW-F-CANT_OPEN-DISPL, Can't open display**

Facility: DECwindows

Meaning: This message appears when a DECterm is created from an X terminal run over an LAT session.

Action: Try to create the DECterm and display additional information by invoking the following commands:

```
$ SHOW LOGICAL DECW$DISPLAY
$ SHOW DISPLAY
$ MULTINET NSLOOKUP domain_name_from_show_display
$ RUN DECW$EXAMPLES:ICO
```

The SHOW DISPLAY command provides a domain name. Use this value in the NSLOOKUP command. The ICO program opens a terminal and displays a bouncing icosahedron as a test.

Put the domain name specified in the /NODE qualifier in double quotes.

**%DECW-I-ATTACHED, transport DECNET attached to its network
%DECW-W-ATT_FAIL, failed to attach transport TCPIP**

Facility: DECwindows

Meaning: A user could not display X11 applications on an OpenVMS host; this message appeared in the DECW\$SERVER_0_ERROR.LOG file.

Action: Do one of the following:

- The value of UCX\$INET_HOST is not in MULTINET:HOSTS.LOCAL, causing a problem with the transport initiation. Make sure UCX emulation is also enabled.

%DECW-I-ATTACHED, transport TCPIP attached to its network

Facility: DECwindows

Meaning: This message appears in the file SYS\$MANAGER:DECW\$SERVER_0_ERROR.LOG when the TCP/IP transport is configured correctly.

Action: Informational message; no action is required.

%DECW-W-ATT_FAIL, failed to attach transport TCPIP

Facility: DECwindows

Meaning: When followed by "SYSTEM-W-NOSUCHDEV, no such device available," this error indicates DECwindows started before MultiNet.

Action: Ensure DECnet starts before MultiNet and DECwindows starts *after* MultiNet. The DECwindows process completes its startup as soon as SYSTARTUP_Vn.COM completes, which is not before MultiNet completes. Start MultiNet from this command file. (Under OpenVMS V5, this file is called SYSTARTUP_V5.COM; under OpenVMS V6 and AXP versions, this file is called SYSTARTUP_VMS.COM.)

Delete_File I/O error, VMS Status = 0x800

Facility: MultiNet NFS Server

Meaning: A file in use by NFS was deleted by another node. The 0x800 code means file access conflict. Even though this message displayed on OPCOM, no error message is displayed when the file is deleted.

Action: Before deleting a file, ensure no one else is using it.

**%DIRECT-E-OPENIN, error opening directory *.*;* as input
-RMS-E-PRV, insufficient privilege or file protection violation**

Facility: NFS

Meaning: This error can occur if there is no UID mapping for *directory*. If so, only W:RE access is given to the file. These permissions do not permit execution of the DIR command. A UID mapping is required to get access to a file over NFS even if your account has privileges.

Action: Refer to the NFS Client chapter of the *Administrator's Guide* for information on proper UID/GID translation table setups.

Directory not empty (ENOTEMPTY)

Facility: MultiNet NFS Server

Meaning: One of the following occurred:

- The client tried to use the unlink command to unlink a directory that was not empty.
- An unexpected SS\$_DIRNOTEMPTY was received from the OpenVMS XQP when a user tried to delete a directory. The directory was not empty because an OpenVMS user added a file to the directory shortly before the delete attempt.

Action: Empty the directory and retry the operation.

Disk quota exceeded (EDQUOT)

Facility: MultiNet NFS Server

Meaning: Because the server has exceeded its disk quota, it has received a SS\$_EXDISKQUOTA error message from the OpenVMS XQP. If the writeback feature is enabled, preceding write operations may not have completed, and some data may have been lost before reaching the disk.

Action: Delete other files to free disk space, then write the file again.

%DISM-W-CANNOTDMT, NFSn: cannot be dismounted
%SYSTEM-F-DEVNOTMOUNT, device is not mounted

Facility: NFSDISMOUNT

Meaning: An invalid mount point was specified for a dismount.

Action: Specify the correct mount point name. List the NFS-mounted devices with the SHOW DEVICES NFS command.

Dispatcher: Bad Program #200006

Facility: MultiNet NFS Server, AIX NFS Client

Meaning: By default, NFS clients running the AIX Operating System for IBM RS/6000 computers try to use IBM Access Control extensions. The MultiNet NFS Server does not support those extensions.

Action: Use the undocumented NOACL mount option on the AIX client.

Don't forget to do a 'KDB_UTIL load *filename*' to reload the database!

Facility: MULTINET KERBEROS DATABASE DUMP

Meaning: This informational message describes the command you should use to reload the database after changing the master key or converting an old Kerberos database to the current format.

Action: Enter the following command to reload the database after MULTINET KERBEROS DATABASE DUMP completes:

```
$ MULTINET KERBEROS DATABASE LOAD filename
```

Duplicate DECnet mapping detected

Facility: IMAP Server

Meaning: The .IMAPRC file contained more than one DECnet name to domain name mapping for the same DECnet name.

Action: Remove the duplicate definition from .IMAPRC.

Duplicate UID

Facility: NFS

Meaning: Two accounts cannot be mapped to the same UID. If they are, a file protection error can result on one account and the Duplicate UID or Duplicate UIC message on the other.

Action: Use MULTINET CONFIGURE /NFS to change one of the accounts to a different UID.

Error 65

Facility: MultiNet

Meaning: Error code 65 is EHOSTUNREACH, no route to host. Typically, this message occurs when an ICMP Host Unreachable message is received from a gateway in response to a packet sent to a destination address. This is sometimes caused by transient network connectivity problems, and is sometimes deliberate on the part of organizations filtering certain kinds of network traffic.

Action: If you have reached the specified host previously, try again later. A router or intermediate host may be down temporarily. If you have not reached the host before, try to determine which router is preventing access to the host. One method is to use MULTINET TRACEROUTE to trace the route to the host.

Error 84

Facility: REMIND

Meaning: An attempt to use the REMIND SEND option caused this message to appear.

Action: Error 84 (hex) is SSS\$_DEVOffline, which indicates the message could not be sent because:

- The user is not able to receive the broadcast (the user's terminal is set to /NOBROADCAST or BROADCAST=NOMAIL).
- That user is not logged on.

Error attempting to change password.**Facility:** MULTINET KERBEROS PASSWORD**Meaning:** The user or principal name password could not be changed.**Action:** Use MULTINET KERBEROS DATABASE EDIT to ensure the user or principal name is in the database. Add new information or change the password as required.**ERROR: Couldn't create configuration file
MULTINET_ROOT:[MULTINET]NETWORK_DEVICES.CONFIGURATION****Facility:** MULTINET CONFIGURE /NETWORK**Meaning:** You may have incorrect privileges or insufficient disk quota.**Action:** Ensure you have enough privileges to write the file MULTINET:NETWORK_DEVICES.CONFIGURATION, and there is enough disk quota on that volume.**Error *<error-number>* writing to *<filename>*****Facility:** MULTINET SET /INTERFACE/FILTER**Meaning:** When logging filter hits to a file, a write to the file has failed. *<error-number>* contains the UNIX-style reason code.**Action:** Make sure the device for the output file is accessible and that it's not full.**Error getting packet filter information for *<device>*****Facility:** MULTINET SHOW /INTERFACE/FILTER**Meaning:** The filters for the specified interface could not be retrieved, due to an internal error.**Action:** Contact Process Software.

Error getting packet filter logging params for <device>

Facility: MULTINET SHOW /INTERFACE/FILTER

Facility: MULTINET SET /INTERFACE/FILTER

Meaning: The filter logging parameters for the specified interface could not be retrieved, due to an internal error.

Action: Contact Process Software.

Error opening <filename>

Facility: MULTINET SET /INTERFACE/FILTER

Meaning: The specified filter file could not be opened for reading.

Action: Make sure the specified file exists, and can be accessed by the user.

Error opening <filename> for output

Facility: MULTINET SET /INTERFACE/FILTER

Meaning: When logging filter hits to a file, the specified output file couldn't be opened for writing.

Action: Make sure the output file name syntax is correct; that the directory for the output file exists and can be accessed; that the device for the output file isn't full or write-locked, and is on-line.

Error parsing '<filter-definition>'

Facility: MULTINET SET /INTERFACE/FILTER

Meaning: The filter definition displayed could not be parsed.

Action: Make sure the filter line has correct syntax.

Error: NULL token.**Facility:** Variable**Meaning:** The MULTINET:SERVICES.MASTER_SERVER file has been corrupted.**Action:** Use an older version of the file and add your changes using MULTINET CONFIGURE/SERVER. *Do not edit the configuration file manually.***Error reading new password, password unchanged.****Facility:** MULTINET KERBEROS PASSWORD**Meaning:** The specified password does not meet the requirements of a valid Kerberos password. A Kerberos password is case-sensitive, can be up to 64 characters in length, cannot include control characters or spaces, and does not accept backspaces in corrections.**Action:** Rerun MULTINET KERBEROS PASSWORD and specify the correct password. If the user has forgotten the password, use MULTINET KERBEROS DATABASE EDIT to assign a new one.**Error reading old password.****Facility:** MULTINET KERBEROS PASSWORD**Meaning:** The specified password does not meet the requirements of a valid Kerberos password. A Kerberos password is case-sensitive, can be up to 64 characters in length, cannot include control characters or spaces, and does not accept backspaces in corrections.**Action:** Rerun MULTINET KERBEROS PASSWORD and specify the correct password. If the user has forgotten the password, use MULTINET KERBEROS DATABASE EDIT to assign a new one.

Error receiving startup banner from *hostname*

Facility: SMTP

Meaning: The remote host, *hostname*, either did not send an SMTP startup banner (the connection timed out), or is sending an SMTP startup banner using the wrong syntax.

Action:

- Verify whether the remote host is accepting SMTP:

```
$ MULTINET TELNET/PORT=SMTP hostname
```

If the connection does not succeed or you do not receive an SMTP startup banner within a few minutes, check for problems with the remote host.

- If there are no network connectivity problems, the most likely problem is with an older UNIX sendmail configuration that ends the startup banner line with only <LF>. According to the RFCs, the correct ending is <CR><LF>.

Fix the remote host SMTP to use <CR><LF> instead of <LF>, or put the following logical name definition in your system startup files:

```
$ DEFINE/SYSTEM/EXECUTIVE -  
  _$ MULTINET SMTP_ACCEPT_UNIX_LF_BRAIN_DAMAGE TRUE
```

**ERROR: sen can't \$ASSIGN to FFI device:
%SYSTEM-W-NOSUCHDEV, no such device available**

Facility: MULTINET CONFIGURE

Meaning: This error occurs while installing MultiNet, and may be followed by:

```
This network configuration FAILED the sanity check.  
%VMSINSTAL-E-IVPFAIL, The IVP for MULTINET Vn.n has failed.)
```

Action: Use the MULTINET CONFIGURE SHOW command to determine which OpenVMS device is associated with the "se" interface. Then use SHOW DEVICE to ensure the device exists.

Error: Service "nfs" not found**Facility:** NETCONTROL**Meaning:** This message occurs when an attempt is made to access NFS when it does not exist on the host.**Action:** Ensure NFS is installed and configured. Instructions for installing NFS are contained in the *Installation and Introduction*; configuration information can be found in the *Administrator's Guide*.**Error setting packet filter for <device>****Facility:** MULTINET SET /INTERFACE/FILTER**Meaning:** The filter definitions could not be set for the specified device, due to an internal error in MULTINET SET /INTERFACE, or because non-paged pool was exhausted.**Action:** Ensure sufficient NPAGEDYN exists (approximately 74 bytes are required per filter definition), or contact Process Software.**Error setting packet filter logging params for <device>****Facility:** MULTINET SET /INTERFACE/FILTER**Meaning:** The filter logging parameters could not be set for the specified device, due to an internal error in MULTINET SET/INTERFACE.**Action:** Contact Process Software.**Error updating Kerberos database****Facility:** MULTINET KERBEROS DATABASE EDIT**Meaning:** An attempt to add an entry to the Kerberos database failed. The database may be in use by another process, or there may be a privileges problem.**Action:** Check the conditions and retry.

Error while deleting directory

Facility: IMAP Server

Meaning: An error was encountered while trying to delete a folder that is a directory. This is caused by the presence of extraneous files in the directory that the server was trying to delete.

Action: Manually delete the directory on the server.

Error while deleting mailfile

Facility: IMAP Server

Meaning: An error was encountered while trying to delete a folder that is a .MAI file.

Action: Verify that the server has sufficient privileges to write to the user's mail directory.

Error writing output file. Terminating.

Facility: MULTINET KERBEROS DATABASE SRVTAB

Meaning: An error occurred while attempting to write the server-NEW-KERBEROS.SRVTAB output file. The file is locked by another process, there is a privileges problem, or disk space is not available.

Action: Check the conditions and retry.

ex0: transmit error=*number*<*facility*>

Facility: Excelan controller

Meaning: An error occurred while accessing an Excelan Ethernet controller.

Action: An error from an Excelan device consists of a decimal number and a keyword. Breaking the decimal number into bits indicates what errors occurred during a transmission. The keyword lists the "highest" error (by bit number) detected.

For example:

```
%%%%%%%%%% OPCOM 23-MAR-2000 23:26:20.93 %%%%%%%%%%%  
Message from user MULTINET on FLOWERS  
ex0: transmit error=28<XCLSNS>
```

In this example, 28 is bits 2, 3, and 4 set (hex 1C).

Table 2-1 describes Excelan transmit errors; Table 2-2 describes Excelan receive errors.

Table 2-1 Excelan Transmit Errors

Bit Set	Explanation
0	Transmit OK after 1 retry.
1	Transmit OK after 2+ retry.
2	Undefined in the driver code, may be a DMA underrun on the Ethernet chip.
3	No SQE TEST Signal. facility is <SQETST>.
4	Excessive retries. facility is <XCLSNS>. This error can occur due to excessive collisions, a transceiver connection, or an Ethernet problem.
5	No carrier sense. facility is <CARRIER>. Indicates no carrier signal, a transceiver problem, a transceiver cable problem, or a wrong transceiver type.
6	Bad packet length. facility is <LENGTH>.
7	Undefined in the driver code. There may be a hardware fault on the EXOS board or a faulty transceiver connection.

Table 2-2 Excelan Receive Errors

Bit Set	Explanation
0	Undefined.
1	Undefined.
2	Packet was truncated by too small a buffer or by a DMA underrun on the EXOS board. facility is <TRUNC>.
3	Undefined.
4	Packet was received with alignment errors and may be due to an Ethernet packet received that was too long. facility is <ALIGN>.
5	Packet was received with CRC errors. facility is <CRC>.
6	Packet was dropped because the buffer was too small. facility is <BUFLLEN>.

For errors in which *facility* is provided, if more than one bit is set, the highest bit is reported.

Excessive authentication failures host=*host*

Facility: IMAP Server

Meaning: A client failed to enter a valid user name and password combination in the three allowed attempts. Repeated failures may be an indication of an attack on the server.

Action: Verify the source host is a valid working client.

Excessive login failures user=*username* host=*host*

Facility: IMAP Server

Meaning: A client failed to enter a valid user name and password combination in the three allowed attempts. Repeated failures may be an indication of an attack on the server.

Action: Verify the source host is a valid working client.

Expiration time for filter is before start time.

Facility: MULTINET SET /INTERFACE/FILTER

Meaning: A filter line specifies a timed filter where the expiration time for the filter is before the start time for the filter.

Action: Edit the filter file and correct the offending line.

EXT_SRVTAB: bad instance name: *instance-argument*

Facility: MULTINET KERBEROS DATABASE SRVTAB

Meaning: The instance value specified in the command line could not be found in the Kerberos database.

Action: Examine the MULTINET KERBEROS DATABASE DUMP output to help solve the problem; otherwise, correct the spelling, then rerun the MULTINET KERBEROS DATABASE SRVTAB utility.

EXT_SRVTAB: couldn't get local realm

Facility: MULTINET KERBEROS DATABASE SRVTAB

Meaning: The specified realm value is incorrect.

Action: Rerun MULTINET KERBEROS DATABASE SRVTAB and supply the correct value. You can supply the name on the command line by using the /REALM qualifier. Check the MULTINET:KERBEROS.CONFIGURATION file for the specification of the local realm.

Extend_File I/O error, VMS Status = *vms_hex_error*

Facility: MultiNet NFS Server

Meaning: The server failed to extend a file to satisfy a write operation.

Action: Retry the operation.

Fatal error user=*user* host=*host* mbx= *mbx*: error

Facility: IMAP Server

Meaning: The server encountered a fatal error. See *error* for further details.

Action: Re-establish the connection to the server.

**File already accessed on channel.
Drive is not mounted.**

Facility: NFSDISMOUNT

Meaning: While using NFS to a remote host, that host crashed. These messages appear when an attempt is made to use NFSDISMOUNT.

Action: The remote host cannot be dismantled until it is back online; however, you can reset the NFS Client by killing the NFS_CLIENT_ACP process with STOP/ID, and then dismantling and remounting everything with NFSDISMOUNT/NFSMOUNT. Next time, mount access to the remote host using the NFSMOUNT /SOFT qualifier. The local host will time out 70 seconds later if the remote host fails. You can select a different timeout value with the /TIMEOUT qualifier.

File exists (EEXIST)

Facility: MultiNet NFS Server

Meaning: One of the following situations occurred:

- A user tried to create a directory file or symbolic link to an already existing, incompatible file name.
- The OpenVMS XQP returned an unexpected SS\$_DUPFILENAME error message.

Action: Retry the operation after making sure the directory exists.

Fill_In_File I/O error, VMS Status = *vms_hex_error*

Facility: MultiNet NFS Server

Meaning: The server failed to get information about a file.

Action: Retry the operation.

Filter REPEAT keyword requires start and expiration times.

Facility: MULTINET SET /INTERFACE/FILTER

Meaning: A filter definition contains the REPEAT keyword, but doesn't have starting and expiration times specified.

Action: Edit the filter file and correct the offending line.

Folder can not be deleted

Facility: IMAP Server

Meaning: An error was encountered while deleting a folder. This error is associated with another message providing additional information.

Action: Retry the operation.

Folder context corrupt (uidvalidity was n, now m). Please reopen folder.**Facility:** IMAP Server**Meaning:** The IMAP server has detected an external change to the mailbox and the list of message UIDs is no longer valid. This is likely to occur if both VMS mail and IMAP are accessing the same folder.**Action:** Reopen the folder.**Folder has inferior folders****Facility:** IMAP Server**Meaning:** The client attempted to delete a folder which has a child folder. The child folder and its contents must be deleted prior to deleting the folder.**Action:** Delete any inferior folders and retry the operation.**Folder timer too low****Facility:** IMAP Server**Meaning:** The *set folder-time* directive in the .IMAPRC file specified a value that was too low. The default and minimum allowed value is one minute.**Action:** Change the value in .IMAPRC.**Generic error****Facility:** Kerberos**Meaning:** An internal Kerberos error occurred.**Action:** Ensure the KADMIN server of your KDC host is available. You can test this by using TELNET to access port 750, 88, or both, depending on which port Kerberos is configured to listen. Also ensure the MULTINET:KERBEROS.CONFIGURATION file includes at least one line with "admin server", and the KADMIN server on that host appears as an active process.

Get_Buffer Unix error n

Facility: MultiNet NFS Server

Meaning: The server could not extend a file because of an error it encountered when reading in the block from the disk that contains the current end of file. A UNIX error code is printed.

Action: Contact Technical Support.

Incorrect old password.

Facility: MULTINET KERBEROS PASSWORD

Meaning: The specified old password value did not agree with the user's entry in the database. A Kerberos password is case-sensitive, can be up to 64 characters in length, cannot include control characters or spaces, and does not accept backspaces in corrections.

Action: Rerun MULTINET KERBEROS PASSWORD, specifying the correct value. If the user has forgotten the password, the system manager can use MULTINET KERBEROS DATABASE EDIT on the KDC host to assign a new value.

Invalid, choose 0-65535

Facility: MULTINET KERBEROS DATABASE EDIT

Meaning: A value outside the range of zero to 65535 was entered at the Attributes prompt. This field is not used currently by Kerberos applications.

Action: Select a correct value and try again. The default, the value zero, is specified for Attributes.

Invalid data file size received

Facility: LPD Server

Meaning: Indicates a LPR client sent a invalid printing job. This could occur if a Windows 2000 LPR client is wrongly configured.

Invalid domain literal after @**Facility:** IMAP Server**Meaning:** The server tried parsing a malformed RFC822 message header. These errors are encountered when parsing headers that are malformed intentionally by the sender in order to avoid tracing.**Action:** None.**Invalid group mailbox list: *address*****Facility:** IMAP Server**Meaning:** The server tried parsing a malformed RFC822 message header. These errors are encountered when parsing headers that are malformed intentionally by the sender in order to avoid tracing.**Action:** None.**Invalid mailbox list: *address*****Facility:** IMAP Server**Meaning:** The server tried parsing a malformed RFC822 message header. These errors are encountered when parsing headers that are malformed intentionally by the sender in order to avoid tracing.**Action:** None.**Invalid start or expiration time for filter****Facility:** MULTINET SET /INTERFACE/FILTER**Meaning:** A filter definition contains a start time or expiration time that isn't a valid VMS absolute time or delta time specification.**Action:** Edit the filter file and correct the offending line.

I/O error (EIO)

Facility: MultiNet NFS Server

Meaning: One of the following conditions occurred:

- The client tried to extend a file, using the "setattr" procedure. The server does not allow clients to perform this operation.
- The client tried to change the size of a symbolic link, using the "setattr" procedure. The server does not allow clients to perform this operation.
- The client tried to truncate a VAR-CR file to something other than zero, using the "setattr" procedure. The server does not allow clients to perform this operation.
- A bad state exists in the server.
- The OpenVMS XQP returned an unexpected error message. The following message should have displayed on the OpenVMS console:

```
Couldn't translate VMS error 0xXXXXXX
```

Action: Retry the operation with the correct command.

Invoked as a type server

Facility: X11-Gateway

Meaning: The X11-Gateway was invoked as a type protocol server.

Action: Informational message; no action is required.

IP Connection is for server *server_name* from *node[address]*

Facility: X11-Gateway

Meaning: The IP connection from the client was directed to *server_name*. The connection came from *node*, IP *address*.

Action: Informational message; no action is required.

Is a directory (EISDIR)

Facility: MultiNet NFS Server

Meaning: One of the following conditions occurred:

- The client tried to create a non-directory file on top of a directory file, using "creat." The server does not allow clients to perform this operation.
- The client tried to link a directory, using "link." The server does not allow clients to perform this operation.
- The client tried to change the size of a directory, using "setattr." The server does not allow clients to perform this operation.
- The client tried to write to a directory, using "write." The server does not allow clients to perform this operation.

Action: Retry the operation using the correct command.

%JBC-E-SYMDEL, unexpected symbiont process termination

Facility: SMTP

Meaning: This message displays during a non-standard MultiNet installation.

Action: Check the accounting for the exit status of the symbiont process. Ensure SYSS\$SYSTEM:MULTINET_SMTP_SYMBIONT.EXE was reinstalled properly.

KDB_UTIL: Couldn't get master key.

Facility: MULTINET KERBEROS DATABASE NEW_MASTER_KEY

Meaning: The current specified password was determined to be incorrect during a **new_master_key** operation; or the MULTINET:KERBEROS.MASTER_KEY file does not exist, is not accessible, or does not contain the master key.

Action: Check the spelling and rerun MULTINET KERBEROS DATABASE NEW_MASTER_KEY.

KDB_UTIL: Unable to open *filename***Facility:** MULTINET KERBEROS DATABASE LOAD**Meaning:** The file specified for output could not be opened.**Action:** Ensure the specified directory and file are accessible.**Kerberos Authentication failed: Can't decode authenticator (krb_rd_req)****Facility:** MULTINET TELNET (Kerberized)**Meaning:** An attempt to process a ticket failed because the identity of the user could not be verified. Generally, this error is caused by the wrong key in the KERBEROS.SRVTAB file, which can result from rebuilding the KDC database and/or changing the password used for the host's rcmd entry.**Action:** Ensure the KERBEROS.SRVTAB file exists on the remote host. If the file exists, but authentication is not taking place, the file is corrupted. A system manager can rebuild KERBEROS.SRVTAB with the information on the KDC and put the new file on the application server. This procedure is described in the Kerberos chapter of the *Administrator's Guide*. You can test the KERBEROS.SRVTAB file for usability, as shown in the following example:

```
$ MULTINET KERBEROS LIST/SRVTAB
Server key file:  multinet:kerberos.srvtab
-----
rcmd              fnord FOO.COM              1
$
```

Use of this command requires SYSTEM read access. If the output is similar to this example, the file exists and is not empty. However, this test does not determine if the key is valid.

KERBEROS DATABASE STASH: Couldn't read master key.

Facility: MULTINET KERBEROS DATABASE STASH

Meaning: The master key specified in the prompt does not match that of the database.

Action: Check the spelling and rerun MULTINET KERBEROS DATABASE STASH.

KERBEROS DATABASE STASH: Unable to open master key file

Facility: MULTINET KERBEROS DATABASE STASH

Meaning: The master key file could not be opened for creation. Incorrect permissions may prevent this file from being created in the MULTINET: directory.

Action: Ensure you have the correct permissions to create a file in the MULTINET: directory.

KERBEROS DATABASE STASH: Write I/O error on master key file

Facility: MULTINET KERBEROS DATABASE STASH

Meaning: A write function call failed while attempting to write to the master key file.

Action: Ensure directory permissions are correct for writing to the master key file, and sufficient disk space is available.

Kerberos db and cache init failed = *error_number*

Facility: MULTINET KERBEROS DATABASE STASH

Meaning: A problem occurred while initializing the Kerberos database or while creating the database cache.

Action: Contact Technical Support.

Kerberos error: Bad Kerberos name format (kname_parse)

Facility: MULTINET KERBEROS PASSWORD

Meaning: The user name, instance, and realm values could not be parsed from the database entry for the user.

Action: Make sure the user is in the Kerberos database. If so, use MULTINET KERBEROS DATABASE EDIT to check the information in the entry.

Kerberos error: *error-message*

Facility: MULTINET KERBEROS PASSWORD

Meaning: The user or principal name password could not be parsed from the user's database entry.

Action: Make sure the user is in the Kerberos database. If so, use MULTINET KERBEROS DATABASE EDIT to check the information in the entry.

Kerberos error on default value lookup, *status* found.

Facility: MULTINET KERBEROS DATABASE EDIT

Meaning: An attempt to get the entry from the Kerberos database failed. If *status* is -1, the database is locked by another process. A status other than 1 (success) indicates a database read error.

Action: Ensure you have exclusive access to the database before continuing.

KERBEROS INIT: bad Kerberos instance format

Facility: MULTINET KERBEROS INIT

Meaning: The specified Kerberos instance name is incorrect.

Action: Check the spelling and rerun MULTINET KERBEROS INIT.

KERBEROS INIT: bad Kerberos name format**Facility:** MULTINET KERBEROS INIT**Meaning:**

- 1 The specified Kerberos name is not correct.
- 2 The user name, instance name, and realm name could not be parsed while attempting to create new user tickets because the total name length of these three elements exceeded the maximum size of 120 characters.

Action: Check the spelling and rerun MULTINET KERBEROS INIT; or shorten one of the names and rerun MULTINET KERBEROS INIT.**KERBEROS INIT: bad Kerberos realm format****Facility:** MULTINET KERBEROS INIT**Meaning:** The specified Kerberos realm name is incorrect.**Action:** Check the spelling and rerun MULTINET KERBEROS INIT.**KERBEROS INIT: Generic error (get_inkt)****Facility:** MULTINET KERBEROS INIT**Meaning:** An internal system error occurred.**Action:** Contact Technical Support.**KERBEROS INIT: krb_get_lrealm failed****Facility:** MULTINET KERBEROS INIT**Meaning:** An error occurred while attempting to read the realm name from the database.**Action:** Contact Technical Support.

KERBEROS INIT: Password incorrect

Facility: MULTINET KERBEROS INIT

Meaning: The specified user password is incorrect. A Kerberos password is case-sensitive, can be up to 64 characters in length, cannot include control characters or spaces, and does not accept backspaces in corrections.

Action: Rerun MULTINET KERBEROS INIT and specify the correct value.

KERBEROS INIT: Principal unknown (Kerberos)

Facility: TELNET /AUTH or RLOGIN /AUTH

Meaning: An entry for the user was not found in the KDC database.

Action: Use MULTINET KERBEROS DATABASE EDIT to add an entry to the database.

KERBEROS INIT: Protocol error (get_inkt)

Facility: MULTINET KERBEROS INIT

Meaning: An internal system error occurred.

Action: Contact Technical Support.

KERBEROS INIT: k_gethostname failed

Facility: MULTINET KERBEROS INIT

Meaning: The host name associated with the KDC (ticket server) could not be determined.

Action: Rerun MULTINET KERBEROS INIT. If the error occurs again, contact Technical Support.

KERBEROS LIST: can't find realm of ticket file: *error_string*

Facility: MULTINET KERBEROS LIST

Meaning: The ticket file in the user's login directory does not contain information required by MULTINET KERBEROS LIST. The ticket file is corrupted or has been altered.

Action: Delete the ticket file using MULTINET KERBEROS DESTROY and obtain new tickets using MULTINET KERBEROS INIT.

Kerberos rcmd failed: rcmd protocol failure

Facility: TELNET /AUTH or RLOGIN /AUTH

Meaning: The realm name is different from the domain name.

Action: Create a MULTINET:KERBEROS.REALMS file by following the instructions in the Kerberos chapter in the Administrator's Guide.

Kerberos realm *realm-name error-message*

Facility: MULTINET KERBEROS INIT

Meaning: The *error-message* describes the problem. If "Generic error (get_intkt)" appears, the error occurred during internal processing of the instance or ticket.

Action: Contact Technical Support.

key file truncated

Facility: MULTINET KERBEROS LIST

Meaning: The server key file contains more than one record. Only the first record was read. The server key file was created by a previous call to MULTINET KERBEROS DATABASE SRVTAB. The actual key file is not changed.

Action: Ensure files created with MULTINET KERBEROS DATABASE SRVTAB are not edited after they are created.

krb_sendauth() failed: Principal unknown (Kerberos)

Facility: TELNET /AUTH or RLOGIN /AUTH

Meaning: The realm name is different from the domain name.

Action: Create a MULTINET:KERBEROS.REALMS file by following the instructions in the Kerberos chapter in the *Administrator's Guide*.

LIB\$GET_EF failed for *protocol*

Facility: X11-Gateway

Meaning: The X11-Gateway server failed while issuing a LIB\$GET_EF for the event flag.

Action: Try this again with the debug level set to 2. If the failure reoccurs, contact Technical Support. The X11-Gateway debug level is set by defining the MULTINET_XGATEWAY_DEBUG_LEVEL logical name to the numeric value of the required debug level. Refer to the X11-Gateway chapter in the *Administrator's Guide* for more information.

