

NOS TCP/IP/FTP/TELNET LEVEL 708 SOFTWARE RELEASE BULLETIN

Control Data Corporation recommends that the Software Release Bulletin be read in its entirety prior to any NOS installation.

SMD132080

NOS TCP/IP/FTP/TELNET L708 SRB

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NOS TCP/IP/FTP/TELNET L708 SRB

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Chapter 1

SRB Introduction

This document is the NOS TCP/IP/FTP/TELNET product L708 Software Release Bulletin (SRB). It addresses the installation and usage of the FTP/NOS host applications and the corresponding configuration changes needed for NAM and CDCNET to support them. Control Data recommends that the SRB be read in its entirety prior to software installation.

Audience

The SRB is written primarily for the site analyst. It contains notes and cautions about installation and usage of the FTP portion of the NOS TCP/IP/FTP/TELNET product at level 708. Chapter 3 contains information intended for a system/operations administrator and chapter 4 contains information for the end user.

Central Software Support Hotline

Central Software Support maintains a hotline to assist you if you have trouble using our products. If you need help not provided by the documentation or find the product does not perform as described, call one of the following numbers. A support analyst will work with you.

From the USA and Canada: (800) 345-9903

From other countries: (612) 851-4131

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