LICENSE-W-NOCOMB, multiple licenses could not be combined for MULTINET...

Facility: VMSLICENSE

Meaning: This OpenVMS message warns you that you cannot combine licenses you did not specify to combine. (This is an OpenVMS bug.)

Action: Ignore the message.

Line <linenumber> filter already expired, not loaded: '<filter-definition>'

Facility: MULTINET SET /INTERFACE/FILTER

Meaning: The specified time, but non-repeating, filter that has already passed its expiration time, and will not be loaded.

Action: None. This is an information message only.

Line too long before authentication host=*host***Facility:** IMAP Server**Meaning:** A client sent an illegitimate command to the server before attempting to authenticate itself. This is indicative of a broken client or a possible attack against the server.**Action:** Verify the source host is a valid working client.**%LINK-F-NOLINKSTB, linker-generated symbol table file is illegal****Facility:** OpenVMS AXP LINK**Meaning:** An error occurred while attempting to link against the system symbol table.**Action:** Enter the following command:

```
  $ LINK/SYSEXEXE
```

Link_File I/O error, VMS Status = *vms_hex_error***Facility:** MultiNet NFS Server**Meaning:** The server failed to link or rename a file.**Action:** Retry the operation.***logical_name* logical name not defined****Facility:** X11-Gateway**Meaning:** A logical name required for the gateway to operate was not defined.**Action:** Confirm that the gateway has been configured properly. Define the logical name mentioned in the error message. If the logical name is not needed, set it to zero to eliminate the message.

Login failure user=*user* host=*host*

Facility: IMAP Server

Meaning: A client failed to enter a valid user name and password combination.

Action: None.

Login user=*user* host=*host*

Facility: IMAP Server

Meaning: A user logged in to the server successfully.

Action: None.

**%MAIL-E-ERRACTRNS, error activating transport IN
%LIB-E-ACTIMAGE, error activating image *image name***

Facility: SMTP

Meaning: These messages display while attempting to reply to an address in the format in% "user@host". There may be a problem in the PMDF configuration.

Action: Enter the following command to enable use of this format:

```
$ DEFINE/SYSTEM/EXECUTIVE_MODE MAIL$PROTOCOL_IN SMTP_MAILSHR
```

Note! You must have SYSNAM privilege to execute this command.

This error causes IN% mail to be sent through the MultiNet mailer and not the PMDF mailer.

%MAIL-E-ERRACTRNS, error activating transport username**Facility:** SMTP**Meaning:** This message appears when attempting to send DECnet mail over SMTP:

```
smtp% "username%nodename.decnet@host"
```

Action: Use the following format instead:

```
SMTP%nodename::username
```

If this does not meet your needs, customize the MULTINET_ROOT:[MULTINET.EXAMPLES]USER_SMTP_DISPATCH.C file. Search for #ifdef DECNET_ADDRESS_HACK and add code to accommodate your needs.

%MAIL-E-ERRACTRNS, error activating transport SMTP**%LIB-E-ACTIMAGE, error activating image *image_name*****Facility:** SMTP**Meaning:** These messages appear while attempting to forward mail between hosts.

Action: If you have a cluster with hosts not running MultiNet, define the MAIL\$SYSTEM_FLAGS bits to indicate you have a heterogeneous cluster. Use the following command to define this logical:

```
$ DEFINE/SYS/EXEC MAIL$SYSTEM_FLAGS 7
```

Use a value of 3 or greater. If you prefer MAIL to include the time the message was delivered in the notification message displayed on a recipient's terminal, set the logical to 7. This logical is described in the OpenVMS documentation supplied with your system. In OpenVMS V5, this logical is described in the *VMS Mail Manual*. In OpenVMS V6, this logic is in the "OpenVMS System Manager's Manual: Essentials" in the "Managing MAIL Accounts" section.

**%MAIL-E-OPENIN, error opening *file* as input
-RMS-F-PLV, unsupported prolog version**

Facility: SMTP

Meaning: These messages occurred while SMTP tried to deliver a message received via MultiNet to a local user.

Action: The ISAM key structure of *file* was corrupted. Delete the file and restore a good copy from backup.

%MAIL-E-USERSPEC, invalid user specification *address*

Facility: SMTP

Meaning: Attempts to send mail in the following format fail:

```
"IGW::PSI%ESX25NET.IHEPVX::USER"@host
```

Action: Use the following format instead:

```
SMTP%"\'igw:psi%esx25net.ihepvx::USER\'@host"
```

%MULTINET-F-EAFNOSUPPORT, Address family not supported by protocol family

Facility: TALK

Meaning: Two users on hosts with different byte orders are trying to use TALK to converse. Typically, this occurs when talking to a user on a Sun workstation because Sun has a different byte-ordering scheme than the OpenVMS VAX or AXP architectures.

Action: Use **ntalk** on the Sun host or TALK/OLD on the OpenVMS host. A copy of NTALK is supplied on the MultiNet CD-ROM in the [CONTRIBUTED-SOFTWARE.APPLICATIONS.NTALK] directory. This command is also available in the public domain. The NTALK directory contains documentation describing how to access the file. NTALK is distributed as a UNIX **tar** file. Follow these steps to make it available for use:

- 1 Copy the NTALK **tar** archive to a UNIX host.
- 2 Use **tar** to retrieve the archived files.

Run **make** to compile the files into binary source. (The **make** file assumes the UNIX **cc** compiler is available.)

Message from user MULTINET on node dispatcher: bad program # 200006**Facility:** MultiNet NFS Server, AIX NFS Client**Meaning:** By default, NFS clients running the AIX Operating System for IBM RS/6000 computers try to use IBM Access Control extensions. The MultiNet NFS Server does not support those extensions.**Mismatch - try again****Facility:** MULTINET KERBEROS PASSWORD**Meaning:** The new password value entered a second time for verification did not match the first value.**Action:** Specify the correct value.

Missing address after comma

Facility: IMAP Server

Meaning: The server tried parsing a malformed RFC822 message header. These errors are encountered when parsing headers that are malformed intentionally by the sender in order to avoid tracing.

Action: None.

Missing command before authentication host=*host*

Facility: IMAP Server

Meaning: A client sent an illegitimate command to the server before attempting to authenticate itself. This is indicative of a broken client or a possible attack against the server.

Action: Verify the source host is a valid working client.

Missing or invalid host name after @

Facility: IMAP Server

Meaning: The server tried parsing a malformed RFC822 message header. These errors are encountered when parsing headers that are malformed intentionally by the sender in order to avoid tracing.

Action: None.

mk_req failed: Principal unknown (Kerberos)

Facility: TELNET /AUTH

Meaning:

- 1 The realm name is different from the domain name. Create a MULTINET:KERBEROS.REALMS file.
- 2 An attempt was made to access a remote host with TELNET, RLOGIN, RSHELL, or RCP, and there is no entry in the KDC database.

Action: For the first case, create the necessary file. For the second, use MULTINET KERBEROS DATABASE EDIT to add the user to the KDC database.

%MNCHK-I-LOGVRFY, personal login command procedure does not use 'F\$VERIFY(0)

Facility: MULTINET CHECK

Meaning: All user login command procedures should have the 'F\$VERIFY(0)' command at the beginning to ensure that messages do not appear at login. If messages appear, "R" services fail.

Action: Make sure the login command procedures contain the following two lines at the top of each file:

```
$ verify = 'f$verify(0)'  
$ if f$mode() .eqs. "OTHER" then exit
```

Be sure to insert a single quote before F\$VERIFY and specify OTHER in uppercase.

**%MNCHK-W-DBVERMISM, database file *file* . . .
does not match global section *file* version *n***

Facility: MULTINET CHECK

Meaning: The host table was recompiled, but was not installed.

Action: Run the MULTINET:INSTALL_DATABASES.COM command procedure.

**%MNCHK-W-DUPPHA, LAN adapters *_dev_n:* and *_dev_n:*
both using physical address *address***

Facility: MULTINET CHECK

Meaning: Two Ethernet controllers have the same physical address. This is not a problem as long as the two interfaces are connected to two different Ethernet segments.

Action: If the controllers are on the same segment and only one of the devices is using DECnet, use MULTINET SET /INTERFACE with the /NODECNET_ADDRESS qualifier to force the physical address to be derived from the PROM on the controller of the non-DECnet device rather than by DECnet. This problem is fixed in DECnet Phase IV-Prime and Phase V.

%MNCHK-W-NOROOTNS, no root nameservers are reachable

Facility: MULTINET CHECK

Meaning: If a root nameserver is configured locally, it cannot be reached. There is no problem if a root nameserver is not local.

Action: Establish or fix the root nameserver using the directions in the *Administrator's Guide*.

Modify_Attributes, don't have write access

Facility: MultiNet NFS Server

Meaning: A sanity check in the NFS server failed, indicating a coding error.

Action: Contact Technical Support.

Modify_Attributes I/O error, VMS Status = vms_hex_error

Facility: MultiNet NFS Server

Meaning: The server failed to update the attributes of a file to satisfy a write or setattr operation.

Action: Contact Technical Support.

More than 40 found . . .

Facility: MULTINET KERBEROS DATABASE EDIT

Meaning: Kerberos is hardcoded to support a maximum of 40 principal names per instance. You can have up to 40 types of services registered for use on a single server.

Facility: Limit the number of principals for services on a particular server to 40.

Note! Different servers can share the same principal. For example, TELNET and the R services use the same "rcmd" principal because they give similar access to a server.

mount: access denied for *client_name*

Facility: NFS

Meaning: The NFS server is refusing client mount requests. *client_name* is either the name of the client requesting access or the name of the client whose mount request was refused. Depending on the subsequent message, the server may be refusing client mount requests because of the following:

- 1 The client's IP address is not authorized because it is in the restriction list of the RPCMOUNT server (set with MULTINET CONFIGURE /SERVER).
- 2 The requested directory does not exist on the server system. (The message states RPCMOUNT could not get a file handle for the mount point.)
- 3 The client did not provide UNIX-style login authorization credentials, or those credentials are not in the current configuration file.

Action: Find the message that follows this one in this guide and follow the instructions provided.

%MOUNT-F-CTRLERR, fatal controller error

Facility: MOUNT

Meaning: There is a compatibility problem between IBM RS/6000 hosts and OpenVMS. This error appeared while attempting to rewind a 9-track tape mounted on the RS/6000 host.

Action: An RS/6000 host does not communicate well with OpenVMS hosts. Try rewinding the tape from RSHELL with the following commands:

```
$ RSHELL hostname "/etc/rmt"
I5
1
```

If the "E5 There is an input or output error" message appears after you execute this command, place a support call to IBM to find out why rewinding the tape causes this error. Alternately, the following PERL script is offered as an unsupported option to problems between RS/6000 and OpenVMS hosts:

```
#!/bin/perl
# Acknowledgements to Daniel Packman for supplying this script.
# Wrapper to convert input rmt requests to
# AIX 3.2 ioctl numbers. We pass on all commands we don't
# understand.
# I0 MTWEOF -> I10 STWEOF write and end-of-file record
# I1 MTFSSF -> I11 STFSF forward space file
# I2 MTBSF -> I12 STRSF reverse space file
```

```
# I3 MTFSR -> I13 STFSR forward space record
# I4 MTBSR -> I14 STRSR reverse space record
# I5 MTREW -> I6 STREW rewind
# I6 MTOFFL -> I5 STOFFL rewind and unload tape
# I7 MTNOP -> I0 (no-op? should ignore following count)
# I8 MTRETEN-> I8 STRETEN retention tape, leave at load point
# I9 MTERASE-> I7 STERASE erase tape, leave at load point
#I10 MTEOM (position to end of media ... no ibm equivalent?)
#I11 MTNBSF (backward space file to BOF ... no ibm equivalent?)
@iocs = (10,11,12,13,14,6,5,0,8,7);
open(RMT,"|/usr/sbin/rmt") || die "Can't open pipe to rmt\n";
select(RMT);
$| = 1;
while (<STDIN>) {
    s/^(^I)(\d$)/I$iocs[$2]/;
    exit 0 if $_ =~ /^[Qq]/;
    print RMT $_ ; }
exit 0;
```

Install the script on an AIX host containing a Perl interpreter in place of the /etc/rmt symbolic link. This script intercepts and translates ioctl numbers to AIX local values.

%MOUNT-F-UNSAFE, drive unsafe

Facility: MOUNT/FOREIGN

Meaning: This message occurs when attempting to rewind a 9-track tape mounted on a IBM RS/6000.

Action: Refer to the description for the %MOUNT-F-CTRLERR error for solving this problem.

%MOUNT-F-VOLALRMNT, another volume of same label already mounted

Facility: NFSMOUNT

Meaning: In an LAVC with two VAX hosts, VAX A and VAX B, only node VAX A has MultiNet. In the LAVC, VAX A has mounted a disk from VAX B and then exported this disk for UNIX NFS-clients in this net. If VAX B crashes (or shuts down), VAX B cannot reboot because VAX A holds the disk (as an exported disk) from VAX B. This message appears when VAX B reboots.

Action: If VAX B disappears for longer than the time specified in the SYSGEN parameter MVTIMEOUT (on VAX A), VAX A will change the state of the disk from mount-verify to mount-verify-timeout and return an error to any application waiting to access it on VAX A. To remount this disk, dismount it on VAX A. Raise the value of MVTIMEOUT (the default is 1 hour) to the longest period you expect VAX B to be down.

%MULTINET-F-ECONNCLOSED, Connection closed

Facility: Remote host access utility

Meaning: An attempt to send information failed with this message. The remote host closed the connection prematurely, possibly due to a timeout error.

Action: Contact the administrator on the remote host before retrying.

MULTINET-F-ECONNREFUSED, Connection refused

Facility: Variable

Meaning: If accompanied by X11DEBUG messages, ensure DECwindows is started before starting MultiNet in SYSTARTUP_VMS.COM.

Action: If DECwindows does not start before MultiNet, refer to the message "%DECW-W-ATT_FAIL, failed to attach transport TCPIP" for a complete description of how to avoid this situation. Otherwise, examine SYS\$MANAGER:DECW\$SERVER_0_ERROR.LOG to see why DECwindows could not connect to MultiNet.

MULTINET-F-ECONNRESET, connection reset by peer

Facility: FTP, LPD, and variable

Meaning: The remote side of a TCP connection terminated the connection unexpectedly with a TCP RST (Reset) packet. If the user aborted an FTP transfer, this message is normal. If the user did not abort the FTP transfer, this message indicates an abnormal termination or abnormal behavior at the remote end of the TCP connection.

Action: Gather information on the remote host's configuration. Contact Process Software Technical Support, and be prepared to duplicate the behavior and generate a TCPDUMP for analysis.

MULTINET-F-EHOSTUNREACH

Facility: Variable

Meaning: An attempt failed to establish a SLIP link between an OpenVMS host and a terminal server. An attempt to use PING resulted in a "MULTINET-F-ENOBUFS" message.

Action: Use the MULTINET SHOW/BUF command to check for any logged "requests for memory denied". If there are none, the terminal server is not accepting data from the VAX. Try power cycling everything and try again.

This message can also mean the terminal port is set to /MODEM but no modem carrier (DTR) is present.

%MULTINET-F-EHOSTUNREACH, No route to host

Facility: Variable

Meaning: A restrictive gateway between the local and remote hosts is sending ICMP UNREACHABLE in response to only some types of packets. Find the remote host using MULTINET NSLOOKUP and MULTINET TRACEROUTE.

Action: If you run TCPDUMP as a subprocess watching for ICMP packets and try a command such as RCP, the offending router becomes visible. Generally, restrictive gateways are set up because system administrators do not want "R" services performed to their hosts.

%MULTINET-W-ENOBUFS, No buffer space available

Facility: Variable

Meaning: There is not enough kernel buffer space or too much data is backed up while waiting for the Ethernet controller to send data.

Action: Run MULTINET SHOW /BUFFERS to determine if adequate buffers are available, paying special attention to lines that state "requests for memory denied." These lines indicate more kernel buffer space is required. To ensure an application is not consuming the kernel buffer space, contact Technical Support for information and system analysis.

**%MULTINET-F-ERREADFLAGS, error reading interface flags for device
-MULTINET-F-ENXIO, No such device or address**

Facility: MULTINET CONFIGURE

Meaning: These messages appear after adding an interface, and attempts to connect to the interface fail.

This error can also display when the definition for MULTINET_ROOT includes two different devices, one of which is a RAM disk.

Action: Use the MULTINET SHOW/STAT command to list the devices recognized by the MultiNet server. If the device you configured is not listed, reboot your host and restart MultiNet.

%MULTINET-F-ETIMEDOUT, Connection timed out

Facility: TELNET, FTP, and other remote host access or print utilities

Meaning: This message can have two meanings.

- The host to which the remote access was attempted is down or not on the network. If access is to a remote printer, it may be powered off or configured incorrectly. When a host fails, the connection can appear to hang before this message appears. The length of time the connection hangs before this message appears is hardcoded in the TCP kernel and cannot be changed. It is set high intentionally so that a user can press **Ctrl/Y** to escape the application.
- No response was received to a SYN packet (request to open a TCP connection) sent by MultiNet. This can occur when the remote host has a problem at its end with the SMTP server being too busy, or some sort of network problem is filtering SMTP packets.

Action: Determine the status of the remote host before proceeding.

%MULTINET-F-MTUERR, error setting MTU for *sen*
-MULTINET-F-EBUSY, Mount device busy

Facility: MULTINET SET

Meaning: These messages appear when using the MULTINET SET/INTERFACE/MTU=*nn* command on *se0*.

Action: The MTU is a property of the hardware interface and should not be set. MultiNet uses the lower MSS when transmitting to a host not on your network.

To diagnose this problem, use a network analyzer, TCPDUMP, or TCPVIEW, and watch the connection when it fails (hangs). You will see the OpenVMS host retransmitting the same TCPdata constantly, with no acknowledgements sent back. Next, put a network analyzer at the remote site and see if the data packets do arrive. This condition can be caused by a "Pattern-sensitive link," a link that lets certain packets through, but not others.

MultiNet's Path MTU Discovery (RFC1191) determines automatically the largest MTU that can be used between the MultiNet host and a remote host.

**%MULTINET-F-SETPORT, unable to connect VMS device *device*:
to MultiNet kernel for *sln***

Facility: SLIP

Meaning: A terminal line connected to the SLIP device failed.

Action: Invoke a REPLY/ENABLE=NETWORK/TEMP, read the OPCOM messages, and proceed accordingly.

MULTINET-W-STARTUPERR, error starting ethernet device *name*

Facility: MultiNet

Meaning: Two hosts on your network have the same Ethernet hardware address. The most likely cause is the same setting of the SYSGEN parameter SCSSYSTEMID. Preinstalled OpenVMS comes with SCSSYSTEMID set to 65534.

Action: Change the value of SCSSYSTEMID.

MultiNet Printer Symbiont: Couldn't connect to host *ip_addr* port *nnn***Facility:** LPD**Meaning:** The terminal server/printer is refusing the connection, probably because of a race condition.**Action:** Contact the system administrator for the other host or the printer's manufacturer.**MultiNet Printer Symbiont: Error while waiting for ack of CF file:
%SYSTEM-W-CANCEL, operation canceled, ABORTING PRINT JOB****Facility:** MultiNet**Meaning:** An attempt to print a file caused these messages to appear.**Action:** The printer is not responding to the request where MultiNet sends the CF file. Call the printer vendor.**MultiNet Printer Symbiont: Negative acknowledgement from *IP_addr*
lpr queue not enabled (check printer type and printcap entry)****Facility:** LPR**Meaning:** This message appears while attempting to set up a remote printer queue to a Tektronics Phaser IISD with a network interface module. There is no printer queue or daemon set up on the Tektronics. This message displays if you use the DCL command PRINT/QUEUE=TEKPS TEST.PS (where the queue setup using the Printer Configuration Utility is called TEKPS, and TEST.PS is a valid PostScript file).**Action:** This message is originated by the Tektronics server. Check the manual for that device. The LPR/LPD protocol requires a printer name.**MultiNet Printer Symbiont: Negative acknowledgement waiting for ack
of remote printer specification.****Facility:** LPD**Meaning:** A print queue is configured incorrectly. The printer is known to be working correctly, and the print queue was added with the CONFIG/PRINT utility.**Action:** Enter the following command to get additional information about the queue:

```
$ MULTINET SHOW/QUEUE=queue
```

The most likely causes are the queue name was specified incorrectly in either the print command or in the queue configuration, or the OpenVMS host name was not added to the `/etc/hosts.lpd` file on the UNIX host.

MultiNet Server: BootP: hardware address not found: *address*

Facility: BOOTP

Meaning: This message is generated by BOOTP during normal operation and indicates an address was not found.

Action: Ignore this message. To disable the reporting of this message, enter the following command:

```
$ MULTINET NETCONTROL BOOTP DEBUG -1
```

To make this change permanent, follow the instructions in the service configuration section of the *Administrator's Guide*. Changes take effect after starting the master server.

To find the offending node, use TCPDUMP or TCPVIEW.

MultiNet Server: Couldn't start RPCLOCKMGR, NFS/RPCLockmgr server not responding

Facility: NFS

Meaning: NFS cannot be added to a configuration; instead, MultiNet must be reinstalled and NFS selected at that time. This message appears when NFS was configured improperly.

Action: Enter the following commands and contact Technical Support with the results:

```
$ REPLY/ENABLE=NETWORK/TEMP
```

```
$ MULTINET NETCONTROL NFS START
```

MultiNet Server: \$CREPRC failed, status = 39c

Facility: MultiNet Server

Meaning: Your host is out of process slots (per the message associated with the 39c status or "%SYSTEM-F-NOSLOT, no PCP available" message).

Action: Use SYSGEN to raise MAXPROCESSCNT to a higher value to increase the number of process slots.

Alternatively, enter the following command and reboot your host:

```
$ @SYS$UPDATE:AUTOGEN SAVPARAMS SETPARAMS FEEDBACK
```

AUTOGEN detects there are no more process slots and creates more.

MultiNet Server: DHCP Control: DHCP server not starting; BOOTP service enabled.

Facility: DHCP

Meaning: DHCP and BOOTP use the same port, so only one of them can be running at a time. DHCP provides all the functions of BOOTP as well as dynamic addressing. The DHCP server can function as a BOOTP server, answering both BOOTP and DHCP client requests.

Action: Disable BOOTP if you want to run DHCP.

MultiNet Server: Failure to create VMS print job = %XC

Facility: MultiNet Server

Meaning: The SERVICES.MASTER_SERVER file is corrupted.

Action: Get a fresh copy of the SERVICES.MASTER_SERVER file from the MultiNet installation kit and restart the master server.

MultiNet Server: No Program to merge specified for server RPCLOCKMGR

Facility: MultiNet Server

Meaning: The SERVICES.MASTER_SERVER file is corrupted.

Action: Get a fresh copy of the SERVICES.MASTER_SERVER file from the MultiNet installation kit and restart the master server.

Multinet Server: R_SERVICES: Bogus state dispatch, DCL still running

Facility: "R" Services

Meaning: An unexpected error occurred with the RSHELL or REXEC server, but the server process continued to run.

Action: If you can duplicate the message, contact Technical Support.

MultiNet Server: R_SERVICES: Couldn't create Mailbox (VMS error 2a14)

Facility: "R" Services

Meaning: An attempt to start an RSHHELL process on an OpenVMS host from a UNIX host failed.

Action: Edit the MULTINET:START_SERVER.COM file to change the invocation of RUN MULTINET:SERVER at the end to /BUFFER=10000000 from the current value, and restart the MULTINET_SERVER process. This provides sufficient quota to overcome the problem.

MultiNet Server: R_SERVICES: gethostbyaddr(ip_address) failed

Facility: "R" Services

Meaning:

- 1 An **rsh** from a UNIX host to an OpenVMS host failed. On the UNIX host, a "Permission denied" message displayed, and the above message appeared on the OpenVMS host in the SYS\$MANAGER:OPERATOR.LOG file.
- 2 An attempt was made to access a remote host using RLOGIN. The PC making the connection is not listed in the domain.

Action: Ensure the MULTINET_NAMESERVERS logical name is not defined on the server host, and the IP address is in its host tables. If it is, try the following:

```
$ MULTINET HOST COMPILE
$ @MULTINET:INSTALL_DATABASES
$ @MULTINET:START_SERVER
```

For DNS, add A.B.C.D to the DNS zone information file with a PTR record.

**MultiNet Server: R_SERVICES: I/O error
%MULTINET-W-ECONNCLOSED, Connection closed**

Facility: "R" services

Meaning: An "R" services client canceled a receive request before the server finished sending all of the requested information. Under these circumstances, you can ignore this message.

Action: Either the system-wide login command procedure or the user's login command is returning output other than what the client expects to see (such as DCL command output). The client is responding by terminating the connection.

Ensure the login command procedures contain the following two lines at the top of each

file:

```
$ verify = 'f$verify(0)'
$ if f$mode() .eqs. "OTHER" then exit
```

Be sure to insert a single quote before F\$VERIFY and specify OTHER in uppercase.

**MultiNet Server: R_SERVICES: Socket read error
%MULTINET-W-ECONNRESET, Connection reset by peer**

Facility: Pathworks

Meaning: The X server supplied with PATHWORKS assumes incorrectly that if it can connect to an REXEC server, it is talking to a UNIX host because UCX does not have REXEC. If PATHWORKS fails to connect via REXEC, it reverts to using TELNET and sends DCL correctly.

Action: Disable the REXEC server with the MULTINET CONFIGURE/SERVER command.

**MultiNet Server: Service FINGER pid *nn* failed: access violation,
reason mask=!XB, virtual address=!XL, PC=!XL, PS**

Facility: FINGER

Meaning: A server (in this case a FINGER server) attempted to get the address of a host with no such DNS record.

Action: Add a DNS record for the host.

MultiNet Server: Service name pid *nn* failed: file specification syntax error

Facility: MULTINET

Meaning: When the service was enabled with the MULTINET CONFIGURE /SERVER utility, a syntax error was introduced into the service information. For example, this error occurred because FINGER was enabled with the following command:

```
SERVER-CONFIG>SET PROGRAM "MULTINET:FINGER"
```

The correct syntax does not include the quotes:

```
SERVER-CONFIG>SET PROGRAM MULTINET:FINGER
```

Action: Use the `SHOW` command in `MULTINET CONFIGURE /SERVER` to list information about the service, and reconfigure the service with the correct information.

MultiNet Server: Unexpected Exception in MULTINET_SERVER process

Facility: MultiNet Server

Meaning: The SERVICES.MASTER_SERVER file is corrupted.

Action: Get a fresh copy of the SERVICES.MASTER_SERVER file from the MultiNet installation kit and restart the master server.

MULTINET_SHOW: can't connect to mount server: RPC: Timed out

Facility: NFS

Meaning: This error occurs when there is more NFS Client information than can fit into a 8192-byte UDP datagram. This error also occurs when using MULTINET SHOW/NFSMOUNT when a host has a great number of NFS Clients.

Action: There is no known fix.

MULTINET_SHOW: No MultiNet Kernel

Facility: MultiNet

Meaning: The use of MULTINET SHOW /CONN failed. MULTINET_SHOW.EXE may have been disabled or the MULTINET: directory purged and the MULTINET.EXE file was lost.

Action: Reboot the system.

MULTINET_SHOW: Timed out. Resending... * * ***MULTINET_SHOW: Timeout - SNMP Response not received from remote host**

Facility: SNMP

Meaning: This message appears when SNMP is disabled on a host.

Action: If the remote host uses MultiNet, enable SNMP service with the MULTINET CONFIGURE /SERVERS command. If the remote host does not use MultiNet, contact the remote system manager to resolve the problem.

MultiNet SMTP Server: Failed to merge user written SMTP customization image: %LIB-E-KEYNOTFOU, key not found in tree

Facility: SMTP

Meaning: Two new routines were added in MultiNet V3.2 to the USER_SMTP_DISPATCH.C interface. The SMTP server is failing because it cannot find those new routines.

Action: Merge your changes into the current release of the USER_SMTP_DISPATCH.C file. Recompile this file and link with the LINK /SHARE switch. This qualifier must be used when linking any of the customizable files provided with MultiNet.

After compiling and linking, make sure there is only one copy of USER_SMTP_DISPATCH.EXE on your host and it (the new copy) resides in the MULTINET_COMMON_ROOT:[MULTINET] directory.

Must use comma to separate addresses: address

Facility: IMAP Server

Meaning: The server tried parsing a malformed RFC822 message header. These errors are encountered when parsing headers which are malformed intentionally by the sender in order to avoid tracing.

Action: None.

named: bad referral ('domain' !<'domain') from 'server'

Facility: DNS

Meaning: A DNS zone file is misconfigured so that each time a query comes in for one of the names associated with the authoritative nameserver, it refers back up the tree. This occurs when the zone file delegation information does not match the information maintained by the NIC.

Action: If this is a zone you are responsible for, configure your nameserver as authoritative for these domains, or ask the NIC to fix the delegation information in its database.

named: Lame server on 'domain' (in 'domain?'): [IP-Address].53 'server'

Facility: DNS

Meaning: A DNS name server is misconfigured. This message was added as a feature to help diagnose name server problems.

Action: Many sites find this extra information creates additional overhead, especially when the misconfigured name server is not located at their site. This message is enabled by default, but you can disable it using MULTINET:NAMED.CONF, as follows:

```
logging {
    category lame-servers { null; };
};
```

**net read: %MULTINET-F-ECONNRESET, Connection reset by peer
[Aborting data transfer]**

Facility: FTP

Meaning: Because no data was received during an FTP session for more than five minutes, FTP timed out and dropped the session.

Action: If the session timed out while information was being entered, a network problem occurred. If the FTP server is on a host running MultiNet, set the MultiNet logical MULTINET_FTP_MAXIMUM_IDLE_TIME to a new value. If the server is not running MultiNet, contact the remote system manager to resolve the problem.

Net use failed (code 5).

Facility: TELNET

Meaning: This message is not generated by MultiNet, but was reported when logging into an OpenVMS host from PC/NFS using TELNET.

Action: Code "5" indicates an EIO, I/O error. Use the following command on the OpenVMS host:

```
$ REPLY/ENABLE=NETWORK/TEMP
```

Then TELNET from the PC to generate an OPCOM message that will provide additional information for diagnosing the problem.

New_File out of virtual memory.

Facility: MultiNet NFS Server

Meaning: The server could not allocate enough virtual memory to cache a new file header.

Action: Reduce the setting of the server's MAXIMUM-CACHE-FILES parameter, or increase the size of the server process' pagefile quota (using AUTHORIZE) or the value of the OpenVMS system parameter VIRTUALPAGECNT (using SYSGEN/AUTOGEN).

New-mail timer too low

Facility: IMAP Server

Meaning: The *set newmail-timer* directive in the .IMAPRC file specified a value that was too low. The default and minimum allowed value is 30 seconds.

Action: Change the value in .IMAPRC.

NFS 005F: Authentication failure.

(A)bort, (R)etry or (I)gnore?

Facility: PC/NFS

Meaning: An attempt to mount a file system failed.

Action: Try the following:

- 1 Ensure that the password is 8 characters or less. Some PCs send only the first 8 characters.
- 2 Ensure a UID translation is in effect for that user (and in the proper NFS-GROUP if any NFS-GROUPs are enabled).
- 3 If steps one and two fail, enable debugging in the PCNFSD server:

```
$ REPLY/ENABLE=NETWORK/TEMP  
$ MULTINET NETCONTROL PCNFDS DEBUG 10
```

If the error is still not obvious, contact Technical Support.

NFS SERVER: Couldn't allocate miniprocess

Facility: MultiNet NFS Server

Meaning: MultiNet could not start the MultiNet NFS Server because insufficient MultiNet kernel memory was available for the necessary structures.

Action: Contact Technical Support.

NFS SERVER: Couldn't create RPC transport

Facility: MultiNet NFS Server

Meaning: The server was unable to allocate enough memory for the RPC transports.

Action: Use a lower setting for the server parameter NUMBER-OF-RPC-TRANSPORTS.

NFS SERVER: Couldn't create RPC transport stack

Facility: MultiNet NFS Server

Meaning: The server was unable to allocate enough memory for the RPC transports.

Action: Use a lower setting for the server parameter NUMBER-OF-RPC-TRANSPORTS.

NFS SERVER: Error getting socket structure

Facility: MultiNet NFS Server

Meaning: The server could not obtain a socket to listen on.

Action: Retry the operation.

NFS Server: Server/Kernel version mismatch

Facility: MultiNet NFS Server

Meaning: MultiNet could not start the MultiNet NFS Server because of an incompatibility between the server and MultiNet kernel versions.

Action: Contact Technical Support.

NFS Server: SVC_RECV failed

Facility: MultiNet NFS Server

Meaning: The server encountered an error when reading a packet from the network. This error message can appear during normal server restart operations.

Action: Contact Technical Support.

NFS Server: UDP SVC_RECV failed

Facility: MultiNet NFS Server

Meaning: This message appears on OPCOM when the MultiNet server is restarted.

Action: The server is receiving spurious information and the error results from a decoding problem at the RPC layer. Use a network analyzer or MULTINET TCPVIEW to obtain additional information about the problem.

NFS Server: Unexpected Exception in Kernel-Mode

Facility: MultiNet NFS Server

Meaning: The OpenVMS server encountered an unexpected signal (for example, ACCVIO) that indicates a coding error in the MultiNet NFS Server. A stack dump follows the display of either message, and the server either exits or hibernates to facilitate debugging.

Action: Contact Technical Support.

NFS Server: Warning: writeback cache non-empty

Facility: MultiNet NFS Server

Meaning: This message appears with the Unexpected Exception error messages. The writeback cache was not empty when the exception occurred, and the data in the writeback cache was lost.

Action: Contact Technical Support.

%NFSDISMNT-F-DISMOUNTERR, Dismount Error**Facility:** NFSDISMOUNT**Meaning:** A mounted NFS file system could not be dismounted.**Action:** Examine the additional diagnostic messages for more information.**%NFSMOUNT-F-BADRPCTRANSPORT, couldn't create RPC transport to *node*
-MULTINET-F-EACCES, Permission denied****Facility:** NFSMOUNT**Meaning:** The *node* could not be mounted.**Action:**

- Ensure the configuration on *node* has knowledge of the new node name in the host table or DNS.
- The *node* configuration does not know the specified mount point is exported to the node.

**%NFSMOUNT-F-BADRPCTRANSPORT, couldn't create RPC transport to <host>.
%NFSMOUNT-F-RPCCREATEERROR, RPC Create Error: RPC: Program not registered.****Facility:** NFSMOUNT**Meaning:**

- 1 The NFSMOUNT utility could not create an RPC transport.
- 2 An attempt to mount a file system on a UNIX host failed. This error can occur when the NFS server on the other host is not running.
- 3 The specified service is not enabled on the NFS server.
- 4 If the /TRANSPORT=TCP qualifier is used with the NFSMOUNT command, the server does not speak NFS-over-TCP.
- 5 The RPCMOUNT daemon on the remote host went down.

Action: :

- Ensure NFS and MOUNT are registered. On a UNIX host, use the **rpcinfo -p** command, as shown in the following example:

```
# rpcinfo -p fnord
  program vers proto  port  nlockmgr
    100021   3   tcp    2049  nlockmgr
    100021   1   tcp    2049  nlockmgr
    100021   3   udp    2049  nlockmgr
```

```
100021 1 udp 2049 nlockmgr
100003 2 tcp 2049 nfs
```

. . .

All RPC programs listed are registered. If a host name is not specified in the **rpcinfo** command, the default is the local host. This command only works with SunOS V3.0 and later.

- If necessary, enable the specified service.

%NFSMOUNT-F-BADRSIZE, Illegal NFS Read size specified

Facility: NFSMOUNT

Meaning: The /READ_SIZE qualifier was specified with a value less than 128 bytes or greater than 8192 bytes.

Action: Repeat the NFSMOUNT command, specifying a value within this range.

%NFSMOUNT-F-BADTIMEOUT, Illegal NFS Timeout value specified

Facility: NFSMOUNT

Meaning: The /TIMEOUT qualifier was specified with a value less than one (one-tenth of a second).

Action: Repeat the NFSMOUNT command, specifying a value of 1 or greater.

%NFSMOUNT-F-BADWSIZE, Illegal NFS Write size specified

Facility: NFSMOUNT

Meaning: The /WRITE_SIZE qualifier was specified with a value outside of the 128-to-8192 byte range.

Action: Repeat the NFSMOUNT command, specifying a value within this range.

**%NFSMOUNT-F-CANTLOAD, couldn't reload NFS UID translation table
-SYSTEM-W-NONEXPR, nonexistent process.**

Facility: NFSMOUNT /RELOAD

Meaning: No file system has been mounted or the NFS Client ACP has crashed. When a file system is mounted, all UID translations are loaded.

Action: Ensure the NFS Client ACP is running by mounting a file system.

%NFSMOUNT-F-MOUNTERR, Mount Error

Facility: NFSMOUNT

Meaning: The RPCMOUNT server rejected the mount request.

Action: Examine the additional diagnostic messages for more information.

**%NFSMOUNT-F-NFSERR, NFS error
-MULTINET-F-ESTALE, Stale file Handle**

Facility: NFS

Meaning:

- 1 A file was deleted while it was in use.
- 2 The `getattr()` NFS call to read the attributes of the mount point failed unexpectedly.
- 3 The NFS server crashed.

Action: Restart the NFS Server. For a MultiNet NFS Server, use the command:

```
$ MULTINET NETCONTROL NFS RESTART
```

%NFSMOUNT-F-NOACCESS, access denied for *mount_point*

Facility: NFSMOUNT

Meaning: This is a generic refusal message sent by the server in response to a mount request. The RPCMOUNT server is not allowing this user or client access to the remote file system.

Action: Generally, the *mount_point* host is not listed in `/etc/exports`. Add the client to the export list on the server and retry the mount command.

%NFSMOUNT-F-NOMOUNTRESPONSE, Mount server on "*hostname*" not responding

Facility: NFSMOUNT

Meaning: The remote RPCMOUNT server is unavailable or unreachable. The cause is a timeout error.

Action: Examine any additional diagnostic messages to see why the server could not be contacted.

**%NFSMOUNT-F-NONFSRESPONSE, NFS server on "TECHNO" not responding:
RPC: Authentication error; why = Invalid client credential**

Facility: NFSMOUNT

Meaning: NFS did not start after it was installed. This error may also occur because the remote NFS server is unavailable or unreachable, typically due to a timeout error.

Action: Use the following command to restart the NFS server:

```
$ MULTINET NETCONTROL NFS RESTART
```

%NFSMOUNT-F-NOREMOTEHOST, No remote host specified

Facility: NFSMOUNT

Meaning: The file system to be mounted must be specified in the form *node::"mount_point"*.

Action: Retry the command with the correct syntax.

%NFSMOUNT-I-MOUNTED, node::mount_point NFS mounted on *mount_device*

Facility: NFSMOUNT

Meaning: Informational message only, indicating the successful completion of a mount operation.

Action: None.

%NFSMOUNT-I-WAITDNS, waiting for the Domain Nameserver to start

Facility: NFSMOUNT

Meaning: After rebooting the host, MultiNet began to start up, but stopped after the point when the NFS Server was starting in user mode. The domain name server is not initialized fully (usually because NFSMOUNT was used during or immediately after starting the network).

NFSMOUNT does not know whether the local name server has not started or there is a global problem. It waits 60 seconds to be sure it is a global problem.

Action: Add the hosts from which you are mounting in your HOSTS.LOCAL file. That way, if DNS fails (or has not started), NFSMOUNT falls back to the host tables.

**%NFSMOUNT-W-NOPRIVMOUNTPORT,
Not using privileged UDP port for MOUNT request**

Facility: NFSMOUNT

Meaning: The NFSMOUNT command was run from a process without SYSPRV privilege and could not obtain a privileged socket from which to make the mount request. Some servers will not respond to a mount request from a non-privileged socket. NFSMOUNT requires CMKRNL, SETPRV, SYSPRV, SYSNAM, ALTPRI, DETACH, ACNT, and SYSLCK privileges.

Action: Repeat the command with the correct privileges.

%NFSMOUNT-W-NOPRIVNFSPORT, Not using privileged UDP port for NFS request

Facility: NFSMOUNT

Meaning: The NFSMOUNT command was run from a process without SYSPRV privilege and could not obtain a privileged socket from which to make the mount request. Some servers will not respond to a mount request from a non-privileged socket. NFSMOUNT requires CMKRNL, SETPRV, SYSPRV, SYSNAM, ALTPRI, DETACH, ACNT, and SYSLCK privileges.

Action: Repeat the command with the correct privileges.

nfs_read: Unexpected small buffer, fid (...)]

Facility: MultiNet NFS Server

Meaning: A sanity check in the NFS Server failed, which may indicate a corruption issue. Analyze the file specified by the fid.

Action: Contact Technical Support.

nfs_rename: channel 0; can't restart; context=*n*

Facility: MultiNet NFS Server

Meaning: A sanity check in the NFS Server failed, indicating a coding error.

Action: Contact Technical Support.

No buffer space available (ENOBUFFS)

Facility: MultiNet NFS Server

Meaning: One of the following conditions occurred:

- The server could not allocate a new OpenVMS channel to cache requested data from disk. Reduce the setting of the server's MAXIMUM-CACHE-FILES parameter, or increase the setting of the OpenVMS system parameter CHANNELCNT (using SYSGEN/AUTOGEN).
- The server could not allocate virtual memory to cache requested material from disk. Reduce the setting of the server's MAXIMUM-CACHE-BUFFERS parameter, or increase the value of the server-process pagefile quota (using AUTHORIZE) or the setting of the OpenVMS system parameter VIRTUALPAGECNT (using SYSGEN/AUTOGEN).

No space left on device (ENOSPC)

Facility: NFS Server

Meaning: The server received an unexpected SS\$_DEVICEFULL error message from the OpenVMS XQP. If the writeback feature is enabled, preceding write operations may not have completed, and some data may have been lost before reaching the disk.

Action: Rewrite the file later when disk space is available.

No subscriptions**Facility:** IMAP Server**Meaning:** Either the server could not read the user's subscription file or the client attempted to unsubscribe a folder that was not subscribed.**Action:** Check that there is sufficient disk space and that the server has sufficient privileges to write to the user's mail directory.**No such file or directory (ENOENT)****Facility:** MultiNet NFS Server**Meaning:** One of the following conditions occurred:

- The requested file was not found in the directory (the "lookup" subfunction did not complete).
- The OpenVMS XQP returned an unexpected SS\$_NOSUCHFILE error message.

Action: Retry the operation with the correct information.**No tickets in file.****Facility:** MULTINET KERBEROS LIST**Meaning:** The ticket file has been altered or corrupted.**Action:** Use MULTINET KERBEROS DESTROY to delete the ticket file, and run MULTINET KERBEROS INIT to acquire new tickets.**No tickets to destroy.****Facility:** MULTINET KERBEROS DESTROY**Meaning:** The ticket file in the user's login is missing, or the directory cannot be accessed. MULTINET KERBEROS DESTROY may have already been invoked.**Action:** Ensure the directory permissions are correct. If you need further access to Kerberos, use MULTINET KERBEROS INIT to acquire new tickets.

Non-authoritative answer:

Facility: MULTINET NSLOOKUP

Meaning: MULTINET NSLOOKUP was used to find information about a host.

Action: The NSLOOKUP answer came from your own cache rather than from the authoritative name server. This message is helpful because it shows your cache is working properly.

Not a directory (ENOTDIR)

Facility: MultiNet NFS Server

Meaning: The client tried to access a non-directory file using "readdir" or "lookup." The server does not allow clients to perform these operations.

Action: Retry the operation with the correct information.

not an exported filesystem for *name*

Facility: NFSMOUNT

Meaning: The NFS Client is sending *name* as its host name.

Action: Add *name* to the exports list.

<Not found>, Create [y] ?

Facility: MULTINET KERBEROS DATABASE EDIT

Meaning: The principal name specified was not found in the database.

Action: Enter **y** to create an entry for the name, or **n** to enter a new principal name.

Not owner (EPERM)

Facility: MultiNet NFS Server

Meaning: The client tried to change a file's owner, using the "setattr" procedure. The server does not allow clients to perform this operation.

Action: Do not attempt to change the file ownership from an NFS Client. Log into the OpenVMS system and change the file's owner.

Null command before authentication host=*host*

Facility: IMAP Server

Meaning: A client sent an illegitimate command to the server before attempting to authenticate itself. This is indicative of a broken client or a possible attack against the server.

Action: Verify the source host is a valid working client.

Null passwords are not allowed; try again.

Facility: MULTINET KERBEROS PASSWORD

Meaning: You must enter a password value. A Kerberos password is case-sensitive, can be up to 64 characters in length, cannot include control characters or spaces, and does not accept backspaces in corrections.

Action: Enter a non-null password value.

%NTYCP-E-NOADDR, no address information found for host name *host-name*

Facility: NTYCP Control Program

Meaning: The address lookup for the specified host name did not resolve to any address.

Action: Verify the host name and try again.

%NTYCP-E-NOSUCHNODE, address for host name *host_name* not found

Facility: NTYCP Control Program

Meaning: The address lookup for the specified host name failed.

Action: Verify the host name and try again.

%NTYCP-E-NOSUCHPORT, port number for service name *service-name* not found

Facility: NTYCP Control Program

Meaning: The lookup on the specified service name failed.

Action:

- Check the spelling of the service name and try again.
- Verify the desired service name exists in the host table. If it does not, edit HOSTS.LOCAL, add the name, and recompile the host tables.
- Use a numeric value with /PORT=*n*, instead of /PORT=*name*.

%NTYCP-E-NOTINET, host name *host-name* does not have an IP address

Facility: NTYCP Control Program

Meaning: The address lookup for the specified host name did not resolve to an IP address.

Action: Verify the host name and try again.

%NTYCP-E-DEVNAMERR, syntax error in device name *device-name*

Facility: NTYCP Control Program

Meaning: NTY device names are of the form NTY*nnnn*, where *nnnn* is a decimal number in the range 1-9999.

Action: Specify the device name using the proper syntax.

%NTYCP-E-PORTSYNTAX, syntax error in TCP port name *port-name***Facility:** NTYCP Control Program**Meaning:** The port information you specified on either a /PORT or /SERVICE qualifier could not be parsed.**Action:** Verify the port information and try again.**%NTYCP-E-PORTRNG, port number *n* is not in range *low-high*****Facility:** NTYCP Control Program**Meaning:** The port number you specified on the /PORT command must be within the indicated range (typically 1-65536).**Action:** Enter a valid port number.**%NTYCP-E-CREATERR, error creating network terminal device****Facility:** NTYCP Control Program**Meaning:** An error occurred when creating the NTY device.**Action:** This message should be followed by another message with more information about the error.**%NTYCP-E-DELETERR, error deleting network terminal device *device-name*****Facility:** NTYCP Control Program**Meaning:** An error occurred when deleting the NTY device.**Action:** This message should be followed by another message with more information about the error.

%NTYCP-E-NOTNTY, device is not a network terminal

Facility: NTYCP Control Program

Meaning: You tried to delete a device that is not a network terminal using the DELETE PORT command. The DELETE PORT command is used to delete only NTY terminal devices.

Action: Verify the device name and try again.

%NTYCP-S-CREPORT, device _NTYx: created to host *ip-address*, port *port-number*

Facility: NTYCP Control Program

Meaning: The NTY device was created successfully.

Action: Informational message only; no action is required.

%NTYCP-S-DELPOR, device _NTYx: deleted

Facility: NTYCP Control Program

Meaning: The NTY device was deleted successfully.

Action: Informational message only; no action is required.

%NTYCP-F-INTERNAL_ERROR, internal logic error in NTYCP

Facility: NTYCP Control Program

Meaning: An internal error occurred.

Action: Report this error to Technical Support; be prepared to describe the activity or commands you entered that led to this message.

%NTYCP-F-CMDINITERR, error initializing command I/O routines

Facility: NTYCP Control Program

Meaning: An internal error occurred.

Action: Report this error to Technical Support; be prepared to describe the activity or commands you entered that led to this message.

%NTYCP-W-CMDERR, error processing command input

Facility: NTYCP Control Program

Meaning: NTYCP could not read or process your command.

Action: This message is followed by another message with more information.

%NTYCP-W-OPENCMD, error opening file *file-spec* for command input

Facility: NTYCP Control Program

Meaning: In interactive mode, NTYCP supports command files using the standard "*@file-spec*" form of indirection. This message is issued when the specified command file cannot be found.

Action: Check the file specification.

%NTYCP-W-LOGDEFERR, error defining logical name

Facility: NTYCP Control Program

Meaning: The logical name you specified in the /LOGICAL qualifier on a CREATE PORT command could not be created.

Action: Specify a different logical name.

%NTYCP-W-PORTREQD, a TCP port name or number must be specified with /SERVICE or /PORT**%NTYCP-W-NODEREQD, a node name or address must be specified with the /NODE qualifier**

Facility: : NTYCP Control Program

Meaning: You entered an incomplete CREATE PORT command.

Action: Enter a complete CREATE PORT command.

Opening DECnet Connection To *node*

Facility: X11-Gateway

Meaning: The X11-Gateway is opening a DECnet connection to the X server on *node*.

Action: Informational message; no action is required.

Opening *value* connection to Node *name*, Server *X_server*

Facility: X11-Gateway

Meaning: The X11-Gateway is opening a connection to the remote node *name*, *X_server*.

Action: Informational message; no action is required.

open_decnet: \$ASSIGN error (status=*vms_error_value*?)

Facility: X11-Gateway

Meaning: The X11-Gateway failed while attempting to open a DECnet connection to the DECnet X server.

Action: Translate *vms_error_value* in the OpenVMS error manual. This error occurs because the DECnet network failed.

open_decnet: \$QIOW error (status=*vms_error_value*?)

Facility: X11-Gateway

Meaning: The X11-Gateway failed while attempting to open a DECnet connection to the X server.

Action: Translate *vms_error_value* in the OpenVMS error manual. This error occurs because:

- The DECnet network failed or
- The DECnet server is not up, indicating a possible gateway configuration problem.

open_dechnet: \$QIOW IOSB error (status=*vms_error_value*?)**Facility:** X11-Gateway**Meaning:** The X11-Gateway failed while attempting to open a DECnet connection to the X server.**Action:** Translate *vms_error_value* in the OpenVMS error manual. This error occurs because:

- The DECnet network failed or
- The DECnet server is not up, indicating a possible gateway configuration problem.

open_tcp: connect error (errno=*errno_value*)**Facility:** X11-Gateway**Meaning:** The X11-Gateway failed while attempting to open an IP connection.**Action:** Translate *errno_value* using Table B-2. This error occurs because:

- The IP network failed.
- The IP server is not up, indicating a possible gateway configuration problem.

open_tcp: setsockopt error (errno=*errno_value*)**Facility:** X11-Gateway**Meaning:** The X11-Gateway failed during a **setsockopt()** call while opening an IP connection.**Action:** Translate *errno_value* using Table B-2.**open_tcp: socket error (errno=*errno_value*?)****Facility:** X11-Gateway**Meaning:** The X11-Gateway failed during a socket call while opening a IP connection.**Action:** Translate *errno_value* using Table B-2.

open_tcp: Unable to resolve IP address for X server node *node_name*

Facility: X11-Gateway

Meaning: The X11-Gateway failed while attempting to resolve the IP address for node *node_name*. This error occurs when a DECnet client attempts to direct requests to an IP server.

Action: Check the configuration and make sure the host is specified correctly.

Operation not supported on socket (EOPNOTSUPP)

Facility: MultiNet NFS Server

Meaning: The client called the obsolete NFS "root" or "writocache" procedures.

Action: Retry the operation with a valid procedure.

Out of free storage

Facility: IMAP Server

Meaning: The IMAP server has run out of memory. This is a result of trying to read an extremely large message.

Action: Increase the process quotas for the IMAP server and restart the server.

Pad: *padding_amount* Buf: *buffer_size*

Facility: X11-Gateway

Meaning: *padding_amount* is the amount of padding on an outbound error being sent from the gateway to the client. *buffer_size* is the buffer size being transmitted.

Action: Informational message; no action is required.

Password NOT changed.**Facility:** MULTINET KERBEROS PASSWORD**Meaning:** The user or principal name password could not be changed.**Action:** Use MULTINET KERBEROS DATABASE EDIT to make sure the user or principal name is in the database. Add new information or change the password as required. A Kerberos password is case-sensitive, can be up to 64 characters in length, cannot include control characters or spaces, and does not accept backspaces in corrections.**Permission denied (EACCES)****Facility:** MultiNet NFS Server**Meaning:** One of the following conditions occurred:

- File access was denied on the basis of file protection, ownership, and the requestor's UIC authorization.
- The OpenVMS XQP returned an unexpected SS\$_NOPRIV error message.

Action: Retry the operation specifying a UIC to which access is possible.**Printer Server: ansi_q: Recvjob lost connection
Error in creating job number file****Facility:** LPR**Meaning:** Printing was attempted from a PC. The DOS software closed the connection unexpectedly and caused the error.**Action:** Get a packet trace using TCPDUMP and contact Technical Support. TCPDUMP is described in the *Administrator's Reference* and with the HELP MULTINET TCPDUMP command.

**Printer Server: Failed to merge user written LPD Server image:
%LIB-E-KEYNOTFOU, key not found in tree**

Facility: LPD

Meaning: After upgrading from MultiNet V3.1, these messages appear when a user tried to print using a customized LPD user exit (USER_LPD_SERVER.C).

Action: This user exit was changed in V3.2. Whenever you install new software, install previous customizations in the new version, recompile the code, and restart the master server.

**Printer Server: Failed to merge user written LPD Server image:
%RMS-F-RFA, invalid record's file address (RFA)**

Facility: LPD

Meaning: An error occurred while compiling a customized version of USER_LPD_SERVICE.C. The most common cause is omitting the /SHARE qualifier when the file is linked.

Action: Include the /SHARE qualifier. If this does not work, delete the file from the MULTINET directory, relink it, and copy it back. Also try ANALYZE/IMAGE on the MULTINET:USER_LPD_SERVER.EXE file.

Probable bogus newsgroup list

Facility: IMAP Server

Meaning: The server detected a *Newsgroups:* field in the message header that appears to be invalid.

Action: None.

protocol Event Flag is *flag_value*

Facility: X11-Gateway

Meaning: The event flag for *protocol* is *flag_value*.

Action: Informational message; no action is required.

(protocol) Event Flag Mask is *mask_value***Facility:** X11-Gateway**Meaning:** The event flag mask for *protocol* has a value of *mask_value*.**Action:** Informational message; no action is required.**%PSM-E-OPENIN, error opening *filename* as input
RMS-F-DEV, error in device name or inappropriate device type for operation****Facility:** NFS (printing between hosts)**Meaning:** The symbiont process that handles the print queue is not executing on the same node in the VMScluster where the print request was made.**Action:** Configure the network so the node that handles NFS mounts also manages the print queue. This restriction is also true for all printing from devices not mounted cluster-wide.**%PSM-E-OPENIN, error opening SY\$LIBRARY:SYSDEVCTL.TLB as input
-RMS-E-FNF, file not found****Facility:** LPD**Meaning:** A print queue to a UNIX host worked correctly until JBCSYSQUE.DAT was restored from a backup file and the OpenVMS host was rebooted. When a file is printed, the following message appears on a printed page:

```
%PSM-E-OPENIN, error opening !AS as input
```

You may have a default form defined that has a /SETUP module and no library name defined in the MultiNet queue.

Action: SY\$LIBRARY:SYSDEVCTL.TLB is the default name of the text library that contains setup modules for printer queues that have the /SETUP attribute for the form mounted on them. The queue may be set up with a specific form that requires a setup module. Use this command to list the specified forms:

```
$ SHOW QUEUE/FORM/FULL
```

Change the form specified for the queue or initialize the queue with the proper setup library (/LIBRARY=).

**%PSM-E-READERR, error reading !AS
-RMS-W-RTB, !UL byte record too large for user's buffer**

Facility: LPR

Meaning: A PostScript bitmap file was sent to the print queue. These messages appear from a print queue on an OpenVMS host that sends the print jobs to a UNIX host via **lpr**.

Action: On the UNIX host initiating the job, use the **lpr -v** command to print the file. The **-v** option causes MultiNet LPR to treat the file as binary data and make it a FIX-512 file format.

**%PSM-E-READERR, error reading *print_file*
-RMS-W-RTB, *nnn* byte record too large for users buffer.**

Facility: LPD

Meaning: An error occurred while attempting to print DOS spreadsheets on an OpenVMS printer.

Action: The OpenVMS symbiont cannot print files that have a large record length. If the files are binary, you may be able to print them with the **lpr -v** option.

**%PSM-E-WRITEERR, error writing !AS
-SYSTEM-F-NOTPRINTED, failed to queue spool file for print**

Facility: LPD

Meaning: With a MultiNet print queue set up to point to a Gatorbox offering LPD print services to AppleTalk printers, an OpenVMS user queued a file while another job was already printing.

Action: This error is caused by MultiNet receiving a NAK in the protocol when it was not expected, probably on the printer name. Discuss this problem with the Gatorbox vendor.

**%PSM-E-WRITEERR, error writing !AS
-SYSTEM-W-NOMSG, Message number 000081B0**

Facility: LPD

Meaning: This message appeared during a failed attempt to print on a remote host. 81B0 is the MultiNet status for Connection reset by peer (ECONNRESET). This status occurs when the remote host has rebooted and the local node attempts to transmit on a stale connection.

Action: Retry when you are sure the remote host is available.

**%QUEMAN-F-OPENOUT, error opening *queue_name* as output
-RMS-E-FLK, file currently locked by another user**

Facility: MR_TO_MULTINET

Meaning: When MR_TO_MULTINET.COM was run, it quit unexpectedly and SMTP mail waiting in the queue was not delivered.

Action: Modify the MR_TO_MULTINET.COM file to either track down the problem or prevent it from occurring.

%RCP-F-ERROR, *message*

Facility: "R" Services

Meaning: A login procedure or shell script is displaying one or more messages that are confusing the "R" service. On an OpenVMS host, either the SYLOGIN.COM or a LOGIN.COM file has a command displaying information or messages written to SYS\$OUTPUT. On a UNIX host, the file displaying the message can be called by the .profile file, .cshrc, .login, or other login startup file.

Action: On an OpenVMS host, make sure the login command procedures contain the following two lines at the top of each file:

```
$ verify = 'f$verify(0)'  
$ if f$mode() .eqs. "OTHER" then exit
```

Be sure to insert a single quote before F\$VERIFY and specify OTHER in uppercase.

On the UNIX host, find the command that is displaying output and remove it from the file. One command known to cause this problem is the UNIX stty command. You can test which command is displaying the message by entering this command:

```
$ rshell unix_system_name pwd
```

Read only file system (EROFS)

Facility: MultiNet NFS Server

Meaning: The client tried to modify a read-only file system.

Action: Inform the user of the situation; enable write access if required.

%RMS-E-DNF, directory not found

Facility: FTP

Meaning: This message appears while attempting to use a third-party FTP program for a PC. When the /VERBOSE qualifier was used to log transactions between the server and client, it was discovered the third-party vendor was violating the terms of RFC-959 (the FTP specification) by not supplying an argument to the CWD command.

Action: Inform the third-party vendor that their FTP program is not in compliance with the RFC.

%RMS-W-RTB, *nnn* byte record too large for user's buffer

Facility: RSHELL

Meaning: A user tried to send several commands on the same command line to an OpenVMS host. DCL has a limit of 256 bytes for its command line read operations.

Action: Reformat the commands to circumvent this limitation.

**%RMT-F-ALLOCERR, Error allocating RCD0 device
-SYSTEM-F-INSFSPTS, insufficient SPTEs available**

Facility: RMTALLOC

Meaning: These messages appear when attempting to access a CD-ROM.

Action: Increase SPTREQ to the value shown in the *Installation and Introduction*.

**%RMT-I-REMINFO, Remote error code 34516,
"%SYSTEM-F-NOMSG, Message number number"**

Facility: RMTALLOC

Meaning: These messages appear while using RMTALLOC to access a tape. This error can be caused by a login command procedure displaying information from a command such as SET TERMINAL /INQUIRE. You can test this with the following command:

```
$ MULTINET RSHELL host "/etc/rmt"
```

Action: Fix the login command procedures so information is not displayed by adding the following two lines at the top of each login command procedure:

```
$ verify = 'f$verify(0)'
$ if f$mode() .eqs. "OTHER" then exit
```

Be sure to insert a single quote before F\$VERIFY and specify "OTHER" in uppercase. Add the following line at the end of each login command procedure:

Action: \$ IF VERIFY THEN SET VERIFY

RPC timed out server not responding

Facility: MultiNet NFS Server

Meaning: Client users receive this message when the OpenVMS server is not responding. When the message appears sporadically, the client may have specified too low a setting for the "timeo" parameter. When the message appears in response to every request, the NFS, RPCMOUNT, or RPCPORTMAP servers may not be running or responding.

Alternatively, the UNIX host sent a packet and an answer was not received in the amount of time allocated for a timeout. These situations can occur because:

- The NFS Server is not responding because the network is down or the NFS Server is hung.
- The NFS Server is responding, but not fast enough because:
 - The client is timing out too quickly, or other software is not tuned properly to handle the amount of traffic between hosts.
 - The OpenVMS host is moving too slowly because the CPU is overworked or under-capable.
 - Users are performing time-intensive tasks that are slowing down the entire system. For example, if the NFS server is on a UNIX host, the files have variable-length, carriage return format. When a user executes an **ls -l** command on a very large file, NFS must find the end of the file before the command can finish. When there is heavy traffic on the NFS Server, this activity can take some time to complete.

The SET APPROXIMATE-TEXT-SIZE-THRESHOLD command in the MULTINET CONFIGURE /NFS utility improves text file performance. When set to a positive value, this feature determines file sizes only when the OpenVMS-indicated length of the file exceeds the specified threshold. This permits commands such as UNIX **ls** to execute much faster. When a file system is mounted from a UNIX host, use the /approximate-text-size qualifier to the UNIX **mount** command.

- A packet was not received, but the problem corrected itself. If this message appears once and the connection continues to function, it may only indicate a need to adjust system parameters.

Action: Determine if the connection is viable. Use PING to see if the host can be reached. Adjust system parameters if necessary. Issue the following command to list the protocols registered with the portmapper:

§ MULTINET SHOW/RPC

If any of the protocols are not listed, verify whether they are enabled. If they are not, enable them and restart the server.

RPCMount: Refused RPCMount request from *client_name* not authorized

Facility: MultiNet NFS Server

Meaning: The server is denying all access to the requesting client because the client's IP address is in the restriction list of the RPCMOUNT server (set within the Server Configuration Utility).

Note! This restriction list is unrelated to any mount- restriction list that might exist.

Action: Fix the restriction list.

**RPCMount: Rejected mount request from *client_name*
Couldn't get file handle for *mount_point***

Facility: MultiNet NFS Server

Meaning: The NFS Server rejected the mount request because the requested directory does not exist on the server computer.

Action: Add the directory.

**RPCMount: Rejected mount request from *client_name*
non-AUTH_UNIX credentials**

Facility: MultiNet NFS Server

Meaning: The MultiNet NFS Server denied the client access to the OpenVMS server because the client did not provide UNIX-style login authorization credentials or because those credentials are not in the current configuration file.

Action: This problem reflects an unresolvable incompatibility between the client NFS and another UNIX-style NFS.

RPCMount: Rejected mount request from impostor *client_name*
Name *client_name* doesn't map to address *ip_address*

RPCMount: Rejected mount request from *client_name*
unable to get hostname for *ip_address*

Facility: MultiNet NFS Server

Meaning: The client-supplied mount-request authorization parameters failed the checks made by the NFS Server, and the mount request was rejected.

The server attempts the following calls:

- **gethostbyaddr()** on the requesting IP address to obtain the client's name
- **gethostbyname()** on the client name obtained by **gethostbyaddr()**

If the response to either query fails, the server displays the first message and rejects the request. If both queries succeed, but the IP address the client supplied is not one of the IP addresses obtained with **gethostbyname()**, the second message is printed and the request is rejected.

Action: If either message occurs as the result of a request from a valid client, check your host tables and domain name server database to make sure the client's name-to-address and address-to-name mappings are both correct.

RPCMount: Rejected mount request from *ip_address*
mount_point is not an exported filesystem

Facility: MultiNet NFS Server

Meaning: The server rejected the mount request because the specified mount point does not exist on the server.

Action: Enter a valid mount point.

RPCMount: Rejected mount request from *ip_address*
mount_point is not an exported filesystem for *client_name*

Facility: MultiNet NFS Server

Meaning: The mount request was rejected because a mount-restriction list exists for the requested file system and the requesting client is not represented on the list.

Action: If the client should be able to access the NFS server, use the `SELECT mount_point` command and then the `ADD MOUNT-RESTRICTION` command in the `MULTINET CONFIGURE /NFS` utility to add the client to the list.

se0: Transmit error (VMS Device Driver reported %X3c204c)

Facility: MultiNet

Meaning: The 204c code at the end of this message translates as "%SYSTEM-F-DISCONNECT", process disconnected from requested interrupt vector, and usually indicates a problem with a bad transceiver or transceiver cable.

Action: If these messages appear sporadically, but other services work, ignore them. Otherwise, upgrade your host to the current version of MultiNet.

%SET-E-DEVOFFLINE "Device not in configuration"

Facility: TELNET

Meaning: This message appears while attempting to set `/ALTYPEAHEAD` on the NTY devices created by MultiNet to handle incoming TELNET connections.

Action: Set it as a system-wide default by changing the `SYSGEN` parameter `TTY_DEFCHAR2`, or with MultiNet V3.2 and later, you can patch `MULTINET:MULTINET.EXE` to set the `ALTYPAHEAD` bit in the `NETWORK_PTY_DEVDEPND2_SET` flags. Contact Technical Support.

%SET-E-NOMSG, Message number 1077808A

Facility: FTP

Meaning: This message appears when `PUT` or `GET` commands are issued during an FTP session.

Action: A `SET` command in the system-wide login command procedure is failing, such as a `SET TERMINAL/INQUIRE` command. Surround this command with the appropriate logic to prevent its execution if the job is of type `NETWORK`, for example:

```
$ If F$Mode() .eqs. "NETWORK" Then Goto Skip_Terminal
$ Set Terminal/ . . .
. . .
$ Skip_Terminal:
```

setsockopt(SO_RCVBUF): %SYSTEM-F-IVCHAN, invalid I/O channel

Facility: TCPDUMP

Meaning: This error occurs while attempting to use TCPDUMP.

Action: Ensure both PHY_IO and SYSPRV are set when using TCPDUMP with the / PROMISCUOUS qualifier.

%SET-W-NOTSET error modifying node**CLI-E-IVDEVTYPE invalid device type - specify a mailbox device**

Facility: UNIX rsh to an OpenVMS host

Meaning: These messages display when the LOGIN.COM file on the OpenVMS host invokes a SET TERMINAL command without checking to be sure the session is an INTERACTIVE job.

Action: Fix the LOGIN.COM file.

Signal caught, sig = signal code = sigtype old pc = program-counter exiting

Facility: MULTINET KERBEROS DATABASE EDIT

Meaning: A signal was caught that made continued processing impossible. *sigtype* designates the type of signal. *program-counter* is the program-counter specified as the **pc** element of the **sigcontext** structure, defined in the *signal.h* header file in SYSS\$INCLUDE.

Action: Refer to the *VAX C Run-Time Library Manual* or the *HP C Run-Time Library Manual* for more information on signals and for the meaning of the signal code. The *signal.h* header file may also provide information on the cause of the problem. If the reason why this message occurred is not obvious, contact Technical Support.

Startup message, Debug level is value

Facility: X11-Gateway

Meaning: The X11-Gateway is starting. Debug level has been set to value.

Action: Informational message; no action is required.

Stale File System (ESTALE)

Facility: MultiNet NFS Server

Meaning: The client has referenced an old or invalid file handle (file identifier) while trying to perform a file system operation. The directory or file may no longer exist, or the disk may no longer be mounted.

Action: If neither condition is true and the message recurs, dismount and remount the file system on the clients that receive the message.

start_decnet: \$QIOW error (status=*vms_error_value*)

Facility: X11-Gateway

Meaning: The X11-Gateway failed while attempting to start a read operation on the DECnet channel.

Action: Translate *vms_error_value* using the OpenVMS error manual. This error occurs because:

- The DECnet network failed or
- The client or server closed the connection or
- The client or server crashed or all three must happen

start_tcp: \$QIOW error (status=*vms_error_value*)

Facility: X11-Gateway

Meaning: The X11-Gateway failed while attempting to start a read operation on an IP channel.

Action: Translate *vms_error_value* in the OpenVMS error manual. This error occurs because:

- The IP network failed
- The client or server closed the connection
- The client or server crashed

syslog: MultiNet Server: pausing for old server to write dump file and exit

Facility: MultiNet Server

Meaning: The SERVICES.MASTER_SERVER file is corrupted.

Action: Get a fresh copy of the SERVICES.MASTER_FILE from the MultiNet installation kit, then restart the master server.

**%SYSMAN-I-NODERR, error returned from node *name*
-SYSTEM-F-INSMEM, insufficient dynamic memory**

Facility: START_MULTINET

Meaning: These messages appear when MultiNet starts.

Action: MultiNet uses SYSMAN for loading device drivers and there is not enough free non-paged pool to load the drivers. Check memory with the SYSGEN command. Run AUTOGEN, as shown in the following example and reboot:

```
§ @SYS$UPDATE:AUTOGEN SAVPARAMS SETPARAMS FEEDBACK
```

%SYSTEM-E-NORIGHTSDB, rights data base file not found

Facility: LPD

Meaning: This message occurs when attempting to use LPR to spool output to the printer.

Action: Use the PRINT/USER= command to print a file under the user name that is having trouble. This should provide more information. If the result is not clear, contact Technical Support.

**%SYSTEM-F-ACCVIO, access violation, reason mask=00,
virtual address=00000000, PC=*address*, PSL=*nnnnnnnn***

Facility: SMTP

Meaning: This message is a result of the symbiont's attempt to translate the logical name MULTINET_SMTP_RETURN_INTERVAL by using the VAX C Run-Time Library's **getenv()** function. When the logical name is not present, getenv returns NULL, which is passed to **strlen()** and results in the ACCVIO.

Action: Define MULTINET_SMTP_RETURN_INTERVAL on those hosts that use MultiNet SMTP support. If you want users to be able to use the SMTP% protocol prefix in OpenVMS MAIL, you have the following options:

- Route the SMTP% "... " messages through PMDF by adding the following command to your system startup:

```
§ DEFINE/SYSTEM/EXEC MAIL$PROTOCOL_SMTP PMDF_MAILSHR
```

- Add the following command to your system startup:

```
$ DEFINE/SYSTEM/EXEC MULTINET_SMTP_RETURN_INTERVAL "4 00:00:00"
```

- Add the following command to your system startup (after MultiNet is started):

```
$ @MULTINET:START_SMTP_DEBUG
```

This command starts the queue and defines the logical names even though MultiNet SMTP support is disabled.

**%SYSTEM-F-ACCVIO, access violation, reason mask=00,
virtual address=00000000, PC=address, PS=nnnnnnnn
%TRACE-F-TRACEBACK, symbolic stack dump follows**

Facility: OpenVMS porting

Meaning: This message occurs when a program ported to the AXP includes UCX files instead of MultiNet files.

Action: Include only MultiNet files.

**%SYSTEM-F-ACCVIO, access violation, reason mask=04,
virtual address=00003800,PC=000133ED,PSL=0BC00004**

Facility: FINGER

Meaning: A FINGER server violated the RFC and sent only LF and not CRLF for thousands of characters. FINGER failed with this message.

Action: Inform the administrator at the site that you were accessing with FINGER.

SYSTEM-F-BADVEC, invalid change mode or message vector

Facility: TCPDUMP

Meaning: When trying to trace an NFS problem, TCPDUMP failed and displayed this message.

Action: The image was corrupted. Re-install the image from your MultiNet distribution.

SYSTEM-F-FORCEDEXIT, forced exit of image or process by job controller**Facility:** Xterminals**Meaning:** An X terminal failed and all windows disappeared.**Action:** Contact Technical Support if MultiNet was running at the time of failure.**SYSTEM-F-IVDEVNAM, invalid device name
-SHOW-W-OPENIN, error opening *-name* as input****Facility:** RSHELL**Meaning:** While using **rsh** on a UNIX host under C-Shell (csh), the use of a dash in the command caused an error.**Action:** Quote the option using this format:

```
% rsh somewhere someprogram \"-CaseSensitiveOption\"
```

rsh commands can also fail because SHOW DISPLAY requires the WSA device name as its parameter or uses the WSA device pointed to by DECW\$DISPLAY.

All X Window System programs that run on an OpenVMS host accept the "-display" option to pass the display location for DECnet connections only. For TCP/IP connections, wrap the program you want to run from the OpenVMS host in a DCL command file that creates the WSA device for you before invoking the program, as shown in the following sample program:

```
$! MyXProgram.Com
$ S = 'F$Verify(0)
$ Remote_Node = F$TrnLNM("MULTINET_RSHELL_ADDRESS")
$ Set Display/Create/Node=" 'Remote_Node' /Transport=TCPIP
$ Run MyXProgram
$ Exit
```

To run the preceding program from a UNIX host, issue the following command:

```
% rsh vax \@MyXProgram
```

RSHELL does not return unless you create a detached process on the VAX on which you run your program.

%SYSTEM-F-NOLOGNAM, no logical name match

Facility: SEND or POP

Meaning: If this message appears after an attempt to use MULTINET SEND, the command failed because the MULTINET_SMTP_QUEUE logical was not defined on the current system.

If this message appears when using POP, POP3_SERVER.COM was run interactively.

Action: For MULTINET SEND, start SMTP with the following command:

```
§ START/QUEUE MULTINET_SMTP_QUEUE
```

For POP, POP3_SERVER.COM is run internally when a user connects to the POP3 port.

%SYSTEM-F-ILLIOFUNC ...

Facility: RRESTORE

Meaning: An HP host client sent an "S" status request after an **rrestore if lowgmo:mt:** command was invoked. This status request is non-standard and is not implemented by any vendors other than Hewlett-Packard.

Action: There is no known workaround.

%SYSTEM-F-INTDIV, arithmetic trap, integer divide by zero at location

Facility: MULTINET CHECK

Meaning: This message appeared while running MULTINET CHECK.

Action: An interface has not transmitted any packets. Error reporting of this condition was improved in MultiNet V3.2 and later. Upgrade to the latest version of MultiNet.

SYSTEM-F-VASFULL, virtual address space is full

Facility: SYSGEN

Meaning: The VIRTUALPAGECNT parameter is set too low.

Action: Assign a higher value (at least 50000) to the VIRTUALPAGECNT parameter and reboot the host.

tcp/ip remote startup error
timeout occurred connection to node: *nodename*

Facility: REXEC

Meaning: The following situations can cause this error:

- If you have rexec enabled, the PATHWORKS client assumes you are on a UNIX host.
- If you have an interactive prompt in your LOGIN.COM command procedure, the client tries to connect to the VAX using Telnet after **rexec** fails. It does not negotiate the terminal type, which causes some hosts to prompt interactively for the terminal type. This causes the client to hang and time out eventually.
- If you set your prompt to something other than "\$", once the client establishes a TELNET connection it sends the user name and password and waits for the "\$" prompt to return from the OpenVMS host.
Reset your prompt to "\$", or look for the client-side option that allows you to define the prompt you are expecting.
- If DECnet is not running on your host, once the client logs on to your host it tries to open a DCL file channel to the DECnet object that handles remote application startup. If DECnet is not installed, this operation might fail.
- If your PC clock is too fast, the PC can start sending commands over TELNET so fast they overrun the DCL command line buffer. If you have a 386 30 MHz (or faster) host, try switching the turbo button to the slow setting.

Telnet: Out of space.

Facility: Kerberos TELNET

Meaning: MultiNet stops unexpectedly and this message appears. Kerberos cannot allocate an internal data structure.

Action: Either the page file quota for the master server and/or the SYSGEN parameter VIRTUALPAGECNT is set too low. Increase these parameters.

Text file busy (ETXTBSY)

Facility: MultiNet NFS Server

Meaning: Because an OpenVMS user was accessing a file when the client requested it, the server received an unexpected SS\$_ACCONFLICT error message from the OpenVMS XQP.

Action: Retry the access again later.

There were more tuples found than there were space for

Facility: MULTINET KERBEROS DATABASE EDIT

Meaning: A system error occurred while attempting to make the entry in the Kerberos database. No more space is available in the database.

Action: Contact Technical Support.

Tickets destroyed

Facility: MULTINET KERBEROS DESTROY

Meaning: Tickets were destroyed successfully.

Action: None.

Tickets NOT destroyed.

Facility: MULTINET KERBEROS DESTROY

Meaning: An error occurred during a MULTINET KERBEROS DESTROY activity with a cause other than ENOENT (no such file or directory). Causes can be:

- A protection error
- Access permissions are not correct
- File is locked by another process

Action: Make sure protection and access permissions are correct, and no other processes have access to the file.

Too many open files (EMFILE)

Facility: MultiNet NFS Server

Meaning: Because the directory and file cache is too large for one or more of the process quotas with which the server is configured, the server received an unexpected SS\$_EXQUOTA error message from the OpenVMS XQP.

Action: Reduce the cache or increase process quotas as needed, and restart the server.

%TPU-E-OPENOUT, error opening *filename* as output
-RMS-E-PRV, insufficient privilege or file protection violation

Facility: NFS

Meaning: The directory of the NFS mount point has privileges that restrict access.

Action: Create a subdirectory of the mount point named `.nfs-tmp-directory`. Or, if you use the `/SEMANTICS=VMS_FILENAMES` qualifier to the NFSMOUNT command, name the directory `nfs-tmp-directory.dir`. Give this directory `777` permissions. The NFS Client sees this directory and uses it for files instead of the mount point.

Debug this setup by displaying packets with the `TCPDUMP/RPC=ALL/SNAP=1500` command of the NFS transactions associated with invoking TPU.

Trying... [*IP_address*] %MULTINET-F-EACCES, Permission denied

Facility: TELNET

Meaning: This error appears while accessing a Sun workstation on the same Ethernet connection. PING to the Sun works. This can occur with a misconfigured broadcast address MultiNet assumes is being accessed with TELNET.

Action: Enter the following command:

```
$ MULTINET SHOW/INTERFACE SE0
```

You can determine the broadcast address on the UNIX host with the **ifconfig** command, as shown in the following example:

```
fnord% /etc/ifconfig le0
le0: flags=63<UP,BROADCAST,NOTRAILERS,RUNNING>
inet 161.44.128.66 netmask ffffffff broadcast 161.44.128.255
```

%UCX-E-LPD_REQREJECT, Print request rejected by *host*
%QMAN-I-INVSMBMSG, invalid data in message from symbiont on queue *host*

Facility: LPD

Meaning: Printing between hosts fails.

Action: Determine if the print queue is visible by running the following command:

```
$ MULTINET SHOW/QUEUE=queuename
```

Make sure user names match on both hosts. If they don't, set a default LPD user

name for jobs from users who do not have corresponding user names on your host. Set a default LPD user name with the SET LPD-DEFAULT-USERNAME in the MULTINET CONFIGURE utility, and by setting the MULTINET_LPD_DEFAULT_USERNAME logical to the same login name.

Unable to create scratch file to write message data

Facility: IMAP Server

Meaning: The server encountered an error while trying to write a temporary file.

Action: Check that there is sufficient disk space and that the server has sufficient privileges to write to disk (typically SYSSCRATCH).

Unable to create TCP socket: *error message*

Unable to init network channel

Facility: IMAP Server

Meaning: An error occurred while trying to start the server. The server failed to open the socket handed off by the master server.

Action: Check the IMAP service configuration. The configuration should be similar to the following:

```
service-name IMAP
program MULTINET:IMAP_SERVER.COM
socket-type SOCK_STREAM
socket-options SO_KEEPAALIVE
socket-address AF_INET , 143
INIT TCP_Init
LISTEN TCP_Listen
CONNECTED TCP_Connected
SERVICE Run_Program
```

Unable to get local realm. Check MULTINET:KERBEROS.CONFIGURATION.

Facility: MULTINET KERBEROS

Meaning: An attempt to read the local realm name from the KERBEROS.CONFIGURATION file was unsuccessful.

Action: Check the KERBEROS.CONFIGURATION file to ensure the first line contains the local realm name and the file is world-readable.

Unable to get peer name: *error message*
Unable to init network channel

Facility: IMAP Server

Meaning: An error occurred while trying to start the server. The server failed to retrieve the address of the connecting client.

Action: Contact Technical Support.

Unchanged

Facility: MULTINET KERBEROS DATABASE EDIT

Meaning: The Kerberos database was not updated during a MULTINET KERBEROS DATABASE EDIT session because no changes to the principal being edited were made.

Action: Check the information entered, and ensure only the system manager has access to the Kerberos database.

Unexpected characters after address in group: *address*

Facility: IMAP Server

Meaning: The server tried parsing a malformed RFC822 message header. These errors are encountered when parsing headers that are malformed intentionally by the sender in order to avoid tracing.

Action: None.

Unexpected characters at end of address: *address*

Facility: IMAP Server

Meaning: The server tried parsing a malformed RFC822 message header. These errors are encountered when parsing headers which are malformed intentionally by the sender in order to avoid tracing.

Action: None.

Unexpected VMS error: SS\$_EXQUOTA

Facility: MultiNet NFS Server

Meaning: One or more process quotas are insufficient for server needs.

Action: Raise the size of the process quotas or reduce the size of the directory and file cache.

Unknown character set

Facility: IMAP Server

Meaning: The server attempted to parse or search a message that specified an unknown or invalid character set.

Action: None.

unparseable date field

Facility: IMAP Server

Meaning: The server detected a corrupt Date field in a VMS mail message.

Action: None.

Unterminated comment: *string*

Facility: IMAP Server

Meaning: The server tried parsing a malformed RFC822 message header. These errors are encountered when parsing headers which are malformed intentionally by the sender in order to avoid tracing.

Action: None.

Unterminated mailbox: *address*

Facility: IMAP Server

Meaning: The server tried parsing a malformed RFC822 message header. These errors are encountered when parsing headers that are malformed intentionally by the sender in order to avoid tracing.

Action: None.

User authorization failure

Facility: RLOGIN

Meaning: RLOGIN fails because the .RHOSTS file contains incorrect information.

Action: Specify a host name, not an IP address, in the .RHOSTS file. The host name can be obtained as shown in the following example:

```
$ REM_HOST = F$ELEMENT(0, "/", F$GETDVI("TT", "TT_ACCPORNAM"))
$ WRITE SYS$OUTPUT "Remote login from ", REM_HOST
```

Warning: Message has unknown MIME version

Facility: IMAP Server

Meaning: The server attempted to parse a message which contained data encoded with an unknown MIME version.

Action: None. The message must be read as plain text.

Warning: Unexpected error 9 (ffff)Good Evening, xxxxxx.

Facility: DOS (on the OpenVMS host)

Meaning: A LOGIN directory has not been created in the SYS: volume. When the user logs in, that user is logged out immediately.

Action: Create a directory for the user and copy the contents of a PC server's LOGIN directory to the new directory.

**X Toolkit Error: Can't Open display
%DWT-F-DWTABORT, xtoolkit fatal error**

Facility: X11

Meaning: These messages appear while running an application that creates an X11 terminal window. Running MULTINET X11DEBUG shows that the UCX driver was not loaded.

Action: Use MULTINET CONFIGURE with the SET LOAD-UCX-DRIVER TRUE command and reload the MultiNet server. When you complete these steps, run X11DEBUG to ensure all tests pass.

%X11DEBUG-F-CONNECTFAIL, error connecting to *address*

Facility: X11

Meaning: The specified IP address could not be reached.

Action: Refer to the X11DEBUG messages that follow for a complete description.

X11DEBUG-F-NOSERVER, X11 Server *n* on *address* is not running

Facility: X11DEBUG

Meaning: The host at the specified IP address is not running.

Action: Refer to the X11DEBUG messages that follow for a complete description. This error can be caused when an X server is not loading the "TCPIP" transport. The security database may not contain fully qualified domain names or DNS may not be running.

**%X11DEBUG-F-REFUSED, X11 Server refused the connection
-X11DEBUG-F-AUTHFAILED, authentication failure**

Facility: X11DEBUG

Meaning: The "TCPIP" transport is not enabled.

Action: Configure the security database on the MultiNet host. Under DECwindows, select the Security option from the Options menu in the Session Manager. Add the fully qualified host name of the host. Use an asterisk (*) for the user name and "TCPIP" for the transport.

**%X11DEBUG-F-UNKNOWNHOST, unknown host XBOSTON
-X11DEBUG-I-USERACTION, reissue the SET DISPLAY command**

Facility: "TCPIP" transport

Meaning: A problem is reported with the "TCPIP" transport not finding hosts. MULTINET X11DEBUG is run and reports these messages.

Action: Specify the full name of the host to be accessed and the full name of local host. UCX \$QIO emulation does not consult a HOSTALIASES file, and does not do "domain-searching" for the name.

**X11DEBUG-I-USERACTION, either the server is down
-X11DEBUG-I-USERACTION, or the wrong server number was specified to SET DISPLAY**

Facility: X11

Meaning: This message is self-explanatory. SET DISPLAY is a DCL command for directing the output of a DECwindows application.

Action: Ensure the server is functioning and use SHOW DISPLAY to check the server number.

Xgateway: Configuration Error - *value* Logical Name Not Defined

Facility: X11-Gateway

Meaning: The logical name *value* was expected on the gateway and was not found.

Action: Confirm the gateway has been configured properly. Define the logical name specified as part of the error.

Xgateway: Unable to resolve IP address for X server node *hostname*

Facility: X11-Gateway

Meaning: The gateway was unable to translate *hostname* to an IP address.

Action: Check the configuration and ensure the host is specified correctly.

Xgateway: IP socket call failed - errno=*errno_value*

Facility: X11-Gateway

Meaning: The socket call while opening the IP connection failed. Examine **errno** for more information.

Action: Translate *errno_value* using the information in Table B-2.

Xgateway: IP setsockopt call failed - errno=*errno_value*

Facility: X11-Gateway

Meaning: The **setsockopt()** call while opening the IP connection failed. Examine **errno** for more information.

Action: Translate *errno_value* using the information in Table B-2.

Xgateway: IP connection failed to node *name* server *number*- errno=*errno_value*

Facility: X11-Gateway

Meaning: The IP connection failed. Examine **errno** for more information.

Action: Translate *errno_value* using Table B-2. This error occurs because:

- The IP network failed
- The IP server is not up, indicating a gateway configuration problem

Xgateway: \$ASSIGN to _NET: device error - VMS Status=*vms_error_value*

Facility: X11-Gateway

Meaning: The \$ASSIGN call while trying to open the DECnet connection failed. Examine the OpenVMS Status for more information.

Action: Translate *vms_error_value* in the OpenVMS error manual. This error occurs because the DECnet network failed.

Xgateway: Cannot Open DECnet Channel to Node *name* Server *number* - VMS
Status=*vms_error_value**

Facility: X11-Gateway

Meaning: The DECnet connection failed. Examine the OpenVMS Status for more information.

Action: Translate *vms_error_value* in the OpenVMS error manual. This error occurs because:

- The DECnet network failed or
- The DECnet server is not up. This may indicate a gateway configuration problem.

Xgateway: Can't Open DECnet Channel to Node *name* Server *number* - VMS
IOSB=*vms_error_value**

Facility: X11-Gateway

Meaning: The DECnet connection failed. Examine the OpenVMS IOSB for more information.

Action: Translate *vms_error_value* in the OpenVMS error manual. This error occurs because:

- The IP network failed OR
- The client or server closed the connection OR
- The client or server crashed OR ALL THREE MUST HAPPEN

PART II MultiNet Logicals

Chapter 3	MultiNet Logicals
Chapter 4	Utility Return Codes
Chapter 5	Error Codes

Chapter 3

MultiNet Logicals

Table 3-1 lists the MultiNet logicals in alphabetical order.

Table 3-1 MultiNet Logicals

KEYBD
Tests the individual TN3270 mapping statements for a specified keyboard type. Keyboard types are specified in the MAP3270.DAT file. The MAP3270 logical name specifies the name for this file.
MAP3270
Specifies the name of the TN3270 key mapping file. The default is MULTINET:MAP3270.DAT.
MULTINET
The top-level MultiNet directory. Defined in START_MULTINET.COM. This logical name should not be modified.
MULTINET_ACCESS_CHALLENGE_FORMAT
Specifies the format of the prompt the MultiNet Secure/IP Client issues when it makes a token-based challenge.
MULTINET_ACCESS_OTP_FORMAT
Specifies the format of the prompt the MultiNet Secure/IP Client issues when it makes a one-time password (S/KEY) pseudo-challenge.
MULTINET_ACCESS_RESPONSE_FORMAT
Specifies the format of the prompt the MultiNet Secure/IP Client issues in response to a MultiNet Secure/IP challenge.
MULTINET_ANONYMOUS_FTP_CONTROL
Set to "-" to permit use of the FTP PUT command into an ANONYMOUS account. Set by system manager.

Table 3-1 MultiNet Logicals (Continued)

<p>MULTINET_ANONYMOUS_FTP_DIRECTORY</p> <p>Indicates the anonymous FTP directory. Defined in START_MULTINET.COM and set by system manager with the command:</p> <pre>NET-CONFIG>SET ANONYMOUS-FTP-DIRECTORY</pre>
<p>MULTINET_ANONYMOUS_PASSWORD</p> <p>Specifies the password for the anonymous FTP account by a remote user. Defined in FTP_SERVER.COM by the command:</p> <pre>\$ MULTINET FTP /SERVER /GET_REMOTE_INFO</pre>
<p>MULTINET_ANONYMOUS_USERNAMES</p> <p>This logical will allow users to use names which are not anonymous, but have the same anonymous account behavior. The MULTINET_ANONYMOUS_USERNAMES logical usage is shown in the following example:</p> <pre>\$ DEFINE /SYSTEM /EXEC MULTINET_ANONYMOUS_USERNAMES _\$"anonymous,user1,user2,..."</pre> <p>If you define this logical as shown in the preceding example and set the "user1,user2,..." accounts using the same password as the anonymous account, then the FTP server will treat "user1,user2,..." as an anonymous type of user.</p>
<p>MULTINET_CLUSTER_SERVICE_CPU_RATING</p> <p>Enables cluster service CPU rating. Set by system manager.</p>
<p>MULTINET_CLUSTER_SERVICE_NAMES</p> <p>Defines the cluster service name list used for DNS load balancing. Defined in START_MULTINET.COM and set by system manager with the command:</p> <pre>NET-CONFIG>SET CLUSTER-SERVICE-NAMES</pre>
<p>MULTINET_CLUSTER_SERVICE_STATIC_RATING</p> <p>Enables cluster service static rating. Set by system manager.</p>
<p>MULTINET_COMMON_ROOT</p> <p>Defines the MultiNet cluster common rooted directory. Defined in START_MULTINET.COM. This logical should not be modified.</p>
<p>MULTINET_DISABLE_SPAWN</p> <p>Disables the ability to use SPAWN, ATTACH, or PUSH in all MultiNet applications. Set by user or system manager.</p>

Table 3-1 MultiNet Logicals (Continued)**MULTINET_DIRECTORY_MESSAGE_FILENAME**

Defines the name of the file you want displayed when a session enters a directory. For example:

```
$ DEFINE/SYSTEM/EXECUTIVE MULTINET_DIRECTORY_MESSAGE_FILENAME flowers.txt
```

MULTINET_FTP_221_REPLY

Defines a message to appear when a user ends the FTP session. If you do not define this logical, MultiNet uses the default message instead. You can define a text string or file. For example:

```
$ DEFINE/SYSTEM/EXECUTIVE MULTINET_FTP_221_REPLY -
_$ "Connection to FTP server has been closed"
```

When the user closes the FTP connection, this message appears:

```
221 Connection to FTP server has been closed
```

MULTINET_FTP_230_REPLY

Defines a message to appear when a user successfully logs in. If you do not define this logical, MultiNet uses the default message instead. As with MULTINET_FTP_221_REPLY, you can define a text string or file. For example:

```
$ DEFINE/SYSTEM/EXEC MULTINET_FTP_230_REPLY "Login successful"
```

Now, when the user logs in using FTP, the following message appears:

```
230 Login successful
```

MULTINET_FTP_421_REPLY

Defines a message sent when a user connects to the server but should not log in. After sending the message, the connection closes. For example, define this logical to prevent FTP access for a short time period. Be sure to deassign the logical after this period to allow FTP access again. You can define a text string or file. For example:

```
$ DEFINE/SYSTEM/EXECUTIVE MULTINET_FTP_421_REPLY -
_$ "System maintenance in progress until 17:30"
```

When the user connects to the host through FTP, this message appears and then the connection closes:

```
421 System maintenance in progress until 17:30
```

MULTINET_FTP_ACCOUNTING_HOST

Is the name of the IP address of the system running the accounting program.

MULTINET_FTP_ACCOUNTING_PORT

Is the port number that the program was set up to listen on.

Table 3-1 MultiNet Logicals (Continued)**MULTINET_FTP_ADDRESS**

Set by the FTP server to the remote user's IP address. Defined in FTP_SERVER.COM by the command:

```
$ MULTINET FTP /SERVER /GET_REMOTE_INFO
```

MULTINET_FTP_ALL_VERSIONS

Requests the NLST and LIST commands to display all version numbers. If this logical is defined, the logical name MULTINET_FTP_STRIP_VERSION has no effect.

MULTINET_FTP_ALL_VERSIONS is ignored if the FTP server is in UNIX emulation mode.

MULTINET_FTP_ANNOUNCE

Provides a SYSS\$ANNOUNCE-style message along with the "220" banner at connect time. Define this logical name in a fashion similar to SYSS\$ANNOUNCE, using one of these commands:

```
$ DEFINE /SYSTEM MULTINET_FTP_ANNOUNCE "message_text"
```

In the following version, the announcement is in the specified file:

```
$ DEFINE /SYSTEM MULTINET_FTP_ANNOUNCE "@file_spec"
```

MULTINET_FTP_ANONYMOUS_230_REPLY

Defines a message to appear when an ANONYMOUS user successfully logs in. If you do not define this logical, MultiNet uses the default message instead. As with MULTINET_FTP_230_REPLY, you can define a text string or file. For example:

```
$ DEFINE/SYSTEM/EXEC MULTINET_FTP_ANONYMOUS_230_REPLY-  
_$ "ANONYMOUS login successful"
```

Now, when a user logs in using the ANONYMOUS account, the following message appears:

```
230 ANONYMOUS login successful
```

MULTINET_FTP_DELAY_TRANSFER_NEGOTIATION

The FTP client does not attempt to negotiate STRU O VMS transfer mode until after you have logged into the remote system successfully.

Table 3-1 MultiNet Logicals (Continued)**MULTINET_FTP_DISALLOW_UNIX_STYLE**

Controls whether UNIX-style filename parsing is done. The default value for `MULTINET_FTP_DISALLOW_UNIX_STYLE` is true (T), UNIX-style filename parsing is not handled. If you want UNIX-style filename parsing, you must define this logical as FALSE. When UNIX-style parsing is enabled, it is not normally done until a CD command has been done with a directory specification that contains a “/” in it. For example:

```
FTP> cd ../my_directory
```

For some FTP clients (MultiNet is one of them) you will have to enclose the directory specification in quotes (“ ”) when it contains the “/” to prevent the client from attempting to parse it.

To exit UNIX-type filename parsing, use a CD command with either the “[” or “<” character in the directory specification. For example:

```
FTP> cd [-.my_directory]
```

```
$ DEFINE/SYSTEM/NOLOG/EXEC MULTINET_FTP_DISALLOW_UNIX_STYLE FALSE
```

Some graphical display FTP clients expect the output of directory commands to be in a UNIX system format. To enable this UNIX format, use the following either at the system level or in the user's LOGIN.COM:

```
$ DEFINE MULTINET_FTP_DISALLOW_UNIX_STYLE FALSE
```

and

```
$ DEFINE MULTINET_FTP_UNIX_STYLE_BY_DEFAULT ANYTHING
```

MULTINET_FTP_DISALLOW_WILDCARD_DELETES

Disallows the new functionality of accepting wildcards on delete. This may be done at the process, group, or system level.

MULTINET_FTP_DODROP1DOT

Overrides an FTP default of renaming files by changing the final dot (.) to \$5N. This logical drops the final dot and does NOT add \$5N.

MULTINET_FTP_DONT_REPORT_FILESIZE

When this logical is defined, the estimate of the number of bytes to be transmitted is not included in the 150 reply line to a GET operation.

MULTINET_FTP_FAST_TIMEOUT

This logical is equivalent to the settings in these logicals `MULTINET_NAMESERVER_RETRANS` and `MULTINET_NAMESERVER_RETRY` for the FTP server process to 5 and 2 respectively. This helps the FTP server start up faster when DNS PTR records for the client are defined improperly or do not exist.

Table 3-1 MultiNet Logicals (Continued)

<p>MULTINET_FTP_HOSTNAME</p> <p>Set by the FTP server to remote user's hostname. Defined in FTP_SERVER.COM by the command:</p> <pre>\$ MULTINET FTP /SERVER /GET_REMOTE_INFO</pre>
<p>MULTINET_FTP_LOCAL_ADDRESS</p> <p>Set by the FTP server to remote user's local address. Defined in FTP_SERVER.COM by the command:</p> <pre>\$ MULTINET FTP /SERVER /GET_REMOTE_INFO</pre>
<p>MULTINET_FTP_LOG_ALL_USERS</p> <p>Logs commands and responses for all users.</p>
<p>MULTINET_FTP_LOGFILE</p> <p>Specifies the name of a log file. This is good if you suspect break-ins to the FTP server. For example:</p> <pre>\$ DEFINE/SYSTEM/EXECUTIVE MULTINET_FTP_LOGFILE - _ \$ SYS\$COMMON:[SYSMGR]FTPLOGIN.LOG</pre> <p>If this logical exists, the FTP server writes a record to the specified file each time a user attempts to log in. Each record includes the date and time, the remote host's internet address, and whether the login succeeded.</p>
<p>MULTINET_FTP_LOWERCASE_MPUT</p> <p>The logical MULTINET_FTP_LOWERCASE_MPUT affects the MPUT command in the FTP client, which has had a similar change in functionality.</p>
<p>MULTINET_FTP_LOWERCASE_NLST</p> <p>The logical MULTINET_FTP_LOWERCASE_NLST can be set to <i>True</i>, <i>Yes</i> or <i>1</i> (the number one) to cause the filenames presented as a result of the NLST command to be converted to lowercase when not operating in UNIX mode. Setting this logical to True preserves behavior in prior versions of MultiNet. The new behavior (retaining the case of file names) provides better functionality for ODS-5 disks with case sensitive filenames on VMS V7.3-1 and later.</p>
<p>MULTINET_FTP_MAXIMUM_IDLE_TIME</p> <p>Defines the length of time before an idle FTP server connection times out. The value is set in seconds (default: 300 seconds). If set to 0 (zero), timeouts are disabled. Set by system manager.</p>

Table 3-1 MultiNet Logicals (Continued)

<p>MULTINET_FTP_MAX_PRE_ALLOCATION</p> <p>This logical limits the size that the file will be pre-allocated to when file size information is available at transfer time. This can be important when transferring very large files as it can take a long time to pre-allocate the file at the start of the transfer and timeout routines in FTP and/or firewalls may cause connections to be dropped. This logical does not have any effect for STRU OVMS transfers of Indexed, Contiguous, or Contiguous Best Try files; these files need to have accurate allocation size information at the start of the transfer.</p>
<p>MULTINET_FTP_MAXREC</p> <p>The FTP client and the FTP server normally check the record size of an ASCII transfer and disallow more than 8192 byte records (as a sanity check). However, you can define the MULTINET_FTP_MAXREC logical to override the default of 8192. The definition of the MULTINET_FTP_MAXREC logical is commented out but defined in the FTP_CONTROL.COM file as follows:</p> <pre>\$ DEFINE/SYSTEM/NOLOG/EXEC MULTINET_FTP_MAXREC 8192</pre> <p>Note that the maximum record size supported by OpenVMS is 65535.</p>
<p>MULTINET_FTP_NONPASV</p> <p>If the MULTINET_FTP_NONPASV logical name is defined, then the FTP client will start-up in PASSIVE OFF mode. The default client behavior is PASSIVE ON.</p>
<p>MULTINET_FTP_OBSERVE_VMS_PROTECTION</p> <p>Causes RENAME to observe the file protection.</p>
<p>MULTINET_FTP_ONLY_BREAK_ON_CRLF</p> <p>If this logical is defined and an ASCII file is transferred, a new line is created in the file upon receipt of a carriage return/line feed sequence. If this logical is not defined and an ASCII file is transferred, a new line is created in the file upon receipt of either a carriage return/line feed sequence or a line feed. The logical is not defined by default.</p>
<p>MULTINET_FTP_PASSWORD_WARNING_MESSAGE</p> <p>Defines the message users see when their password is going to expire.</p>
<p>MULTINET_FTP_PASSWORD_WARNING_TIME</p> <p>Uses the VMS delta time to specify the minimum remaining lifetime for the user's password.</p>

Table 3-1 MultiNet Logicals (Continued)**MULTINET_FTP_RECEIVE_THRESHOLD**

Specifies the amount of buffer space that can be used to buffer transmitted data on the data socket. The default value is 6144. If this logical is defined and it begins with a /, then it specifies the fraction of the window size. If only a fraction is specified, then it indicates the number of bytes to be used. The ? in the logical represents where defined values go.

```
$ DEFINE /SYSTEM/EXECUTIVE MULTINET_FTP_RECEIVE_THRESHOLD ?
```

MULTINET_FTP_SEMANTICS_FIXED_IGNORE_CC

When this logical is defined to TRUE, then GET operations of fixed length records file will not have a <CR><LF> added to the end of each record.

MULTINET_FTP_SEMANTICS_VARIABLE_IGNORE_CC

When this logical is defined to TRUE, files with variable length records and carriage return carriage control will NOT have a new line character inserted after each line when the file is transferred in image mode. The logical is not defined by default.

MULTINET_FTP_STOU_OLDNAME

This logical causes the STOU command to use the old file name instead of creating a new one. Following is an example of this logical name usage:

```
$ DEFINE /SYS/EXE MULTINET_FTP_STOU_OLDNAME "ANYTHING"
```

MULTINET_FTP_SERVER_LOG_LIMIT

Specifies that log files be retained. Set this logical to a dash (-) to retain all log files, or specify a number in the range of 1 to 32000.

Directory size restrictions limit the number of potential files that can actually be created. If you do not specify a number or value, one log file is created or over-written for each FTP session. Use the DCL PURGE command to delete unneeded log files. The following example specifies that 42 log files be retained:

```
$ DEFINE MULTINET_FTP_SERVER_LOG_LIMIT 42
```

MULTINET_FTP_SERVER_RELAXED_PORT_COMMAND

By default the Multinet FTP server checks the IP address given in the port command and does not make the connection if the IP address does not match that of the control connection. This can be disabled by defining this logical.

MULTINET_FTP_SIZE_BEFORE_GET

If this logical is defined to FALSE, NO, or 0 (zero) the SIZE command will not be sent before the GET command for a file. When the logical is not defined, or is defined to a value other than FALSE, NO, or 0, the SIZE command is sent. If a value is returned, it is used to preallocate the file and in progress calculations. Some FTP servers leave the file open accidentally after the SIZE command.

Table 3-1 MultiNet Logicals (Continued)

<p>MULTINET_FTP_STATISTICS_IN_HHMMSS</p> <p>Turns on, off, or toggles (the default) STATISTICS mode. In STATISTICS mode, FTP displays timing statistics about the transfer upon completion. If this logical is defined with either 1, T, or Y, then the elapsed time displays in HH:MM:SS format if statistics are requested using the STATISTICS mode.</p>
<p>MULTINET_FTP_STRIP_VERSION</p> <p>If the FTP server is in UNIX mode, the SYST command displays the banner “UNIX MultiNet Unix Emulation.” If the FTP server is in VMS mode, the SYST command displays the equivalence string associated with the MULTINET_FTP_SYST_BANNER logical name (if defined). Otherwise, the SYST command displays “VMS MultiNet Vx.y(<i>rev</i>)”:</p> <p>Vx.y is the MultiNet version number.</p> <p>(<i>rev</i>) is the revision number of the FTP server.</p> <p>This logical is ignored if the FTP server is already in UNIX mode.</p>
<p>MULTINET_FTP_SYST_BANNER</p> <p>Specifies the value to be sent in response to a SYST command seeking the FTP Server Operating System. The default response is "VMS Multinet <i>FTP Server Version</i>, but you can specify your own response by defining this logical name to have your response text as its equivalence string.</p>
<p>MULTINET_FTP_UNIX_STRIP_VERSION</p> <p>Instructs the FTP server to strip the file version numbers from its UNIX-style listings.</p> <p>Set this logical to TRUE in the system logical name table (if you want it defined system-wide), or in individual users' LOGIN.COM files.</p>
<p>MULTINET_FTP_UNIX_STYLE_BY_DEFAULT</p> <p>Instructs the FTP server to emit UNIX-style listings by default. Otherwise, the server bases its decision to emit UNIX-style listings on the commands it receives from the client.</p>
<p>MULTINET_FTP_UNIX_STYLE_CASE_INSENSITIVE</p> <p>Allows UNIX style filename handling to be case insensitive.</p>
<p>MULTINET_FTP_UNIX_YEAR_OLD_FILES</p> <p>Displays the creation month, day, and year of a file for a UNIX mode directory if the file is older than 1 year (365 days). You can define the logical at the system level to affect how all users on the system see the file's date, or in the user's login.com file if only some users define this format.</p>

Table 3-1 MultiNet Logicals (Continued)

<p>MULTINET_FTP_USE_SRI_ENCODING_ON_ODS5</p> <p>This logical allows use of SRI encoding of UNIX-style file names on ODS-5 disks. When this logical is defined to 1, TRUE or YES, the SRI file name encoding used for UNIX-style file names on ODS-2 disks will be used on ODS-5 disks. This also sets the default case of letters in filenames to lowercase and ignores the stored case. The following logicals should also be defined as shown:</p> <pre>MULTINET_FTP_UNIX_STYLE_BY_DEFAULT TRUE MULTINET_FTP_UNIX_STYLE_CASE_INSENSITIVE FALSE MULTINET_FTP_USE_SRI_ENCODING_ON_ODS5 TRUE</pre>
<p>MULTINET_FTP_WINDOW_SIZE</p> <p>Allows you to change the default Window Size in the same manner as the /WINDOW_SIZE qualifier.</p>
<p>MULTINET_HOST_ALIASES</p> <p>Specifies the host alias table file. Each line has the form: alias hostname. Set by user or system manager.</p>
<p>MULTINET_HOST_NAME</p> <p>The official host name of the local system. Defined in START_MULTINET.COM and set by system manager with the command:</p> <pre>NET-CONFIG>SET HOST-NAME</pre>
<p>MULTINET_IMAP_UPDATE_LOGIN_TIME</p> <p>Updates the last non-interactive login field in this SYSUAF for each IMAP login.</p>
<p>MULTINET_IMAPD_LOGLEVEL</p> <p>Enables additional logging for debugging purposes. Output is written to the file MULTINET:IMAP_SERVER.LOG. By default, this logical is unassigned. IMAP events normally are logged to SYSLOG.</p> <pre>\$ MULTINET_IMAPD_LOGLEVEL=0</pre>
<p>MULTINET_IMAPD_MESSAGE_ONE</p> <p>By default, an informing message of <code>This message can not be retrieved</code> is sent to the user when the processing message is too big.</p>
<p>MULTINET_IMAPD_MESSAGE_SIZE_LIMIT</p> <p>This logical limits the size of the mail that IMAP processes.</p>

Table 3-1 MultiNet Logicals (Continued)

<p>MULTINET_IP_CLUSTER_ALIASES</p> <p>The cluster failover IP address list. Defined in START_MULTINET.COM and set by system manager with the command:</p> <pre>NET-CONFIG>SET IP-CLUSTER-ALIASES</pre>
<p>MULTINET_IPP_CONFIG</p> <p>Specifies one or more of the qualifiers described in the Chapter 16 of the <i>MultiNet for OpenVMS Administrator's Guide</i>. These qualifiers are not case sensitive. Underscores (_) in the qualifier names are optional. Each may be abbreviated as long as the result is not ambiguous. There is no default. This logical provides defaults that may be overridden by the queue-specific configuration logical, MULTINET_IPP_queue_name_CONFIG, for a given queue.</p>
<p>MULTINET_IPP_DEFAULT_DOCUMENT_FORMAT</p> <p>Specifies a string to use as the document format, unless specified differently for a given queue or print job. The actual document format used on a given job must be a valid MIME media type, supported by the printer to which the job is sent. The default is "text/plain".</p>
<p>MULTINET_IPP_IGNORE_DESCRIPTION MULTINET_IPP_queue_name_IGNORE_DESCRIPTION</p> <p>If this logical is defined, the symbiont ignores the /DESCRIPTION strings for all IPP queues. This allows use of /DESCRIPTION for other information without affecting the symbiont. Configuration of the symbiont must be done through use of the MULTINET_IPP_CONFIG logical, or the queue-specific logical, MULTINET_IPP_queue_name_CONFIG if MULTINET_IPP_IGNORE_DESCRIPTION is defined. The value of the equivalence string for MULTINET_IPP_IGNORE_DESCRIPTION is not important. The existence or non-existence of the logical is all that is checked. This logical provides defaults that may be overridden by the queue-specific configuration logical, MULTINET_IPP_queue_name_IGNORE_DESCRIPTION, for a given queue.</p>
<p>MULTINET_IPP_JOB_RETRY_DELAY</p> <p>Specifies, as an OpenVMS delta time specification, the length of time to hold a job when it is re-queued due to a temporary problem. The default value is "0 00:10:00.00" (10 minutes).</p>
<p>MULTINET_IPP_MAX_LOG_BYTES</p> <p>Specifies how many bytes of data will be logged by the send and receive routines when running with logging level set to DETAILED_TRACE. The value is an integer. A negative value sets the limit to infinite (all data will be logged). A value of zero turns off inclusion of data to the log file. A positive value sets the actual number of bytes logged, and any additional data is ignored. The default action is to log all data.</p>
<p>MULTINET_IPP_MAX_STREAMS</p> <p>Specifies the number of streams (queues) that each IPP symbiont process can handle. This is an integer from 1 to 16. The default is 16.</p>

Table 3-1 MultiNet Logicals (Continued)**MULTINET_IPP_LOG_LEVEL**

Specifies one of the logging level values, and is used to determine how serious a message must be before it is written to the log file. Only those messages marked as this level, or as a more serious level, are logged. The default is JOB_TRACE.

MULTINET_IPP_LOGFILE

Specifies the name of the log file. All queues from all symbiont processes will share this file unless there are individual queue overrides. The default is to create the log file in the default spool directory, with the name IPP_SYMBIONT_pid.LOG.

MULTINET_IPP_OPCOM_LEVEL

Specifies one of the logging level values, and is used to determine how serious a message must be before it is sent to OPCOM. Only those messages marked as this level, or as a more serious level, are sent. The default is INFO.

MULTINET_IPP_OPCOM_TERMINAL

Specifies the OPCOM operator "terminal" to send OPCOM messages to. Permissible values are listed later in this section. The default is the "PRINT" operator.

MULTINET_LOCALDOMAIN

Your DNS local domain name; used by hostname lookup routines. Defined in START_MULTINET.COM and set by system manager with the command:

```
NET-CONFIG>SET LOCAL-DOMAIN
```

This name can be a maximum of 255 bytes in length.

MULTINET_ADD_EOR**MULTINET_LPD_<queue>_ADD_EOR-**

Specify that an EOR marker is to be added to the end of each input record, and what the value of that marker is to be. The marker is specified as either a two-digit HEX number, beginning with "0x", or the actual ASCII character to use.

```
Ex: $ DEFINE MULTINET_LPD_ADD_EOR "0x7C"
    $ DEFINE MULTINET_LPD_ADD_EOR "|"
```

Note! Must have MULTINET_LPD_SYMBIONT_FILTER_ENABLED defined when the symbiont process is started for this to be effective!

Table 3-1 MultiNet Logicals (Continued)**MULTINET_LPD_queuename_typechar_parametername**

Specifies the queue, file type, and print job parameters associated with a print queue. The MULTINET_LPD_* logical names are found in the MULTINET_PRINTER_TABLE logical name table.

Note! Use an asterisk in a logical name to match any queue name, typechar, or parameter name. The formats for these logical names are:

- 1 **MULTINET_LPD_*_*_parametername**
The default for all queues and all file types.
- 2 **MULTINET_LPD_queuename_*_parametername**
The default for a specific queue and for all types on that queue.
- 3 **MULTINET_LPD_queuename_typechar_parametername**
The parameter for a specific queue and file type.
- 4 **MULTINET_LPD_*_typechar_parametername**
The default for all queues with a specified file type.

MULTIENT_LPD_DEFAULT_USERNAME

The user name used by the LPD server for printing files on behalf of users who do not have a local account. If this logical is not defined, only remote users with the same local user name will be able to print files. Defined in START_MULTINET.COM and set by system manager with the command:

```
NET-CONFIG>SET LPD-DEFAULT-USERNAME
```

Table 3-1 MultiNet Logicals (Continued)**MULTINET_LPD_EMBED_CC****MULTINET_LPD_<queue>_EMBED_CC-**

Turns on CC embedding. Value is the spec for the CC longword if it's an 8 digit hex number, beginning with "0x", otherwise it just enables embedding of the default CC as handed to the Input_Filter routine if the value is 1/T/Y.

The 8 digit HEX number consists of four bytes, each of which specifies a different aspect of the CC. From lowest order byte to highest:

Byte 1: Repeat count for Leading CC

Byte 2: Leading CC value

Byte 3: Repeat count for Trailing CC

Byte 4: Trailing CC value

The CC values are the actual ASCII character code value, except that zero is not "NUL", but is used to specify the sequence "CRLF".

Ex: \$ DEFINE MULTINET_LPD_EMBED_CC "0x0D010A01"

Says to prefix each record with a LF, and follow it with a CR.

\$ DEFINE MULTINET_LPD_FOOBAR_EMBED_CC "Y"

Says to embed the default CC for each record, as specified in the OpenVMS Utility Routines manual. For a Carriage-Return Carriage Control file this is a leading LF, trailing CR, with special handling around FF characters.

Note! Must have MULTINET_LPD_SYMBIONT_FILTER_ENABLED defined when the symbiont process is started for this to be effective!

MULTINET_LPD_KEEPLIVE

Turns on keepalives when making socket connections. To enable this behavior, use one of these values: 1, y, Y, t, or T.

MULTINET_LPD_MAXSTREAMS

Specifies the maximum number of streams each symbiont process will handle.

MULTINET_LPD_PROXY

You can set up logical names to map remote LPD users to local users through a mechanism known as proxy access. Using logical names is useful when you want to receive LPD print jobs from a UNIX system on which the user names and UIDs on the client and server are completely uncoordinated.

MULTINET_LPD_SYMBIONT_CONNECT_TIMERS

Controls timer retry intervals.

Table 3-1 MultiNet Logicals (Continued)

<p>MULTINET_LPD_SYMBIONT_DEBUG</p> <p>Generates a log file with LPD.</p>
<p>MULTINET_LPD_SYMBIONT_FILTER_ENABLED</p> <p>Define as 1/t/y to enable input filter code.</p> <p>Ex: \$ DEFINE MULTINET_LPD_SYMBIONT_FILTER_ENABLED Y</p>
<p>MULTINET_LPD_SYMBIONT_LFTAIL MULTINET_LPD_SYMBIONT_*_LFTAIL</p> <p>Allows reversion of legacy behavior of terminating jobs with an <LF> rather than <CR>. To enable this behavior, use one of these values: Y, T, or I.</p>
<p>MULTINET_LPD_SYMBIONT_RESOURCE_TIMERS</p> <p>Specifies the initial and maximum resource retry delay times.</p>
<p>MULTINET_LPD_SYMBIONT_RETRY_INTERVAL</p> <p>When the symbiont cannot connect to the remote system, or the remote LPD server reports insufficient resources for printing a job, the symbiont requeues the job for a later attempt. Requeue attempts are reported directly to the user who submitted the print job. The requeue time is controlled through logical names; you can control the length of time a job will wait before being attempted again after a connection failure by defining a logical name as follows:</p> <pre>\$ DEFINE /SYSTEM MULTINET_LPD_SYMBIONT_RETRY_INTERVAL "delta-time"</pre> <p>The default value is "0 00:10:00.00," or ten minutes.</p> <p>You can control the maximum amount of time that should elapse before the symbiont gives up on a job with this command:</p> <pre>\$ DEFINE /SYSTEM MULTINET_LPD_SYMBIONT_MAX_RETRY_INTERVAL "delta-time"</pre> <p>The default value is "0 02:00:00.00", or two hours.</p> <p>You must specify the delta-time values within quotation marks, and with a space separating the number of days from the number of hours, so the symbiont can process them correctly.</p>
<p>MULTINET_LPQ_DISPLAY_FORMAT</p> <p>Specifies the format in which the LPD server returns OpenVMS print queue information. The only current value is "UNIX". If not defined, the information is returned in OpenVMS print queue format. Set by system manager.</p>
<p>MULTINET_MATCH_PROGRAM_AND_VERSION</p> <p>When set, incoming GETPORT() calls from clients will have the program AND the version checked when returning a port. If no program and no version of the type requested are running, a port of 0 (zero) is returned.</p>

Table 3-1 MultiNet Logicals (Continued)**MULTINET_NAMESERVERS**

The DNS (Domain Name System) name server IP address list. Defined in START_MULTINET.COM and set by system manager with the command:

```
NET-CONFIG>SET DOMAIN-NAMESERVERS
```

NOTE: This list can include no more than three IP addresses.

MULTINET_NAMESERVER_RETRANS

Defines the number of seconds between DNS requests if no response is received from the server. Defined in START_MULTINET.COM and set by system manager with the command:

```
NET-CONFIG>SET NAMESERVER-RETRANSMISSION
```

MULTINET_NAMESERVER_RETRY

Defines the number of retransmissions made to a DNS nameserver before a DNS lookup fails. Defined in START_MULTINET.COM and set by system manager with the command:

```
NET-CONFIG>SET NAMESERVER-RETRANSMISSION
```

MULTINET_NLPx_REMOTE_PRINTER

If you want an extra blank line on each page and, consequently, an extra blank page when the bottom margin has been reached, set this logical to include the configuration parameter DOLFFF=Y. Depending on your printer, it may be desirable to keep the behavior and not have the extra blank line and extra blank page.

MULTINET_NTP_CONFIGFILE

Specifies the full file name of the NTP configuration file in those cases where the default value of "MULTINET:NTP.CONF" isn't acceptable for some reason. This system logical is used by the NTP server at startup time to override the hard-coded default for the configuration file name. Use is optional. See the *MultiNet Installation & Administrator's Guide*, Chapter 14, for more information about the NTP.CONF file and its uses.

Table 3-1 MultiNet Logicals (Continued)**MULTINET_NTYSMB**

MultiNet must be started before NTY devices can be created or MULTINET_NTYSMB print queues can be initialized or started.

System managers using the OpenVMS queue manager's Autostart capability *must* leave Autostart *disabled* until after MultiNet is started and NTY devices have been set up.

To set up a print queue with MULTINET_NTYSMB:

The following is an example of a print queue set up to an HP LaserJet printer with a JetDirect card.

```
$ NTYCP :=
$ MULTINET:NTYCP
$ NTYCP CREATE PORT NTY1001/NODE=hp-laserjet/PORT=9100
%NTYCP-S-CREPORT, device _NTY1001: created to host 192.1.1.5, port 9100
$ SET TERMINAL/PERMANENT NTY1001:/NOBROADCAST/NOTYPEAHEAD/NOWRAP/FORM
$ INITIALIZE/QUEUE/ON=NTY1001: HP_LASERJET/PROCESSOR=MULTINET_NTYSMB/START
```

MULTINET_NTYSMB_DEBUG

Enables various debug options.

MULTINET_NTYSMB_*_MAXTIMERMSG**MULTINET_NTYSMB_queue_name_MAXTIMERMSG**

Specifies the message to be issued when the connection timer hits the maximum value.

MULTINET_NTYSMB_TIMERS

Corrects timer handling in the case where the maximum timeout is reached. The timers are controlled by two values taken from the equivalence string for the MULTINET_NTYSMB_TIMERS logical name, *initial* and *ceiling*. The values for *initial* and *ceiling* are given in seconds. The *initial* value is how soon, after the first connection attempt fails, the symbiont is to retry the connection. On subsequent connection failures, the symbiont backs off its retries exponentially, until it's only retrying every *ceiling* seconds. By default, *initial* is 10 seconds and *ceiling* is 7200 seconds (2 hours). The NTYSMB symbiont never gives up on a job. Define the logical name as:

```
$ DEFINE /SYSTEM /EXEC MULTINET_NTYSMB_TIMERS "initial ceiling"
```

- Zeros out channel information in case a write request is received when a shutdown or close is in progress.
- Fixes queue shutdown when a timed retry is outstanding and a STOP/REQUEST is issued against the queue.
- Corrects I/O synchronization problems where data could be sent to the printer out of order.

Table 3-1 MultiNet Logicals (Continued)**MULTINET_PCNFSD_PRINTER_LIMIT**

Use this logical to determine if the returned packet size is to be limited (takes a number for its value, in bytes). If this logical is not defined, MultiNet determines the size of the packet at run time. For example:

```
$ DEFINE/SYSTEM/EXECUTIVE MULTINET_PCNFSD_PRINTER_LIMIT 45000
```

MULTINET_PCNFSD_QUEUE_TYPES

Use this logical to select the type of queues you want returned. Define the queues to be a comma-separated list of these valid queue types: GENERIC, PRINTER, SERVER, SYMBIONT, and TERMINAL.

```
$ DEFINE/SYSTEM/EXECUTIVE MULTINET_PCNFSD_QUEUE_TYPES "PRINTER"
```

MULTINET_POP3_CACHE_SIZE

Specifies the POP (Post Office Protocol) cache size in bytes. Folder in which to put read mail. "x" can be 2 for POP2 or 3 for POP3. Set by user or system manager.

MULTINET_POPx_FLAGS

Special POP2 and POP3 capabilities are indicated by each bit position in this logical name value. Possible values are:

- 1 - Read only messages from the NEWMAIL folder that are marked as new.
 - 2 - Move messages from the NEWMAIL folder after they are read.
 - 4 - Release the POP client before OpenVMS mailbox is actually closed.
 - 16 - Remove the "NODE::" portion of the "From:" address.
 - 32 - Save deleted messages in the folder specified by MULTINET_POPx_DEST_FOLDER
 - 64 - Build message headers from OpenVMS Mail "From" line.
 - 128 - Compress mail box, but delete all versions of MAIL.OLD in the MAIL directory.
- Combine values by adding the numeric values together. For example, "7" enables values 1, 2, and 4. Set by user or system manager. Value 8 has been replaced by 128.

MULTINET_POPx_SOURCE_FOLDER

Specifies the folder from which mail should be read. Set by user or system manager.

MULTINET_PRINTER_NO_OPCOM

Disables OPCOM messages from the LPD symbiont.

Table 3-1 MultiNet Logicals (Continued)**MULTINET_PRINTER_queuename_ALLOW_USER_SPEC**

If defined with an equivalence string of "Y", "T" or "1", the user can specify the ADDRESS, PRINTER, RETAIN_CR and NOFFLF values for the print job on the PRINT command, in the /PARAMETERS qualifier. In addition, specifying this logical will result in requeue retries, rather than the default timed retries when there is a problem with a connection. If this logical is not defined, or is defined with some other equivalence string, the ADDRESS, PRINTER, RETAIN_CD and NOFFLF parameters entered on the PRINT command by the user will be ignored, and timed retries will be performed.

MULTINET_PRINTER_queuename_DEFAULT_FILTER

Allows you to specify the print filter character to use instead of "f" on the specified LPD queue. Declare the alternative, normal print filter character as follows:

```
$ DEFINE /TABLE=MULTINET_PRINTER_TABLE -
_ $ MULTINET_PRINTER_queuename_DEFAULT_FILTER "character"
```

queuename is the name of the queue for which you are modifying the print filter character, and "character" is the character to be used. You may override both the default character and the alternative character by including the /PARAMETER=(FILTER= "character") qualifier on your print request (assuming the logical MULTINET_PRINTER_queuename_ALLOW_USER_SPEC is defined appropriately).

**MULTINET_PRINTER_queuename_NO_FFLF_DEFAULT
MULTINET_PRINTER_*_NO_FFLF_DEFAULT**

USER_LPD_CLIENT.C supports the addition of a linefeed after a formfeed. Use logical names and print parameters to control the behavior.

MULTINET_PRINTER_queuename_PASSALL_FILTER

Allows you to specify the print filter character to use instead of "v" on the specified LPD queue. Declare the alternative, passall print filter character as follows:

```
$ DEFINE /TABLE=MULTINET_PRINTER_TABLE -
_ $ MULTINET_PRINTER_queuename_PASSALL_FILTER "character"
```

queuename is the name of the queue for which you are modifying the passall print filter character, and "character" is the character to be used. You may override both the default character and the alternative passall character by including the /PARAMETER= (FILTER= "character") qualifier along with the /PASSALL qualifier on your print request (assuming the logical MULTINET_PRINTER_queuename_ALLOW_USER_SPEC is defined appropriately).

MULTINET_PRINTER_queuename_SUPPRESS_REMOTE_BANNER

When defined, does not include the "L" command in the control file to request a banner page.

Table 3-1 MultiNet Logicals (Continued)**MULTINET_PRINTER_queue_name_RETAIN_CR_DEFAULT**

Allows you to specify the disposition of CR characters in CRLF sequences on the specified LPD queue. Change CR processing on the queue as follows:

```
$ DEFINE/TABLE=MULTINET_PRINTER_TABLE -
_ $ MULTINET_PRINTER_queue_name_RETAIN_CR_DEFAULT "boolean"
```

queue_name is the name of the queue for which you are modifying the CR disposition, and "boolean" indicates whether or not CR characters are to be retained in CRLF sequences included in text sent to the remote system for printing. You may override both the default CR disposition and the alternative disposition by including the /PARAMETER= (RETAIN_CR = "boolean") qualifier on your print request (assuming the logical MULTINET_PRINTER_queue_name_ALLOW_USER_SPEC is defined appropriately).

MULTINET_PRINTER_queue_name_SUPPRESS_FF

Controls whether CRFF is added to jobs.

MULTINET_PRINTER_TABLE

Defines a logical name table allowing control of job queueing parameters used when entering a job in the OpenVMS queueing system. The logicals contained in this table have the name format of:

```
MULTINET_LPD_queue_name_typechar_parametername
```

When a value is omitted (indicating all values of that type), an asterisk is inserted in the logical name.

MULTINET_PSLx_CHARGE

Determines who to charge for calls. If set to the value "US," incoming calls with reversed charges will be accepted and outgoing calls will not be made with charges reversed. If set to the value "THEM," incoming calls with charges reversed are refused. An attempt is made to reverse charges on all outgoing calls.

MULTINET_PSLx_CUG

Allows an interface to be associated with a closed user group to restrict unwanted access.

MULTINET_PSLx_IDLE

Determines the connection idle time interval (in seconds) on a per-interface basis. A timer will expire every *n* seconds and check for any activity on the interface. If there has been no activity since the last time-out, the X.25 connection for this interface will be cleared.

Table 3-1 MultiNet Logicals (Continued)

<p>MULTINET_PSLx_LOCAL</p> <p>Specifies the endpoints of the X.25 connection in the following format:</p> <pre>[network.]DTE</pre> <p>DTE is the endpoint address to which the local of remote IP address is bound and network is the optional network name. The network for this interface must be specified if it is different from the PSI default, as specified by the logical PSI\$NETWORK.</p>
<p>MULTINET_PSLx_NOOUT</p> <p>Specifies that the identified inter-face will not initiate an outgoing call under any circumstances.</p>
<p>MULTINET_PSLx_PEER</p> <p>Specifies the endpoints of the X.25 connection in the following format:</p> <pre>[network.]DTE</pre> <p>DTE is the endpoint address to which the local of remote IP address is bound, and network is the optional network name. The network for this interface must be specified if it is different from the PSI default, as specified by the logical PSI\$NETWORK.</p>
<p>MULTINET_PSLx_PKTSIZE</p> <p>Specifies the packet size for an outgoing call, where the packet size requested is different from the default for the PSDN. A value of zero causes the default value to be used.</p>
<p>MULTINET_PSLx_REVCHG</p> <p>Specifies that this interface will accept incoming calls with charges reversed.</p>
<p>MULTINET_PSLx_WINDOW</p> <p>Specifies the sliding window size for a connection. This is a value in the range of 1 to 127 (subject to further restrictions by the PSDN). A value of zero causes the default value to be used.</p>
<p>MULTINET_RMT_TAPE_DEVICE</p> <p>The default OpenVMS tape drive used by the RMT server. Defined in START_MULTINET.COM and set by system manager with the command:</p> <pre>NET-CONFIG>SET DEFAULT-RMT-TAPE-DEVICE</pre>
<p>MULTINET_ROOT</p> <p>The MultiNet rooted directory search path. Defined in START_MULTINET.COM. This logical should not be modified.</p>

Table 3-1 MultiNet Logicals (Continued)

MULTINET_RSHELL_ADDRESS
Set by the MultiNet RSHELL server to the IP address of the system originating an RSHELL (rsh/rexec) session; the value is only available after the system-wide login procedure and the user's LOGIN.COM have processed.
MULTINET_RSHELL_ALLOW_CAPTIVE
Set to TRUE to permit R service into captive OpenVMS accounts. Set by system manager. The default is not enabled.
MULTINET_SCP2_CONNECT_TIMEOUT
Defines a number specifying how long SCP2 should wait for a response to the INITIALIZE command from the server program. This is a VMS delta time number. The default is 5 minutes.
MULTINET_SCP2_VMS_MODE_BY_DEFAULT
When defined to TRUE, YES, or 1, chooses the /VMS qualifier if /TRANSLATE_VMS or /NOVMS has not been specified.
MULTINET_SERVER_ASTLM
Defines the maximum number of ASTs that can be outstanding. The default value is 200.
MULTINET_SERVER_BIOLM
Defines the maximum number of buffered I/O operations at one time. The default value is 200.
MULTINET_SERVER_BYTLM
Defines the amount of memory, in bytes, for buffered I/O operations. The default value is 1000000.
MULTINET_SERVER_DIOLM
Defines the maximum number of buffered I/O operations at one time. The default value is 200.
MULTINET_SERVER_ENQLM
Defines the maximum number of locks that can be outstanding. The default value is 2048.
MULTINET_SERVER_FILLM
Defines the maximum number of files that the MULTINET_SERVER can have open. The default value is 200.
MULTINET_SERVER_PAGEFILE
Defines the maximum number of pages that can be allocated in the paging file for the process. The default value is 400.
MULTINET_SERVER_PRCLM
Defines the maximum number of subprocesses that can be created. The default value is 10.

Table 3-1 MultiNet Logicals (Continued)

<p>MULTINET_SERVER_TQELM</p> <p>Defines the maximum number of timer queue entries created. The default value is 200.</p>												
<p>MULTINET_SERVER_WSEXTENT</p> <p>Defines the maximum number of pages that the MULTINET_SERVER can increase its physical size to. The default value is 400.</p>												
<p>MULTINET_SERVER_WSLIMIT</p> <p>Defines the maximum number of pages in the working set of the MULTINET_SERVER. The default value is 400.</p>												
<p>MULTINET_SERVER_WSQUOTA</p> <p>Defines the maximum number of pages that the MULTINET_SERVER can increase its working set to. The default value is 400.</p>												
<p>MULTINET_SMTP_INCOMING_MSGSIZE_LIMIT</p> <p>Rejects an oversized incoming message. This logical can be defined as:</p> <table> <tr> <td>S</td> <td>“Small</td> <td>=1 MB</td> </tr> <tr> <td>M</td> <td>“Medium”</td> <td>=10 MB</td> </tr> <tr> <td>L</td> <td>“Large”</td> <td>=100 MB</td> </tr> <tr> <td>X</td> <td>“eXtra Large”</td> <td>=1000 MB</td> </tr> </table> <p>The default for this logical is not defined, which means that no size limit checking is performed. If the logical is defined, when the message size is detected over the defined limit, the message will be rejected.</p> <p>In the following example, any mail messages over 10 MB will be rejected:</p> <pre>\$ define/sys/exe MULTINET_SMTP_INCOMING_MSGSIZE_LIMIT "M"</pre> <p>Note! The size that the SMTP server checks is the size of the data received in the data channel; it may be different from the actual message size. This is especially true when the message has an attachment. In this case, the attachment will be encoded and the data size will be the message size plus the encoded attachment data size.</p>	S	“Small	=1 MB	M	“Medium”	=10 MB	L	“Large”	=100 MB	X	“eXtra Large”	=1000 MB
S	“Small	=1 MB										
M	“Medium”	=10 MB										
L	“Large”	=100 MB										
X	“eXtra Large”	=1000 MB										
<p>MULTINET_SMTP_LOG</p> <p>Enables logging for SMTP.</p>												
<p>MULTINET_SMTP_SYMBIONT_LOG</p> <p>Enables additional logging for debugging purposes.</p>												

Table 3-1 MultiNet Logicals (Continued)**MULTINET_SFTP_FALLBACK_TO_CBT**

When defined to TRUE, YES, or 1 and a VMS file transfer is being performed, creates a Contiguous file if that file has Contiguous characteristics. The file will be created as Best Try if there is insufficient space to create it as Contiguous.

MULTINET_SFTP_MAXIMUM_DEVICES

The logical MULTINET_SFTP_MAXIMUM_DEVICES controls the amount of information about mounted devices that is returned to the SFTP client when the SFTP server starts. This information is used in the display of the LSROOTS command. The default value is 5, which allows information on up to 5 mounted disk devices to be returned. Higher numbers will allow more information to be returned, and -1 will return all information. A caution if your system has a large number of mounted devices; some customers experienced hangs when information about a large number of devices was returned. Since this information is not necessary for the proper function of SFTP, Process Software has chosen to limit the amount of information that is returned to avoid the potential hang.

MULTINET_SFTP_RETURN_ALQ

When defined to TRUE, YES, or 1 and files are being transferred in VMS mode, returns the Allocation Quantity for the file. This is disabled by default because copying a small file from a disk with a large cluster size to a disk with a small cluster size causes the file to be allocated with more space than necessary. You have the option of retaining the allocated size of a file if it was allocated the space for a reason. Indexed files require that the allocation Quantity be included in the file attributes; this is handled by SCP2/SFTP-SERVER2.

MULTINET_SFTP_TRANSLATE_VMS_FILE_TYPES

This is a bit mask that determines which VMS file types should be translated when not operating in VMS mode.

Bit 0 (1) = FIXED

Bit 1 (2) = VARIABLE

Bit 2 (4) = VFC

The values are:

0 (zero) = NONE

7 = ALL

Note that this logical affects SCP2 as well as the server, as SCP2 has the server built into it for handling local file access.

Table 3-1 MultiNet Logicals (Continued)

<p>MULTINET_SEARCHDOMAINS</p> <p>Specifies a space-separated list of domain names the MultiNet resolver appends to non-dot-terminated names. The search list can be up to 511 bytes in length. The maximum number of domains to search is 6.</p> <p>Example:</p> <pre>\$ DEFINE/SYSTEM/EXECUTIVE MULTINET_SEARCHDOMAINS - _\$ "widgets.yoyodyne.com ajax.com yoyodyne.com" \$ MULTINET NSLOOKUP/DEBUG john.whorfin</pre> <p>These commands will look up <i>john.whorfin</i>, then <i>john.whorfin.widgets.yoyodyne.com</i>, then <i>john.whorfin.ajax.com</i>, and finally <i>john.whorfin.yoyodyne.com</i>.</p>
<p>MULTINET_SERVER_PRIORITY</p> <p>The process priority at which the MultiNet master server process (MULTINET_SERVER) should run. Set by system manager before MultiNet is started.</p>
<p>MULTINET_SMTP_A1_NAME</p> <p>Changes the name of the ALL-IN-1 IOS gateway mailbox. The default value is A1.</p>
<p>MULTINET_SMTP_A1_DOMAIN</p> <p>Specifies the RFC-822 domain associated with the ALL-IN-1 IOS gateway. Use the domain you specified when configuring your SMTP/MR gateway.</p>
<p>MULTINET_SMTP_ACCOUNTING_HOST</p> <p>Is the name of the IP address of the system running the accounting program.</p>
<p>MULTINET_SMTP_ACCOUNTING_PORT</p> <p>Is the port number that the program was set up to listen on.</p>
<p>MULTINET_SMTP_AM_NAME</p> <p>Changes the name of the ALL-IN-1 MAIL gateway mailbox. The default value is AM.</p>
<p>MULTINET_SMTP_AM_DOMAIN</p> <p>Specifies the RFC-822 domain associated with the ALL-IN-1 MAIL gateway. Use the domain you specified when configuring your SMTP/MR gateway.</p>
<p>MULTINET_SMTP_DELIVERY_RECEIPTS</p> <p>Set this logical to TRUE for the MultiNet SMTP subsystem to generate a delivery receipt mail message to the originator when a message is delivered to a local user. Set by system manager.</p>

Table 3-1 MultiNet Logicals (Continued)**MULTINET_SMTP_ENVELOPE_FROM_HOST**

When defined the value is used for the host name instead of the actual host name when sending the MAIL FROM: line to the remote server. This is useful if there are multiple independent systems that send mail that you would like to appear to be a single system.

MULTINET_SMTP_FORWARDER

Identifies the host to which mail should be forwarded if the local host cannot deliver a particular mail message (for any reason). The message then becomes the responsibility of the forwarder host for final delivery. Defined in START_MULTINET.COM and set by system manager with the command:

```
MAIL-CONFIG>SET SMTP-FORWARDER
```

MULTINET_SMTP_FROM_HOST

Allows you to change the host name that appears in your return address on outgoing mail. Normally, the host name you choose must be a "local" host name; that is, it must be one of the registered SMTP host name aliases on the system (either from the SMTP-HOST-NAMES setting or the HOST-ALIAS-FILE). If it is not a known alias, the setting is ignored.

If you define the host name in executive mode, however, MULTINET_SMTP_FROM_HOST can be any arbitrary host name. The name is not checked against the SMTP host name.

This feature lets users from different administrative entities within an organization have return addresses that reflect the names of those entities. To enable this feature:

- 1 Set up MX records in DNS so mail is routed to the local host for each separate host name. For information about MX records, see the discussion of zone files in the *Administrator's Guide*.
- 2 Set up SMTP-HOST-NAMES or the HOST-ALIAS-FILE with a list of host names.
- 3 Define the logical name MULTINET_SMTP_FROM_HOST for each user. Base the value for this logical name on an aspect of the department or organization to which the user belongs.

MULTINET_SMTP_HOST_ALIAS_FILE

Specifies the name of an alternate SMTP host alias file. The default is MULTINET:SMTP_HOST_ALIASES).

MULTINET_SMTP_HOST_NAME

Specifies the host name to be used in the return address of mail sent from the local host. The local host also accepts mail sent to this host name. Defined in START_MULTINET.COM and set by system manager with the command:

```
MAIL-CONFIG>SET SMTP-HOST-NAME
```

Table 3-1 MultiNet Logicals (Continued)

<p>MULTINET_SMTP_IGNORE_INTERFACE_NAMES</p> <p>When defined (as /system, or any value), the MultiNet SMTP mail delivery procedure does not compare the destination address with the addresses of the interfaces on the system to determine if the message could be delivered locally.</p>
<p>MULTINET_SMTP_MAXIMUM_822_TO_LENGTH</p> <p>The default header length is 1024 characters. This logical can be used to override the 1024 byte default length of the To: and Cc: header fields. The logical can set the maximum length to anywhere from 256 to 65535.</p>
<p>MULTINET_SMTP_MRGATE-NAME</p> <p>Changes the name of the Message Router gateway mailbox. The default value is MRGATE.</p>
<p>MULTINET_SMTP_POSTMASTER</p> <p>Identifies the user to whom bounced mail messages should be delivered if they cannot be returned to the originator. Defined in START_MULTINET.COM and set by system manager with the command:</p> <pre>MAIL-CONFIG>SET SMTP-POSTMASTER</pre>
<p>MULTINET_SMTP_QUEUE</p> <p>Specifies the SMTP queue name. May point to an OpenVMS server queue or to a generic queue if the value of this logical is greater than 1. Defined in START_SMTP.COM (which is invoked from START_MULTINET.COM).</p>
<p>MULTINET_SMTP_QUEUE_COUNT</p> <p>Specifies the number of SMTP processing queues (default is 1) on the local system. Set by system manager before MultiNet is started.</p>
<p>MULTINET_SMTP_RETRY_INTERVAL</p> <p>Defines the time (in minutes) to wait before attempting to resend a message that could not be delivered (default: 30 minutes). This value should be in OpenVMS delta-time format. Delivery failure may occur because the remote host is down or unreachable because of a network outage. Set by system manager.</p>
<p>MULTINET_SMTP_RETURN_INTERVAL</p> <p>Defines the maximum length of time to wait before returning a message to its sender if it cannot be delivered (default: 4 days). This value should be in OpenVMS delta-time format. Set by system manager.</p>

Table 3-1 MultiNet Logicals (Continued)

MULTINET_SMTP_SEND_CLASS Defines the message class used for interactive messages delivered via the SMTP SEND, SAML, or SOML commands (default: USER16). This type of message can be created with the MULTINET SEND command. See also, SET BROADCAST. Set by system manager.
MULTINET_SMTP_SERVER_DISABLE_VRFYEXPN Disables VRFY and EXPN processing. Define it to have some non-zero value to disable the requisite functions. The following values may be combined to specify which function: 1 to disable VRFY 2 to disable EXPN 3 to disable both VRFY and EXPN
MULTINET_SOCKET_LIBRARY The MultiNet socket library. Defined in START_MULTINET.COM. This logical name should not be modified.
MULTINET_SPOOL The MultiNet spool directory used to spool incoming LPD print files and incoming and outgoing SMTP messages. Defined in START_MULTINET.COM and set by system manager with the command: NET-CONFIG>SET SPOOL-DIRECTORY
MULTINET_SSH_ACC_REJ_LOG_FILE If the user has set a log file to log connection accept and reject messages, this logical will be defined and will provide the name of the log file. This logical is set by using the SET LOG-FILE keyword in MULTINET CONFIGURE/SERVER, and should not be modified directly by the user.
MULTINET_SSH_ALLOW_EXPIRED_PW Allows logging in to an account when the account's password has expired due to pwdlifetime elapsing. This applies to all users and circumvents normal VMS expired-password checking, and therefore should be used with caution. An entry is made into the SSH_LOG:SSHD.LOG file when access is allowed using this logical name. In addition, the logical name MULTINET_SSHpid_PWDEXP is defined in the logical name table LNM\$SSH_LOGICALS, where <i>pid</i> is the process-id of the user.

Table 3-1 MultiNet Logicals (Continued)

<p>MULTINET_SSH_ALLOW_PREEXPIRED_PW</p> <p>Allows logging in to an account when the password has been pre-expired. This applies to all users and circumvents normal VMS expired-password checking, and therefore should be used with caution. An entry is made into the SSH_LOG:SSHD.LOG file when access is allowed using this logical name. In addition, the logical name MULTINET_SSH<i>pid</i>_PWDEXP is defined in the logical name table LNM\$SSH_LOGICALS, where <i>pid</i> is the process-id of the user.</p>
<p>MULTINET_SSH_DISPLAY_SYSS\$ANNOUNCE</p> <p>The SSH v1 protocol does not allow for the display of SYSS\$ANNOUNCE prior to logging in. If this logical is set, the contents of SYSS\$ANNOUNCE is displayed immediately after successful authentication and prior to the display of the contents of SYSS\$WELCOME.</p>
<p>MULTINET_SSH_ENABLE_SSH1_CONNECTIONS</p> <p>When set, enables the system to process SSH1 connections.</p>
<p>MULTINET_SSH_ENABLE_SSH2_CONNECTIONS</p> <p>When set, enables the system to process SSH2 connections.</p>
<p>MULTINET_SSH_KEYGEN_MIN_PW_LEN</p> <p>Defines the minimum passphrase length when one is to be set in SSHKEYGEN. If not defined, defaults to zero.</p>
<p>MULTINET_SSH_LOG_ACCEPTS</p> <p>When set, causes the server to log successful connection requests as either an OPCOM message or a line in a log file. Specified by the SET LOG-ACCEPT command in MULTINET CONFIGURE/SERVER. Note that the server does not use the information set in the ACCEPT-HOSTS keyword in CONFIGURE/SERVER. Rather, it uses the "AllowHosts" and "DenyHosts" keywords in the SSH server configuration file. Also, a successful connection request doesn't equate to a successful authentication request. This logical should not be modified directly by the user.</p>
<p>MULTINET_LOG_MBX</p> <p>Points to the OpenVMS mailbox used to log connection accept and reject messages. This must not be modified by the user.</p>
<p>MULTINET_SSH_LOG_REJECTS</p> <p>When set, causes the server to log rejected connection requests as either an OPCOM message or a line in a log file. Specified by the SET LOG-REJECT command in MULTINET CONFIGURE/SERVER. Note that the server does not use the information set in the REJECT-HOSTS keyword in CONFIGURE/SERVER. Rather, it uses the "AllowHosts" and "DenyHosts" keywords in the SSH server configuration file. This logical should not be modified directly by the user.</p>

Table 3-1 MultiNet Logicals (Continued)

MULTINET_SSH_MAX_SESSIONS
Set this to the maximum number of concurrent SSH sessions you want to allow on the server system. The limit is between 1 and 9999. It defaults to 9999 if it is not defined. The suggested place to set this is in START_SSH.COM. SSH must be restarted to use the new value if it is changed.
MULTINET_SSH_PARAMETERS_n
Parameters used to start SSHD_MASTER. They are made up from parameters set in MULTINET CONFIG/SERVER.
MULTINET_SSH_USE_SYSGEN_LGI
If defined, /SYSTEM causes SSHD to use the VMS SYSGEN value of LGI_PWD_TMO to set the login grace time, overriding anything specified in the command line or the configuration file.
MULTINET_SSH2_HOSTKEYS_DIR
Points to the directory that contains the SSH2 host keys. Normally set to MULTINET_SPECIFIC_ROOT:[MULTINET.SSH2].
MULTINET_SSH2_KNOWNHOSTS_DIR
Points to the directory that contains SSH2 public host keys from systems known to this system. Normally set to MULTINET_SPECIFIC_ROOT:[MULTINET.SSH2.KNOWNHOSTS].
MULTINET_STREAM_DEAD_LINK_TIMEOUT
Controls dead link detection and handling.
MULTINET_STREAM_queuename_DEAD_LINK_TIMEOUT
Controls dead link detection and handling.
MULTINET_STREAM_SYMBIONT_DEBUG
Generates a log file with STREAM.
MULTINET_STREAM_SYMBIONT_TIMERS
Sets the initial and the maximum time to wait before retrying the connection. For example, if you defined the logical as follows it would retry the connection after 1 second and double the time between subsequent retries until it reached the maximum of 10 seconds.
MULTINET_TELNET_AUTH
Determines the authentication behavior of the Kerberos 5 Telnet Server. There are 8 possible values: ALLOWED, REQUIRED, and DISABLED. The default is DISABLED; a login prompt will result. When the value is REQUIRED, any user without a valid Kerberos V5 Ticket Granting Ticket (TGT) will be rejected. If the value is ALLOWED, the user can log-in to the server with or without a valid Kerberos V5 TGT (with a login prompt resulting if no TGT).

Table 3-1 MultiNet Logicals (Continued)

<p>MULTINET_TELNET_NEGOTIATION_PORTS</p> <p>Defines the list of remote TCP port numbers for which the TELNET client will perform TELNET option negotiations (default: TELNET options are only negotiated if you connect to the TELNET server port-TCP port number 23). This logical name can be useful when using TELNET to connect systems that provide interactive terminal services on TCP port numbers other than 23; the TELNET /PORT command can be used to specify a port number other than 23. The value defined is a comma-separated list enclosed in double quotes. Set by user or system manager.</p>
<p>MULTINET_TELNET_PORT</p> <p>Determines the port number the Kerberos 5 Telnet Server will listen on for incoming telnet connections. The default is 23.</p>
<p>MULTINET_TELNET_PRINT_ESCAPE_CHARACTER</p> <p>Determines whether the escape character is displayed when a TELNET connection is established to a remote system.</p>
<p>MULTINET_TFTP_DEFAULT_DIRECTORY</p> <p>Defines the default TFTP server directory. Defined in START_MULTINET.COM and set by system manager with the command:</p> <pre>NET-CONFIG>SET TFTP-DIRECTORY</pre>
<p>MULTINET_TIMEZONE</p> <p>Defines the current timezone (not adjusted for Daylight Savings Time). Defined in START_MULTINET.COM and set by system manager with the command:</p> <pre>NET-CONFIG>SET TIMEZONE</pre>
<p>MULTINET_TN3270_APPLICATION_KEYPAD</p> <p>Enables or disables use of the OpenVMS system application keypad. The default is ON.</p>

Table 3-1 MultiNet Logicals (Continued)**MULTINET_TN3270_LANGUAGE**

Specifies the name of a regional language associated with a keyboard type. For example, for a UK EBCDIC keyboard mapped into the HP multinational character set, this logical is set to the arbitrary "UK_ENGLISH_DEC_MULTI" value.

The name specified for this logical must agree with the mapping definition name supplied in the respective translation table file. The MULTINET_TN3270_TRANSLATION_TABLES logical name points to the translation file name; MULTINET_TN3270_LANGUAGE points to the individual mappings within the translation table.

The following example shows a sample excerpt from a translation table file:

```
#
# UK EBCDIC mapped into the HP multinational character set
# Use the following command to # specify this table:
# $ DEFINE MULTINET_
# TN3270_ LANGUAGE
# "UK_ENGLISH_DEC_
# MULTI"
# UK_ENGLISH_DEC_MULTI 0x5b 0xa3 0xa3
# British monetary pound sign
0x4a 0x24 0x24
# Dollar sign ($)
```

MULTINET_TN3270_TRANSPARENT_MODE

Enables or disables the transparent mode depending on whether you are accessing an IBM 7171 ASCII device controller. This logical name is enabled automatically when transparent mode information is received from an IBM host.

MULTINET_TN3270_TRANSLATION_TABLES

Specifies the name of the current translation table file. The specified file resides in the MULTINET: directory. This logical points at the file name, and MULTINET_TN3270_LANGUAGE points at the individual mapping definitions within the file.

MULTINET_USER_ACCESS

Customizes USER_ACCESS.C user exit for client application auditing and access control. See USER_ACCESS.C in the MULTINET_ROOT: [MULTINET.EXAMPLES] directory for more details. Set by system manager.

Table 3-1 MultiNet Logicals (Continued)

<p>MULTINET_VMSMAIL_HEADER_CONTROL</p> <p>Specifies which RFC 822 headers to include in messages delivered to local OpenVMS MAIL users. Possible values are</p> <p>ALL — includes all RFC 822 headers</p> <p>MAJOR (the default) — all Received: and Return-Path: headers are to be set by the system manager.</p> <p>NONE — all headers are to be excluded except those with direct counterparts within OpenVMS MAIL (To:, Cc:, Subj:, From:).</p>
<p>MULTINET_VMSMAIL_LOCASE_USERNAME</p> <p>Lowers the case of usernames in outbound messages automatically.</p>
<p>MULTINET_VMSMAIL_REPLY_CONTROL</p> <p>Determines whether the OpenVMS MAIL return address of an SMTP message is obtained from the RFC 822 From: line instead of the SMTP MAIL FROM: (the default) address. If you want OpenVMS MAIL addresses to have the return address set from the RFC 822 From: header, define this logical name with the value REPLY-TO,FROM. Set by system manager.</p>
<p>MULTINET_WHOIS_DEFAULT_SERVER</p> <p>Defines the default host name for the WHOIS command (default: RS.INTERNIC.NET). Defined in START_MULTINET.COM and set by system manager with the command:</p> <pre>NET-CONFIG>SET WHOIS-DEFAULT-SERVER</pre>
<p>MULTINET_XGATEWAY_DEBUG_LEVEL</p> <p>Defines the debugging level of the X11-Gateway, and enables broadcast of debugging messages to NETWORK class operator terminals. Set by system manager.</p>
<p>MULTINET_XGATEWAY_DECNET_nn_HOSTNAME</p> <p>Defines the TCP/IP X Windows server host name for the local DECnet X server number <i>nn</i>. Set by system manager.</p>
<p>MULTINET_XGATEWAY_DECNET_nn_SERVER</p> <p>Defines the remote TCP/IP X Windows server number for the local DECnet X server number <i>nn</i>. This logical name is optional. The default is 0. Set by system manager.</p>
<p>MULTINET_XGATEWAY_TCPIP_nn_HOSTNAME</p> <p>Defines the DECnet X Windows server host name for the local TCP/IP X server number <i>nn</i>. Set by system manager</p>

Table 3-1 MultiNet Logicals (Continued)

MULTINET_XGATEWAY_TCPIP_ <i>nn</i> _SERVER
Defines the remote DECnet X Windows Server number for the local TCP/IP server number <i>nn</i> . This logical name is optional. The default is 0. Set by system manager.
SSH_DIR
Points to the directory where the SSH1 configuration, master server log file, and host key files are kept. Normally, this is MULTINET_SPECIFIC_ROOT:[MULTINET]. It is defined in START_SSH.COM.
SSH_EXE
Points to the directory where SSH executables are kept. Normally, this is MULTINET_COMMON_ROOT:[MULTINET]. It is defined in START_SSH.COM.
SSH_LOG
Points to the directory where the log files are kept. Normally, this is MULTINET_COMMON_ROOT:[MULTINET]. It is defined in START_SSH.COM.
SSH_TERM_MBX
Mailbox used by SSHD_MASTER to receive termination messages from SSHD daemon processes. Do not change this logical name. This is created by the SSHD_MASTER process.
SSH2_DIR
Points to the directory that contains SSH2-specific files on the system. Normally, this is MULTINET_SPECIFIC_ROOT:[MULTINET.SSH2].
UCX\$INET_HOST
Set to include the host name of the primary interface automatically.
UCX\$INET_HOSTADDR
Set to contain the IP address of the primary interface automatically.
WWW_HOME
Specifies the URL of the WWW page loaded by Emosaic when it starts, or when you load the default home page.

Chapter 4

Utility Return Codes

Completion codes generated by selected MultiNet utilities are listed here.

PING Return Codes

MULTINET PING returns the OpenVMS status codes shown in Table 4-1 to indicate success or failure.

Table 4-1 MULTINET PING OpenVMS Status Codes

Status Code	Description
SS\$_NORMAL	Successful PING.
SS\$_IVBUFLEN	An invalid length was specified on the /DATA_LENGTH qualifier. The maximum value is 65468.
SS\$_NOSUCHNODE	Failed attempt to PING an unknown host.
SS\$_PROTOCOL	Remote host is not configured to support ICMP.
SS\$_NOPRIV	Access to PING denied by the system manager.
SS\$_DATA_LOST	Some PING responses were received, but some were lost; that is, a PING success rate of less than 100%.
SS\$_UNREACHABLE	No responses were received.

RCP Return Codes

MULTINET RCP returns the completion codes shown in Table 4-2.

Table 4-2 MULTINET RCP Completion Codes

Code	Description
RCP\$COPIED	!AS copied to !AS!AS/Info

Table 4-2 MULTINET RCP Completion Codes

Code	Description
RCP\$CREATED	Created directory !AS/Info
RCP\$CREATEDIR	Error creating directory !AS/Fatal
RCP\$ERROR	!AS/Error
RCP\$FATALERR	RCP server fatal error/Fatal
RCP\$LOSTCONN	Lost connection to remote host/Fatal
RCP\$NEWFILES	!UL files created/Info
RCP\$NOTCONNECTED	Couldn't connect to node/Fatal
RCP\$NOTIMPL	3rd party copies are not supported/Fatal
RCP\$NOSUCHNODE	Remote node !AS is unknown/Fatal
RCP\$OPENIN	Error opening !AS as input/Error
RCP\$OPENOUT	Error opening !AS as output/Error
RCP\$PARSERR	Error merging remote filename !AS with !AS/Fatal
RCP\$PROTOCOLERR	RCP protocol error/Fatal
RCP\$SIZECHANGE	File !AS size changed/Fatal
RCP\$STARTUPERR	RCP server startup error/Fatal
RCP\$WRITERR	Error writing to file/Fatal

Chapter 5

Error Codes

Error codes and error names associated with messages displayed on UNIX hosts are listed here. Some of these messages are also generated by MultiNet. Table 5-1 lists the error codes alphabetically. Table 5-2 lists the errors numerically.

Table 5-1 Error Codes Sorted Alphabetically

Error Name	Error Code	Description
E2BIG	7	Arg list too long
EACCES	13	Permission denied
EADDRINUSE	48	Address already in use
EADDRNOTAVAIL	49	Can't assign requested address
EAFNOSUPPORT	47	Address family not supported by protocol family
EAGAIN	11	No more processes
EALREADY	37	Operation already in progress
EBADF	9	Bad file number
EBUSY	16	Mount device busy
ECHILD	10	No children
ECONNABORTED	53	Software caused connection abort

Table 5-1 Error Codes Sorted Alphabetically (Continued)

Error Name	Error Code	Description
ECONNREFUSED	61	<p>Connection refused. This can occur when a connection is attempted to a non-existent server process. This message indicates that even though a path was established to the remote host, the remote host is not prepared for the type of connection attempted.</p> <p>Therefore, the connection was refused. The most likely cause is that a server (daemon) has not been enabled on the remote host. Servers are enabled automatically when a host is booted. Check with the system administrator of the remote host.</p>
ECONNRESET	54	The connection was reset by the remote node. This occurs when the remote node has rebooted and the local node attempts to transmit on a stale connection.
EDEADLK	35	Operation would block
EDESTADDRREQ	39	Destination address required
EDOM	33	Argument too large
EDQUOT	69	Disc quota exceeded
EEXIST	17	File exists
EFAULT	14	Bad address
EFBIG	27	File too large
EHOSTDOWN	64	Host is down
EHOSTUNREACH	65	No route can be found to the host you are trying to contact, an intermediate router is not working temporarily, or an intermediate router is set to prevent access to the host. If you are attempting to access a remote host via modem, this error means the terminal port is set /MODEM but no modem carrier (DTR) is present.
EINPROGRESS	36	Operation now in progress
EINTR	4	Interrupted system call
EINVAL	22	Invalid argument

Table 5-1 Error Codes Sorted Alphabetically (Continued)

Error Name	Error Code	Description
EIO	5	I/O error
EISCONN	56	Socket is already connected
EISDIR	21	Is a directory
ELOOP	62	Too many levels of symbolic links
EMFILE	24	Too many open files
EMLINK	31	Too many links
EMSGSIZE	40	Message too long
ENAMETOOLONG	63	File name too long
ENETDOWN	50	Network is down
ENETRESET	52	Network dropped connection on reset
ENETUNREACH	51	<p>Network is unreachable. The IP network you are trying to contact is not reachable. No route to the remote host or network can be found. This can be due to one of the following conditions:</p> <ul style="list-style-type: none"> • Two hosts on the same network were assigned Internet addresses containing different network numbers. • The remote host is on a different network but you have not added the proper route entry using the MULTINET SET/ROUTE command. If you have a single gateway available, you can set a DEFAULT ROUTE to send all packets to this gateway. • If your network is a Class C network (that is, the first byte of the network is 192 or larger), make sure the first three bytes of the Internet address are the same for all hosts. <p>To correct these problems, check the routing tables and HOSTS files to resolve the incompatibility, and make sure the hosts have the same network number.</p>
ENFILE	23	File table overflow
ENOBUFS	55	No buffer space available

Table 5-1 Error Codes Sorted Alphabetically (Continued)

Error Name	Error Code	Description
ENODEV	19	No such device
ENOENT	2	No such file or directory
ENOEXEC	8	Exec format error
ENOMEM	12	Not enough core
ENOPROTOOPT	42	Protocol not available
ENOSPC	28	No space left on device
ENOTBLK	15	Block device required
ENOTCONN	57	Socket is not connected
ENOTDIR	20	Not a directory
ENOTEMPTY	66	Directory not empty
ENOTSOCK	38	Socket operation on non-socket
ENOTTY	25	Not a typewriter
ENXIO	6	No such device or address
EOPNOTSUPP	45	Operation not supported on socket
EPERM	1	Not owner
EPFNOSUPPORT	46	Protocol family not supported
EPIPE	32	Broken pipe
EPROCLIM	67	Too many processes
EPROTONOSUPPORT	43	Protocol not supported
EPROTOTYPE	41	Protocol wrong type for socket
ERANGE	34	Result too large
EROFS	30	Read-only file system
ESHUTDOWN	58	Can't send after socket shutdown
ESOCKTNOSUPPORT	44	Socket type not supported
ESPIPE	29	Illegal seek

Table 5-1 Error Codes Sorted Alphabetically (Continued)

Error Name	Error Code	Description
ESRCH	3	No such process
ETIMEDOUT	60	Low-level packet transmission could not be accomplished in one or both directions. Either the connection request or its reply failed to get through.
ETOOMANYREFS	59	Too many references: cannot splice
ETXTBSY	26	Text file busy
EUSERS	68	Too many users
EVMISERR	65535	VMS-specific error code for non-translatable errors from VMS to C
EWOULDBLOCK	35	Operation would block
EXDEV	18	Cross-device link

Table 5-2 Error Codes Sorted Numerically

Error Code	Error Name	Description
1	EPERM	Not owner
2	ENOENT	No such file or directory
3	ESRCH	No such process
4	EINTR	Interrupted system call
5	EIO	I/O error
6	ENXIO	No such device or address
7	E2BIG	Arg list too long
8	ENOEXEC	Exec format error
9	EBADF	Bad file number
10	ECHILD	No children
11	EAGAIN	No more processes
12	ENOMEM	Not enough core

Table 5-2 Error Codes Sorted Numerically (Continued)

Error Code	Error Name	Description
13	EACCES	Permission denied
14	EFAULT	Bad address
15	ENOTBLK	Block device required
16	EBUSY	Mount device busy
17	EEXIST	File exists
18	EXDEV	Cross-device link
19	ENODEV	No such device
20	ENOTDIR	Not a directory
21	EISDIR	Is a directory
22	EINVAL	Invalid argument
23	ENFILE	File table overflow
24	EMFILE	Too many open files
25	ENOTTY	Not a typewriter
26	ETXTBSY	Text file busy
27	EFBIG	File too large
28	ENOSPC	No space left on device
29	ESPIPE	Illegal seek
30	EROFS	Read-only file system
31	EMLINK	Too many links
32	EPIPE	Broken pipe
33	EDOM	Argument too large
34	ERANGE	Result too large
35	EWouldBLOCK	Operation would block
36	EINPROGRESS	Operation now in progress
37	EALREADY	Operation already in progress

Table 5-2 Error Codes Sorted Numerically (Continued)

Error Code	Error Name	Description
38	ENOTSOCK	Socket operation on non-socket
39	EDESTADDRREQ	Destination address required
40	EMSGSIZE	Message too long
41	EPROTOTYPE	Protocol wrong type for socket
42	ENOPROTOOPT	Protocol not available
43	EPROTONOSUPPORT	Protocol not supported
44	ESOCKTNOSUPPORT	Socket type not supported
45	EOPNOTSUPP	Operation not supported on socket
46	EPFNOSUPPORT	Protocol family not supported
47	EAFNOSUPPORT	Address family not supported by protocol family
48	EADDRINUSE	Address already in use
49	EADDRNOTAVAIL	Can't assign requested address
50	ENETDOWN	Network is down

Table 5-2 Error Codes Sorted Numerically (Continued)

Error Code	Error Name	Description
51	ENETUNREACH	<p>Network is unreachable. The IP network you are trying to contact is not reachable. No route to the remote host or network can be found. This can be due to one of the following conditions:</p> <p>Two hosts on the same network were assigned Internet addresses containing different network numbers.</p> <p>The remote host is on a different network but you have not added the proper route entry using the MULTINET SET/ROUTE command. If you have a single gateway available, you can set a DEFAULT ROUTE to send all packets to this gateway.</p> <p>If your network is a Class C network (that is, the first byte of the network is 192 or larger), make sure the first three bytes of the Internet address are the same for all hosts.</p> <p>To correct these problems, check the routing tables and HOSTS files to resolve the incompatibility, and make sure the hosts have the same network number.</p>
52	ENETRESET	Network dropped connection on reset
53	ECONNABORTED	Software caused connection abort
54	ECONNRESET	The connection was reset by the remote node. Typically this occurs when the remote node has rebooted and the local node attempts to transmit on a stale connection.
54	ECONNRESET	Connection reset by peer
55	ENOBUFS	No buffer space available
56	EISCONN	Socket is already connected
57	ENOTCONN	Socket is not connected
58	ESHUTDOWN	Can't send after socket shutdown
59	ETOOMANYREFS	Too many references: can't splice

Table 5-2 Error Codes Sorted Numerically (Continued)

Error Code	Error Name	Description
60	ETIMEDOUT	Low-level packet transmission could not be accomplished in one or both directions. Either the connection request or its reply failed to get through.
61	ECONNREFUSED	<p>Connection refused. This can occur when a connection is attempted to a non-existent server process. This message indicates that even though a path was established to the remote host, the remote host is not prepared for the type of connection attempted.</p> <p>Therefore, the connection was refused. The most likely cause is that a server (daemon) has not been enabled on the remote host. Servers are enabled automatically when a host is booted. Check with the system administrator of the remote host.</p>
62	ELOOP	Too many levels of symbolic links
63	ENAMETOOLONG	File name too long
64	EHOSTDOWN	Host is down
65	EHOSTUNREACH	No route can be found to the host you are trying to contact, an intermediate router is not working temporarily, or an intermediate router is set to prevent access to the host. If you are attempting to access a remote host via modem, this error means the terminal port is set /MODEM but no modem carrier (DTR) is present.
66	ENOTEMPTY	Directory not empty
67	EPROCLIM	Too many processes
68	EUSERS	Too many users
69	EDQUOT	Disc quota exceeded
65535	EVMISERR	VMS-specific error code for non-translatable errors from VMS to C

PART III TCP/IP Services

Chapter 6	What is DECnet Application Services
Chapter 7	Configuring DECnet Application Services
Chapter 8	NOT-CONFIG Commands

Chapter 6

Introduction

DECnet application services let applications designed to execute over DECnet to execute over TCP/IP instead. *DECnet application services* provide the same DECnet API (Application Programmer Interface) seamlessly across TCP without DECnet protocols or software, and without the additional overhead of running both protocol stacks.

DECnet application services interface with DECnet applications by loading the NOT driver (NETDRIVER-over-TCP) into the OpenVMS kernel. The NOT driver augments DECnet, or may be used to replace DECnet entirely. Figure 6-1 illustrates this relationship.

Table 6-1 Relationship Between DECnet and DECnet Application Services

DECnet	DECnet application services
Applications	Applications
API	NOTDRIVER API
Network (NCP, routing, and addressing)	TCP
	IP
Hardware	Hardware

If DECnet is not running on your host, the NOT driver provides the NET0: device on your system. If DECnet is running on your system, the NOT driver interfaces into the DECnet NET0: device, and handles connection requests itself or passes those requests to DECnet based on the rules embedded in the *DECnet application services* code (described in Chapter 7).

Because *DECnet application services* provide the DECnet API, standard HP applications, such as SET HOST (CTERM), VMSmail, PHONE, and RMS file access (FAL), run unmodified across *DECnet application services*. Except for obsolete DECnet management functions like SHOW NETWORK and NCP, *DECnet application services* are indistinguishable from DECnet to users

and applications.

To preserve existing DECnet connectivity to hosts not running *DECnet application services*, DECnet and *DECnet application services* can run concurrently.

Databases

DECnet application services handle network access through a group of databases:

- Name-Mapping-Identifies the TCP/IP node name equivalent of a local DECnet node name
- Object-Identifies the services (objects) provided for incoming connections
- Proxy-Identifies the remote users who can access a local account without specifying a password

DECnet application services maintain these databases in a single file, MULTINET:NOT.CONFIGURATION. Use the MULTINET CONFIGURE /NOT utility to add, modify, and delete database entries, and customize *DECnet application services*.

DECnet Application Services Considerations

DECnet application services do not support:

- MOP (Maintenance Operations Protocol) loading of Ethernet LAVc nodes
- MOP loading of terminal servers. For terminal server MOP loading, most modern terminal servers support BOOTP or DHCP loading; use the MultiNet BOOTP or DHCP server.

In addition, MULTINET SHOW /LICENSE does *not* recognize the *DECnet application services* PAK (Product Authorization Key). List license information with the OpenVMS SHOW LICENSE command.

Note! *DECnet application services* communicate only to hosts that are also running *DECnet application services*. The nodes may run DECnet concurrently, but *DECnet application services* must be present. Because *DECnet application services* run only on VMS systems, any communication with non-VMS systems must occur over MultiNet.

Differences Between DECnet Application Services and DECnet

DECnet application services eliminate the administration requirements of DECnet and any resulting limitations, including the routing, hardware, and network size limitations, while imposing very minimal administration requirements of its own.

DNA and TCP/IP Protocols

DECnet application services replace most of DNA (HP Network Architecture) with the equivalent TCP/IP protocols. A DECnet "link" between an application and its server is mapped directly to a pair of TCP/IP connections, without the participation of the intervening DNA protocols.

Using the model presented in the HP *DECnet for OpenVMS Networking Manual*, the DNA Session Control layer is replaced with the *DECnet application services* software; and the DNA Network Services Protocol (NSP), Routing Protocol, Data Link Protocols, and Physical Links are replaced with the network connectivity provided by TCP/IP.

Many DECnet management tools and concepts do not have equivalents under *DECnet application services* (see Figure 6-1).

DECnet Networking Management

The DECnet network management utilities are not present under *DECnet application services* and have no equivalent. The basic network layer is provided by TCP/IP. Conversely, the DECnet application user functions available with DECnet, such as accessing remote files, remote command terminals (SET HOST), and task-to-task communications, are available under *DECnet application services* using the standard OpenVMS versions of these applications. These applications run unmodified over *DECnet application services*.

Using the NCP Utility

The NCP utility has no effect on the DECnet application services software. The NCP functionality performed by TCP/IP or *DECnet application services* includes:

The DEFINE NODE command used to equate DECnet host names to DECnet host addresses	There is no comparable DECnet host address under DECnet application services. Instead, DECnet host names are mapped to TCP/IP host names (see Chapter 7) that are mapped to IP addresses by DNS (described in Chapter 7) or host tables.
The DEFINE EXECUTOR TYPE {ROUTING NONROUTING} command	There is no DECnet-style routing that occurs with <i>DECnet application services</i> ; the routing layer of your network is provided by the TCP/IP routing protocols.
The NETCONFIG.COM utility	The NETCONFIG.COM utility is not used to configure your <i>DECnet application services</i> networking, and all restrictions associated with DECnet, such as geometry constraints, network size, and supported hardware, are removed and replaced with the more generous limitations of the TCP/IP networking protocols.
The NCP OBJECTS database	<i>DECnet application services</i> objects are controlled by the MULTINET CONFIGURE /NOT utility.

Using Proxies

Proxies, manipulated in the DECnet environment by the AUTHORIZE utility, are maintained by the MULTINET CONFIGURE /NOT utility. All logins handled by LOGINOUT in a DECnet environment are still handled by LOGINOUT in a *DECnet application services* environment.

Note! NETPROXY.DAT proxies cannot be readily used to generate commands in the MULTINET CONFIGURE /NOT utility. This is because *DECnet application services* proxies are based on the fully domain name associated with the IP address, not the DECnet name of the host.

User Interface

The user interface to the network is unchanged. The features described in the DECnet for OpenVMS Networking Manual apply to *DECnet application services*, except for management functions like SHOW NETWORK which have no equivalent under *DECnet application services*.

There is no equivalent in the *DECnet application services* software for the DECnet adaptive routing layer because this functionality is provided by Process Software MultiNet for OpenVMS.

Configuring DECnet Application Services

This chapter describes how to:

- Configure, start, and test DECnet application services
- Map DECnet names to TCP/IP fully qualified domain names

This guide describes how to configure *DECnet application services* with the NOT-CONFIG utility (MULTINET CONFIGURE /NOT). You can also perform these configuration tasks with the MENU-CONFIG utility (MULTINET CONFIGURE /MENU), which provides a menu-driven interface.

To access the MENU-CONFIG *DECnet application services* configuration screens, see the *Using MENU-CONFIG* section.

Configuring DECnet application services

After installing *DECnet application services*:

- 1 Use the MULTINET CONFIGURE /NOT utility to:
 - a Set the DECNET-LOADED and PREFER-DECNET-TO-TCP global parameters as required using the SET command.
 - b Configure proxies using the ADD PROXY command.
 - c If needed, configure objects for local DECnet applications using the ADD OBJECT command.
 - d If needed, define a user name and password for MAIL, PHONE, VPM, NML, and other objects you want to work over *DECnet application services* using the ADD OBJECT command. If you define a user name and password for an object, you may also want to set PROXY NONE on the object.
 - e If needed, define name-mappings between DECnet node names and TCP/IP fully-qualified domain names, or name-mappings to force DECnet communication to specified nodes.
- 2 Add the startup of *DECnet application services* to your system startup, as shown in the *Modifying Your System Startup* section.
- 3 Reboot, or start the software without rebooting, as described in the *Starting DECnet Application Services without Rebooting* section.

- 4 If desired, test *DECnet application services*, as described in the *Testing DECnet Application Services* section.

Using MENU-CONFIG

MENU-CONFIG provides access to all MultiNet configuration parameters via a character-based, menu-driven interface. For general information on MENU-CONFIG, see the *MultiNet for OpenVMS Administrator's Guide*.

To access the MENU-CONFIG *DECnet application services* screens, invoke MENU-CONFIG with the MULTINET CONFIGURE /MENU command, and choose "Configure DECnet Application Services."

```

MultiNet Configuration Menu
Mode: Basic
Configure Network Interfaces
Configure Global Parameters
Configure DECnet over IP
Configure NFS
Configure Print Queues
Configure MultiNet Server
Configure Mail
Configure DECnet Application Services
Configure Secure/IP
Exit Utility

~Z Exit Menu

Define addresses, subnet masks, and other parameters for network
interface devices. Changes do not take effect immediately. To start
the new configuration, exit this utility and reboot the system. You
can change some parameters without rebooting with the
Press HELP or PF2 for more help
    
```

When the *DECnet application services* Configuration screen appears, you can configure name-mappings, proxies, and objects, or modify the *DECnet application services* parameters by choosing the corresponding command from the menu. MENU-CONFIG provides context-sensitive help as you move the cursor between parameters.

Modifying Your System Startup

To start *DECnet application services* at system startup, modify the system startup file so that *DECnet application services* start before MultiNet. If you are also running DECnet, ensure that DECnet application services start before DECnet. The setting of the DECNET-LOADED global parameter should agree with the lines placed in your system startup. If you change the setting of DECNET-LOADED, you must change your system startup.

If your system is running OpenVMS VAX V5.x, the system startup file is `SYS$MANAGER:SYSTARTUP_V5.COM`; for all later versions and for Alpha systems, this file is `SYS$MANAGER:SYSTARTUP_VMS.COM`.

If your system runs both DECnet and *DECnet application services*:

- 1 Modify your system startup file so it resembles the following example.
- 2 Set the global parameter `DECNET-LOADED` to `TRUE` (the default).

```
@SYS$SYSDEVICE:[MULTINET.nodename.SYSCOMMON.MULTINET]-
_$ START_NOTDRIVER                ! Start DECnet application service
$ SYS$MANAGER:STARTNET              ! Start DECnet
@SYS$SYSDEVICE:[MULTINET.nodename.SYSCOMMON.MULTINET]-
_$ START_MULTINET                  ! Start MultiNet
```

If your system runs only *DECnet application services*:

- 1 Modify your system startup file so it resembles the following example.
- 2 Remove the reference to `@SYS$MANAGER:STARTNET`.
- 3 Set `DECNET-LOADED` to `FALSE` (refer to Appendix A for a summary of commands).

```
@SYS$SYSDEVICE:[MULTINET.nodename.SYSCOMMON.MULTINET]-
_$ START_NOTDRIVER                ! Start DECnet application services
@SYS$SYSDEVICE:[MULTINET.nodename.SYSCOMMON.MULTINET]-
_$ START_MULTINET                  ! Start MultiNet
```

Note! DECnet may be shutdown and restarted now if there are no users. This will allow most applications to use DNAS.

Starting DECnet Application Services without Rebooting

Enable the NOT service, restart the MultiNet Server, and manually start *DECnet application services* with these commands:

```
$ MULTINET CONFIGURE /SERVER
SERVER-CONFIG>ENABLE NOT
SERVER-CONFIG>RESTART
SERVER-CONFIG>EXIT
$ @MULTINET:START_NOTDRIVER
$ @MULTINET:START_SERVER
```

When *DECnet application services* start after DECnet, certain applications that register as DECnet objects during their startup are not registered with *DECnet application services*. Until these applications are restarted, any attempt to access these objects over *DECnet application services* will result in a NOSUCHOBJ error. This includes the DECwindows and CTERM (SET HOST) objects. To guarantee that all objects register with both *DECnet application services* and DECnet, Process Software recommends you reboot after installing and testing *DECnet application services*.

and modifying your system startup command procedure.

Testing DECnet Application Services

Test the *DECnet application services* installation by using the SET HOST command to connect to your own node and then to a remote node:

- If your system is running OpenVMS V6.1 or later or OpenVMS Alpha V1.5 or later, log into your own node with the SET HOST command as follows:

```
$ DIR *0"username password"::
```

An asterisk preceding a host name forces processing by *DECnet application services*. If this command succeeds, also try:

```
$ SET HOST *remote_node_name
```

Note that this requires DECnet application services to be running on the remote node.

- If your system is running an earlier version of OpenVMS, use MULTINET CONFIGURE /NOT to define a NAME-MAPPING to force communication with a test host (for example, SPAM) to use *DECnet application services* rather than DECnet, SET HOST to test the installation as shown in the following example:

```
$ MULTINET CONFIGURE /NOT
MultiNet NOT Configuration Utility 5.0(nn)
[Reading in NOT configuration from MULTINET:NOT.CONFIGURATION]
NOT-CONFIG>ADD NAME-MAPPING SPAM LOCALHOST
NOT-CONFIG>RELOAD
Connected to NETCONTROL server on "127.0.0.1"
< domain Network Control Mon 13-Mar-2003-2003 7:42am-EST
< NOT database reload done
NOT-CONFIG>EXIT
$ SET HOST SPAM
```

If the SET HOST commands succeed, *DECnet application services* are working properly and you can remove the test NAME-MAPPING.

Resolving Node Names

Systems running both DECnet and *DECnet application services* use the following rules when determining whether to use DECnet or *DECnet application services*:

- 1 If an asterisk precedes the node name (**nodename*), use *DECnet application services*. (Valid only if the system is running OpenVMS/VAX V6.1 or later, or OpenVMS/Alpha V1.5 or later.)
- 2 If an underscore precedes the node name (*_nodename*), use DECnet.
- 3 If name-mapping is configured for the node and the node is a valid TCP/IP node, use *DECnet application services*; a host is valid to TCP/IP if it appears in a host table or in DNS.

- 4 If the node name is a valid TCP/IP node or a numerical IP address, and not a valid DECnet node, use *DECnet application services*.
- 5 If the node name is a valid DECnet node and not a valid TCP/IP node, use DECnet.
- 6 If the node name is valid in both TCP/IP and DECnet, or if you specify the node name as "0," dispatch according to the setting of the global parameter PREFER-DECNET-TO-TCP, which is TRUE by default.

Name Mapping

With *DECnet application services* and TCP/IP, two translations must occur:

- 1 The DECnet name must be translated into a fully qualified domain name (a requirement of *DECnet application services*).
- 2 The fully qualified domain name must be mapped to an IP address (a requirement of TCP/IP).

By default, the local domain name is appended to the node name to create a fully qualified domain name.

By default, the PREFER-DECNET-TO-TCP setting is set to TRUE, so if the target node is a DECnet node and a TCP/IP node, the connection occurs over DECnet. Setting this parameter to TRUE ensures the connection occurs over DECnet if the target node is both a DECnet node and a TCP/IP node.

To force the connection over *DECnet application services* instead of DECnet, complete one of the following steps:

- Use the NOT-CONFIG utility to set PREFER-DECNET-TO-TCP to FALSE (the default value is TRUE). Setting this parameter to FALSE causes all connections to be made over *DECnet application services* if no name-mapping exists.

If all nodes are running *DECnet application services*, and if appending the local domain name to the node name always results in the proper, fully qualified domain name for the host (which will occur for almost all networks), you have finished configuring *DECnet application services*.

If you set PREFER-DECNET-TO-TCP to FALSE, you can use ADD NAME-MAPPING to force connections to specific nodes to use DECnet. For more information on name mapping, see the *Creating a Name-Mapping Database* section.

- On versions of OpenVMS that offer fullnames support, specify an asterisk before the node name (**nodename*). Use this method only for debugging.
- Map DECnet names to TCP/IP names using DNS.

You can map DECnet names to TCP/IP names in two ways:

Using DNS	To distinguish nodes running <i>DECnet application services</i> from those running only TCP/IP, use a separate subdomain similar to that in the DNAS.FLOWERS.COM examples shown in the <i>Using DNS</i> section. If desired, you can create similar configurations using host table aliases.
-----------	--

Using a name-mapping database	To distinguish nodes running <i>DECnet application services</i> from those running DECnet, use a name-mapping database as described in the <i>Creating a Name-Mapping Database</i> section. This method is very useful during the initial configuration of <i>DECnet application services</i> ; however, the name-mapping database does not scale well in a large <i>DECnet application services</i> network. Process Software strongly recommends using DNS instead.
-------------------------------	---

Using DNS

DNS maps node names to IP addresses and lets you store information in a central repository and create aliases (called "CNAME" records) for host names. (For more information on configuring DNS, refer to the *MultiNet for OpenVMS Installation and Administrator's Guide*.) By including information for *DECnet application services* nodes in DNS, you do not need to propagate configuration information to each node so it can translate six-character DECnet names to fully qualified TCP/IP names.

By creating CNAME records for hosts running *DECnet application services*, and putting the records in their own domain, like *node.DNAS.FLOWERS.COM* (where *node* is the six-character DECnet node name), you can easily differentiate between nodes that run *DECnet application services* and those that do not. When you create a *DECnet application services*, use the SET DOMAIN-DEFAULT command to point to it. For example:

```
NOT-CONFIG>SET DOMAIN-DEFAULT DNAS.FLOWERS.COM
```

Example CNAME records are:

```
;  
; This is a list of hosts running DECnet application services  
;  
BIRD.DNAS.FLOWERS.COM.      IN      CNAME    Free-Bird.FLOWERS.COM.  
CAD.DNAS.FLOWERS.COM.      IN      CNAME    CAD.FLOWERS.COM.  
FOO1.DNAS.FLOWERS.COM.    IN      CNAME    Foo-bar.FARAWAY.EDU.  
CODEZ.DNAS.FLOWERS.COM.   IN      CNAME    Code-Z.FLOWERS.COM.  
FOO2.DNAS.FLOWERS.COM.    IN      CNAME    Foo-bar.CLOSEBY.EDU.
```

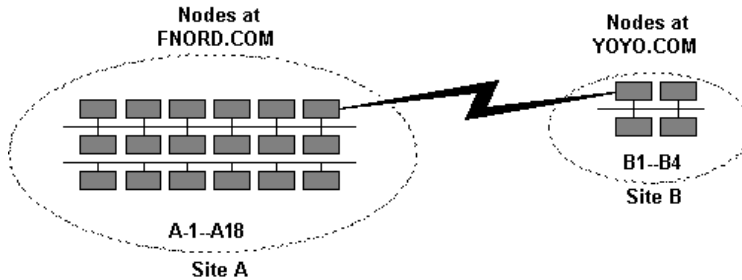
A disadvantage of DNS is that it is difficult to set up and manage. However, the advantages of using DNS for *DECnet application services* name mappings are that DNS automatically propagates information to all systems that rely on it, and the mapping information is centrally maintained. If you do not already have DNS, and are not on the Internet, you must create a *fake root name server* before DNS can map *DECnet application services* node names to IP addresses. Contact Process Software Technical Support for information and assistance in setting up a fake root name server.

A similar configuration can be also be accomplished using host table aliases.

Creating a Name-Mapping Database

To create name-mapping entries that map each six-character DECnet node name to its corresponding TCP/IP node name:

- 1 Use the ADD NAME-MAPPING command in the NOT-CONFIG utility (MULTINET CONFIGURE /NOT) to add entries for each remote node that needs to communicate with your node.
- 2 When creating a name mapping, set the DOMAIN-DEFAULT global parameter to the domain with the anticipated greatest number of nodes and use name mapping to describe only the exceptions. For example, the following graphic shows two ways to handle name mapping:



In the **Recommended** solution, because Site A has the greatest number of nodes, set the DOMAIN-DEFAULT parameter to FNORD.COM at both sites. Using this solution, the exceptions to the network (that is, those nodes at Site B) are the only ones that need to be described in the name-mapping database.

The four host entries in the name-mapping database are:

```
B1  B1.FLOWERS.COM          B3  B3.FLOWERS.COM
B2  B2.FLOWERS.COM          B4  B4.FLOWERS.COM
```

If you specify a node name without a dot, the domain set by DOMAIN-DEFAULT is added to the end of the node name. Therefore, any node name at Site A (A1-A18) maps to *node.FNORD.COM* automatically.

In the **Not recommended** solution for Site B, the name-mapping database contains 18 nodes:

```
A1  A1.FNORD.COM           A7  A7.FNORD.COM           A13  A13.FNORD.COM
A2  A2.FNORD.COM           A8  A8.FNORD.COM           A14  A14.FNORD.COM
A3  A3.FNORD.COM           A9  A9.FNORD.COM           A15  A15.FNORD.COM
A4  A4.FNORD.COM           A10 A10.FNORD.COM          A16  A16.FNORD.COM
A5  A5.FNORD.COM           A11 A11.FNORD.COM          A17  A17.FNORD.COM
A6  A6.FNORD.COM           A12 A12.FNORD.COM          A18  A18.FNORD.COM
```

Because the local domain at Site B is FLOWERS.COM, nodes B1 through B4 will map to *node.FLOWERS.COM* automatically.

While the **Not recommended** method works, it requires more maintenance.

- 3 Propagate the database to each host running *DECnet application services*.

Note! It is important that you keep the databases up to date.

The more nodes in your network, the more difficult name-mappings are to manage, especially if nodes are managed by different people.

NOT-CONFIG Commands

This chapter describes the NOT-CONFIG commands.

Command Summary

The following table lists the commands you can run from the NOT-CONFIG prompt.

NOT-CONFIG Command	Description
ADD NAME-MAPPING	Adds or modifies a name-mapping entry.
ADD OBJECT	Adds or modifies an object entry.
ADD PROXY	Adds or modifies a proxy entry.
ATTACH	Detaches the terminal from the calling process and reattaches it to another process.
DELETE NAME	Deletes a name-mapping entry.
DELETE OBJECT	Deletes an object entry or its options.
DELETE PROXY	Deletes a proxy entry.
EXIT	Saves the current configuration (if it has been modified), and quits the configuration utility.
GET	Reads in a <i>DECnet application services</i> configuration file. (GET is the same as USE.)
HELP	Displays help information.
NETCONTROL	Changes the functionality of the executing <i>DECnet application services</i> image.
PUSH	Starts a DCL subprocess.

NOT-CONFIG Command	Description
QUIT	Quits the configuration utility. If the configuration file has been changed, QUIT asks if you want to save the file.
RELOAD	Reloads <i>DECnet application services</i> from the default configuration file.
SAVE	Writes out the current <i>DECnet application services</i> configuration file. (SAVE is the same as WRITE.)
SET	Sets NOT-CONFIG global parameters.
SHOW	Displays the current <i>DECnet application services</i> configuration.
SPAWN	Executes a single DCL command, or if entered without options, starts a subprocess with the same effect as PUSH.
STATUS	Displays the status of the <i>DECnet application services</i> configuration.
USE	Reads in a configuration file. (USE is the same as GET.)
VERSION	Displays the version and release information of the NOT-CONFIG configuration program.
WRITE	Writes out the current <i>DECnet application services</i> configuration to a file. (WRITE is the same as SAVE.)

ADD NAME-MAPPING

Adds or modifies a name-mapping entry. Modify existing entries with the ADD NAME-MAPPING command by entering new information at each prompt. The name-mapping database maps local DECnet node names to TCP/IP node name equivalents.

FORMAT

ADD NAME-MAPPING [*decnet-name*] [*tcp-name*]

PARAMETERS

decnet-name

Specifies the DECnet node name. If you omit the node name, you are prompted to supply it. The name can be a maximum of six characters.

tcp-name

Specifies the TCP/IP node name. If you omit the node name, you are prompted to supply it. Enter an underscore (_) in front of the node name (_nodename) to indicate that DECnet should be used instead of DECnet application services.

EXAMPLE

This example specifies that DECnet be used with the TIRED host, and that *DECnet application services* be used with the ZIPPY host.

```
$ MULTINET CONFIGURE /NOT
MultiNet NOT Configuration Utility 5.0(nn)
[Reading in NOT configuration from MULTINET:NOT.CONFIGURATION]
NOT-CONFIG>ADD NAME-MAPPING
DECnet Nodename: TIRED
TCP Nodename: _
[Added mapping "TIRED" = "_"]
NOT-CONFIG>SHOW NAME-MAPPING
DECnet nodename      TCP nodename
-----
TIRED                _
ZIPPY                ZIPPY.IRIS.COM
NOT-CONFIG>
```

ADD OBJECT

Adds or modifies an object entry. Modify existing entries with the ADD OBJECT command by entering new information at each prompt. Display information created with ADD OBJECT with the SHOW OBJECT /FULL command. Delete an object with the DELETE OBJECT command. The object database identifies the objects (services) provided for incoming connections.

FORMAT

```
ADD OBJECT [entry] [NUMBER number] [FILE file]  
            [FULLNAMES-SUPPORTED { TRUE | FALSE }]  
            [USER user] [PASSWORD password]  
            [PROXY { NONE | INCOMING }]
```

PARAMETERS

entry

Specifies an object name. If you omit the object name, you are prompted to supply it. The object name can be up to 16 characters in length.

NUMBER *number*

Specifies an object number in the range 0 to 255. If you omit the object number, it defaults to 0. You can use any many objects with number 0 as you want; however, each number greater than 0 can only have one object associated with it. HP reserves numbers 1 to 127 for its own objects. User-defined objects are typically numbered 0.

FILE *file*

Specifies a file name. If you omit the file name, no file name is used. For number 0 objects, the default file name is SYSS\$LOGIN:*object_name*.COM. Copies of the command file must exist in SYSS\$LOGIN for each person who might use the object.

Objects can execute an image accessible by all logins by storing the image in SYSS\$SYSTEM.

FULLNAMES-SUPPORTED

If specified, the object supports the OpenVMS fullnames feature. This feature delivers the fully qualified domain name of the client node to the server with the connection notification. The MAIL and FAL objects default this value to TRUE; all other objects default to FALSE. This allows MAIL to be answered even if you do not have appropriate name mappings configured. The fullnames feature is provided with OpenVMS VAX V6.1 and is a partial feature of OpenVMS Alpha V1.5 and later. On OpenVMS Alpha systems, enough fullnames support is provided for *DECnet application services* to accept fully qualified domain names; however, fullnames support is not supported by HP for OpenVMS Alpha systems.

USER *username*

Specifies a user name associated with the object. When a process is created to service the object request on your system, OpenVMS uses this user name.

PASSWORD *password*

Specifies a password associated with the object's user name.

PROXY

Set PROXY NONE to disable PROXY handling for only the specified object. When proxy handling is disabled, any connection to the object logs into the user name and password specified on the object with the ADD OBJECT *objectname*, USERNAME *username*, PASSWORD *password* command; or, in the absence of an object user name and password, to the default user name and password for the system. The default is PROXY INCOMING.

EXAMPLE

```

$ MULTINET CONFIGURE /NOT
MultiNet NOT Configuration Utility 5.0(nn)
[Reading in NOT configuration from MULTINET:NOT.CONFIGURATION]
NOT-CONFIG>ADD OBJECT MAIL NUMBER 0 FILE SYS$SYSTEM:MAIL.EXE
NOT-CONFIG>ADD OBJECT MY_OBJECT
[Added object "MY_OBJECT" number 0]
NOT-CONFIG>SHOW OBJECT/FULL
Object Name Number Username Password FullNames Proxy Filename
-----
DTR 63 NO INCOMING DTR
FAL 17 YES INCOMING FAL.EXE
MAIL 27 YES INCOMING MAIL_SER
VER.EXE
MY_OBJECT 0
NML 19 NO INCOMING NML.EXE
NOTES 33 NOTES$SERVER FNORDIES NO NONE NOTES$SE
RVER.EXE
PHONE 29 NO INCOMING PHONE.EXE
VPM 51 MAIL$SERVER FNORDIES NO NONE VPM.EXE
NOT-CONFIG>

```

ADD PROXY

Adds or modifies a proxy entry. Modify existing entries with the **ADD PROXY** command by entering new information at each prompt.

FORMAT

ADD PROXY [*rmt_node::rmt_username local_username*]

PARAMETERS

rmt_node::rmt_username

Specifies a remote user name in the form *nodename::username*. The nodename can be any host name identifier; for example a six-character DECnet name or a fully qualified domain name. If you omit the user name, you are prompted to supply it.

local_username

Specifies the local user name. If you omit the user name, you are prompted to supply it. You cannot use special characters such as ampersand (&) in a user name. You can enter an asterisk (*) to indicate that the local user name is the same as the remote user name. You can add as many as 16 local user names to a single remote user name. Use the /DEFAULT qualifier to specify which one to use normally.

QUALIFIERS

/DEFAULT

Specifies that this is the default proxy.

DESCRIPTION

The proxy database identifies which remote users can access a local account without specifying a password. When you search for a node name in the proxy table, the following order is used to determine which nodes are permitted:

- 1 A fully qualified domain name has first priority (for example, WHATNO.FOO.BAR.COM::SYSTEM)
- 2 *.domain2.domain1.domain0:: (for example, *.FOO.BAR.COM::SYSTEM)
- 3 *.local.domain:: (for example, *.BAR.COM::SYSTEM)
- 4 *.domain:: (for example, *.COM::SYSTEM)
- 5 *:: (for example, *::SYSTEM)
- 6 Steps 1-5 again, with a wildcard to designate the remote user name.

Note! The default proxy is different from the DECnet default proxy. With DNAS, the first proxy that matches is always applied if a remote username is not specified. Specifying a proxy as /default says to put this name first in the list. With DECnet, the /default qualifier says to use that proxy if one is not specified, but if a proxy is not specified and there is no default, then no proxy is used.

EXAMPLE

```
$ MULTINET CONFIGURE /NOT
MultiNet NOT Configuration Utility 5.0(nn)
[Reading in NOT configuration from MULTINET:NOT.CONFIGURATION]
NOT-CONFIG>ADD PROXY
Remote User: FLOWERS::FNORDIST
Local User: FNORDIST
[Added proxy "FLOWERS::FNORDIST" = "FNORDIST"]
NOT-CONFIG>SHOW PROXY
Remote User          Local Users
-----
*.FOO.COM::*        *
FLOWERS::FNORDIST   FNORDIST
NOT-CONFIG>
```

ATTACH

Detaches the terminal from the calling process and reattaches it to another process. Use the SPAWN SHOW PROCESS /SUBPROCESSES command to list the names of subprocesses. Use the DCL LOGOUT command to return to the original process. If the MULTINET_DISABLE_SPAWN logical is set, ATTACH does not work.

FORMAT

ATTACH *process-name*

PARAMETERS

process_name

Specifies the name of a process to which you want your terminal attached. Not all subprocesses can be attached; some testing may be required.

EXAMPLE

This example creates and exits attached subprocesses. The SPAWN command creates a subprocess. Then MM is invoked from that subprocess. Next, the SPAWN SHOW PROCESS /SUBPROCESSES command lists all the active subprocesses: _TWA42: is NOT-CONFIG, PROC_1 is MM, and PROC_2 is the SPAWN SHOW PROCESS /SUBPROCESSES command.

The ATTACH _TWA42: command returns control to NOT-CONFIG. The ATTACH PROC_1 command returns control to MM. When MM is exited, control returns to the first subprocess. Then LOGOUT returns control to NOT-CONFIG.

```
$ MULTINET CONFIGURE /NOT
MultiNet NOT Configuration Utility 5.0(nn)
[Reading in NOT configuration from MULTINET:NOT.CONFIGURATION]
NOT-CONFIG>SPAWN
$ MM
MM>SPAWN SHOW PROCESS /SUBPROCESSES
. . .
There are 3 processes in this job:
  _TWA42:
    PROC_1
    PROC_2 (*)
MM>ATTACH _TWA42:
NOT-CONFIG>ATTACH PROC_1
MM>EXIT
$ LOGOUT
NOT-CONFIG>
```

DELETE NAME

Deletes a name-mapping entry.

FORMAT

DELETE NAME *entry*

PARAMETERS

entry

Specifies the name-mapping entry to delete.

EXAMPLE

In this example, a name-mapping entry is created then deleted.

```
$ MULTINET CONFIGURE /NOT
MultiNet NOT Configuration Utility 5.0(nn)
[Reading in NOT configuration from MULTINET:NOT.CONFIGURATION]
NOT-CONFIG>ADD NAME JOY FNORD.FLOWERS.COM
[Added mapping "JOY" = "FNORD.FLOWERS.COM"]
NOT-CONFIG>DELETE NAME JOY
NOT-CONFIG>
```

DELETE OBJECT

Deletes an object entry or its options. Use ADD OBJECT to change the object number. Use SHOW OBJECT/FULL to confirm deletions.

FORMAT

DELETE OBJECT [*entry*] [*FILE*] [*USER*] [*PASSWORD*]

PARAMETERS

entry

Specifies the object name to delete the object and all its options.

FILE

Specifies the FILE keyword to delete the file.

USER

Specifies the USER keyword to delete the user name.

PASSWORD

Specifies the PASSWORD keyword to delete the user password.

EXAMPLE

In this example, an object is added then displayed. The associated file name and object are removed. The object can be removed directly if desired. These steps only illustrate the possibilities, not an actual procedure sequence.

```
$ MULTINET CONFIGURE /NOT
MultiNet NOT Configuration Utility 5.0(nn)
[Reading in NOT configuration from MULTINET:NOT.CONFIGURATION]
NOT-CONFIG>ADD OBJECT FISH NUMBER 0 FILE SYS$LOGIN:OH.COM
NOT-CONFIG>SHOW OBJECT FISH
Object Name      Number      Filename
-----
FISH              0          SYS$LOGIN:OH.COM
NOT-CONFIG>DELETE OBJECT FISH FILE
[Changed object "FISH" number 0]
NOT-CONFIG>SHOW OBJECT FISH

Object Name      Number      Filename
-----
FISH              0
NOT-CONFIG>DELETE OBJECT FISH
NOT-CONFIG>
```

DELETE PROXY

Deletes a proxy entry.

FORMAT

DELETE PROXY *entry*

PARAMETERS

entry

Specifies the entry to delete from the proxy database.

EXAMPLE

```
$ MULTINET CONFIGURE /NOT
MultiNet NOT Configuration Utility 5.0(nn)
[Reading in NOT configuration from MULTINET:NOT.CONFIGURATION]
NOT-CONFIG>ADD PROXY FLOWERS::NOTHER JOY
[Added proxy "FLOWERS::NOTHER" = "JOY"]
NOT-CONFIG>ADD PROXY FLOWERS::NOTHER ME
[Added proxy "FLOWERS::NOTHER" = "ME"]
NOT-CONFIG>SHOW PROXY FLOWERS
Remote User          Local Users
-----
FLOWERS::NOTHER     JOY ME
NOT-CONFIG>DELETE PROXY FLOWERS ME
NOT-CONFIG>SHOW PROXY FLOWERS
Remote User          Local Users
-----
FLOWERS::NOTHER     JOY
```

EXIT

Saves the current configuration (if it has been modified), and quits the configuration utility.

FORMAT

EXIT

EXAMPLE

```
$ MULTINET CONFIGURE /NOT
MultiNet NOT Configuration Utility 5.0(nn)
[Reading in NOT configuration from MULTINET:NOT.CONFIGURATION]
NOT-CONFIG>EXIT
[Configuration not modified, so no update needed]
$
```

When the configuration has not been changed, a message appears to indicate the configuration file is not updated.

```
$ MULTINET CONFIGURE /NOT
MultiNet NOT Configuration Utility 5.0(nn)
[Reading in NOT configuration from MULTINET:NOT.CONFIGURATION]
NOT-CONFIG>ADD PROXY MYNODE::NEWUSER NEWUSER
NOT-CONFIG>EXIT
[Writing configuration to MULTINET:NOT.CONFIGURATION]
$
```

When the configuration changes, a message appears to indicate that the configuration file has been updated.

GET

Reads in a DECnet application services configuration file. (GET is the same as USE.) After using the GET command, you can use other NOT-CONFIG commands to display and modify the new configuration.

FORMAT

GET *config_file*

PARAMETERS

config_file

Specifies the name of the configuration file to read in.

EXAMPLE

This example reads in the MULTINET:NEW_CONFIG.CFG file.

```
$ MULTINET CONFIGURE /NOT
MultiNet NOT Configuration Utility 5.0(nn)
[Reading in NOT configuration from MULTINET:NOT.CONFIGURATION]
NOT-CONFIG>GET MULTINET:NEW_CONFIG.CFG
[Reading in configuration from MULTINET:NEW_CONFIG.CFG;1]
NOT-CONFIG>EXIT
```

HELP

Displays help information.

FORMAT

HELP [*topics*]

PARAMETERS

topics

Specifies a space-delimited list of topics that begins with a topic, followed by subtopics. The default topic is **HELP**.

EXAMPLE

```
$ MULTINET CONFIGURE /NOT
MultiNet NOT Configuration Utility 5.0(nn)
[Reading in NOT configuration from MULTINET:NOT.CONFIGURATION]
NOT-CONFIG>HELP
HELP
                Invokes command help.
                Format
                HELP  [topics]
Additional information available:
ADD      ATTACH      Command_Summary  DELETE      EXIT      GET
HELP     NETCONTROL  PUSH            QUIT       RELOAD    SAVE      SET
SHOW     SPAWN       STATUS          USE        VERSION   WRITE
Topic? RETURN
NOT-CONFIG>
```

NETCONTROL

Changes the functionality of the executing *DECnet application services* image.

FORMAT

NETCONTROL [*hostname*]

PARAMETERS

hostname

Specifies the name of a host. If you do not specify the host name, it defaults to the local host.

DESCRIPTION

After invoking NETCONTROL, you can issue commands to the NETCONTROL server to affect MULTINET_SERVER operations on that host.

Restrictions

The NETCONTROL server is normally protected from unauthorized access by a restriction list.

EXAMPLE

This example reloads the NOT server.

```
$ MULTINET CONFIGURE /NOT
MultiNet NOT Configuration Utility 5.0(nn)
[Reading in NOT configuration from MULTINET:NOT.CONFIGURATION]
NOT-CONFIG>>NETCONTROL
Connected to NETCONTROL server on "127.0.0.1"
< FLOWERS.COM Network Control Mon 13-Mar-2003 7:42am-EST
NOT>? NETCONTROL command, one of the following:
ATTACH  PUSH      QUIT      QUOTE     SELECT    SPAWN     VERBOSE
or Command, one of the following:
DEBUG   NOOP       RELOAD    VERSION
NOT>SELECT NOT
NOT>RELOAD
< NOT database reload done
NOT>QUIT
NOT-CONFIG>
```

PUSH

Starts a DCL subprocess. Attaches to a parent DCL command interpreter if it exists. To return from DCL, use the ATTACH command. If the MULTINET_DISABLE_SPAWN logical is set, PUSH does not work.

FORMAT

PUSH

EXAMPLE

In this example, PUSH is used to go to the DCL command line to disable broadcasts. The LOGOUT command returns control to NOT-CONFIG.

```
$ MULTINET CONFIGURE /NOT
MultiNet NOT Configuration Utility 5.0(nn)
[Reading in NOT configuration from MULTINET:NOT.CONFIGURATION]
NOT-CONFIG>PUSH
$ SET TERM /NOBROADCAST
$ LOGOUT
NOT-CONFIG>
```

QUIT

Quits the configuration utility. If the configuration file has been changed, QUIT asks if you want to save the file.

FORMAT

QUIT

EXAMPLE

This example shows how to quit the NOT-CONFIG utility without saving any changes.

```
$ MULTINET CONFIGURE /NOT
MultiNet NOT Configuration Utility 5.0(nn)
[Reading in NOT configuration from MULTINET:NOT.CONFIGURATION]
NOT-CONFIG>QUIT
Configuration modified, do you want to save it ? [NO] NO
$
```

RELOAD

Reloads DECnet application services from the default configuration file.

FORMAT

RELOAD

EXAMPLE

This example shows how to reload the default configuration file.

```
$ MULTINET CONFIGURE /NOT
MultiNet NOT Configuration Utility 5.0(nn)
[Reading in NOT configuration from MULTINET:NOT.CONFIGURATION]
NOT-CONFIG>RELOAD
Connected to NETCONTROL server on "127.0.0.1"
< FNORD.IRIS.COM Network Control Mon 13-Mar-2003 7:42am-EST
< NOT database reload done
NOT-CONFIG>
```

SAVE

Writes out the current *DECnet application services* configuration file. (SAVE is the same as WRITE.)

FORMAT

SAVE [config_file]

PARAMETERS

config_file

Specifies the name of DECnet application services configuration file to write out. The default is the file from which the configuration was read.

EXAMPLE

This example shows how to save your changes to the configuration file.

```
$ MULTINET CONFIGURE /NOT
MultiNet NOT Configuration Utility 5.0(nn)
[Reading in NOT configuration from MULTINET:NOT.CONFIGURATION]
NOT-CONFIG>SAVE
[Writing NOT configuration to
MULTINET_COMMON_ROOT:[MULTINET]NOT.CONFIGURATION;nn]
NOT-CONFIG>
```

SET

Sets NOT-CONFIG global parameters.

FORMAT

SET

```
{ DECNET-LOADED}  
{ DOMAIN-DEFAULT}  
{ HOST-NAME}  
{ PASSWORD-DEFAULT}  
{ PREFER-DECNET-TO-TCP}  
{ USERNAME-DEFAULT}
```

PARAMETERS

DECNET-LOADED

If set to TRUE (the default), specifies that *DECnet application services* are being run with DECnet. If set to FALSE, only DECnet application services are used.

DOMAIN-DEFAULT

Specifies an alternate domain name. If you specify a DECnet node name with a dot, the domain host name is used, as is, as a TCP/IP node name. The default domain name is only appended if the TCP node name does not contain a dot. The maximum length for a domain name is 256 characters.

HOST-NAME

Specifies a name to override the SYSS\$NODE definition to set a six-character host name. This parameter is useful if there is a name conflict with the six-character DECnet node name.

PASSWORD-DEFAULT

Specifies a default password to use with the object database.

PREFER-DECNET-TO-TCP

If set to TRUE, specifies that DECnet is preferred to TCP/IP for making the connection.

USERNAME-DEFAULT

Specifies a default user name to use with the object database.

EXAMPLE

```
$ MULTINET CONFIGURE /NOT  
MultiNet NOT Configuration Utility 5.0(nn)  
[Reading in NOT configuration from MULTINET:NOT.CONFIGURATION]  
NOT-CONFIG>SET DOMAIN-DEFAULT FLOWERS.COM
```

SHOW

Displays the current DECnet application services configuration.

FORMAT

SHOW

```
{NAME-MAPPING [entry]}
{OBJECTS [/FULL] [entry]}
{PROXY [entry]}
{GLOBAL-PARAMETERS}
{[entry]}
```

PARAMETERS

NAME-MAPPING [entry]

Displays the complete NAME-MAPPING database or a single entry if you specify entry.

OBJECTS [/FULL] [entry]

Displays the complete OBJECT database or a single entry if you specify entry. If you specify /FULL, user name and password information is also displayed.

PROXY [entry]

Displays the complete PROXY database or a single entry if you specify entry.

GLOBAL-PARAMETERS

Displays the current settings of the global parameters.

[entry]

Displays information only about the specified entry.

EXAMPLE

```
$ MULTINET CONFIGURE /NOT
MultiNet NOT Configuration Utility 5.0(nn)
[Reading in NOT configuration from MULTINET:NOT.CONFIGURATION]
NOT-CONFIG>SHOW OBJECT /FULL
```

Object Name	Number	Username	Password	FullNames	Proxy	Filename
-----	-----	-----	-----	-----	-----	-----
DTR	63			NO	INCOMING	DTR
FAL	17			YES	INCOMING	FAL.EXE
MAIL	27			YES	INCOMING	MAIL_SER
VER.EXE						
NML	19			NO	INCOMING	NML.EXE
NOTES	33	NOTES\$SERVER	FNORDIES	NO	NONE	NOTES\$SER
VER.EXE						

NOT-CONFIG Commands **SHOW**

PHONE	29			NO	INCOMING	PHONE.EXE
VPM	51	MAIL\$SERVER	FNORDIES	NO	NONE	VPM.EXE

. . .

NOT-CONFIG>**SHOW NAME**

DECnet nodename	TCP nodename
-----------------	--------------

holmes	-
--------	---

yobro	-
-------	---

. . .

NOT-CONFIG>**SHOW PROXY**

Remote User	Local Users
-------------	-------------

.FOO.COM::	*
--------------	---

FLOWERS::FNORDIST	FNORDIST
-------------------	----------

SPAWN

Executes a single DCL command, or if entered without options, starts a subprocess with the same effect as PUSH. To return from DCL, use the LOGOUT command. If the MULTINET_DISABLE_SPAWN logical is set, SPAWN does not work.

FORMAT

SPAWN [*command*]

PARAMETERS

command

Specifies a command to execute. If you omit the command, a DCL subprocess is created.

QUALIFIERS

/INPUT=*file-spec*

Specifies an input file to the command you enter with SPAWN.

/[NO]LOGICAL_NAMES

Specifies whether logical names and logical name tables are copied to the subprocess.

/[NO]SYMBOLS

Specifies whether global and local names are passed to the subprocess.

/[NO]WAIT

Specifies whether control returns without waiting for the command to complete. *Do not* use this qualifier with commands that have prompts or screen displays.

/OUTPUT=*file-spec*

Specifies a file that retains the output of the command invoked with SPAWN. This qualifier only works when a single command is entered without creating a DCL subprocess. In addition, this qualifier is positional; you must specify it immediately after SPAWN or its other qualifiers.

EXAMPLE

This example displays terminal information, captures the output in a file, then displays the information with the TYPE command.

```
$ MULTINET CONFIGURE /NOT
MultiNet NOT Configuration Utility 5.0(nn)
[Reading in NOT configuration from MULTINET:NOT.CONFIGURATION]
NOT-CONFIG>SPAWN/OUTPUT=FOO. SHOW TERM
NOT-CONFIG>SPAWN TYPE FOO.
```

This example invokes a command procedure.

```
NOT-CONFIG>SPAWN @COMPROC
```

This example displays help information about NOT-CONFIG. Use the LOGOUT command to return control to NOT-CONFIG.

```
NOT-CONFIG>SPAWN  
$ HELP MULTINET CONFIGURE /NOT  
.  
.  
.  
$ LOGOUT  
NOT-CONFIG>
```

STATUS

Displays the status of the DECnet application services configuration.

FORMAT

STATUS

EXAMPLE

The *n/pppp* numbers shown in this example indicate how many entries are currently configured (*n*) and the number of potential numbers that can be configured (*pppp*).

```
$ MULTINET CONFIGURE /NOT
MultiNet NOT Configuration Utility 5.0(nn)
[Reading in NOT configuration from MULTINET:NOT.CONFIGURATION]
NOT-CONFIG>STATUS
This is the MultiNet NOT configuration program Version 1.3(nn)
There are 7/5000 entries in the name mapping list.
There are 1/5000 entries in the proxy list.
There are 7/5000 entries in the object list.
The configuration MULTINET:NOT.CONFIGURATION has not been modified.
NOT-CONFIG>
```

USE

Reads in a configuration file. (USE is the same as GET.)

FORMAT

USE config_file

PARAMETERS

config_file

Specifies the name of the configuration file to read in.

DESCRIPTION

After using the USE command, you can use other NOT-CONFIG commands to display and modify the new configuration.

EXAMPLE

This example reads in the MULTINET:NEW_CONFIG.CFG file.

```
$ MULTINET CONFIGURE /NOT
MultiNet NOT Configuration Utility 5.0(nn)
[Reading in NOT configuration from MULTINET:NOT.CONFIGURATION]
NOT-CONFIG>USE MULTINET:NEW_CONFIG.CFG
[Reading in configuration from MULTINET:NEW_CONFIG.CFG;1]
NOT-CONFIG>EXIT
```

VERSION

Displays the version and release information of the NOT-CONFIG configuration program.

FORMAT

VERSION

EXAMPLE

This is the MultiNet NOT configuration program Version 5.0 (nn)

```
$ MULTINET CONFIGURE /NOT
MultiNet NOT Configuration Utility 5.0(nn)
[Reading in NOT configuration from MULTINET:NOT.CONFIGURATION]
NOT-CONFIG>VERSION
This is the MultiNet NOT configuration program Version 5.0(nn)
NOT-CONFIG>
```

WRITE

Writes out the current *DECnet application services* configuration to a file. (WRITE is the same as SAVE.)

FORMAT

WRITE [*config_file*]

PARAMETERS

config_file

Specifies the name of *DECnet application services* configuration file to write out. The default is the file from which the configuration was read.

EXAMPLE

```
$ MULTINET CONFIGURE /NOT
MultiNet NOT Configuration Utility 5.0(nn)
[Reading in NOT configuration from MULTINET:NOT.CONFIGURATION]
NOT-CONFIG>WRITE
[Writing NOT configuration to
MULTINET_COMMON_ROOT:[MULTINET]NOT.CONFIGURATION;nn]
NOT-CONFIG>
```

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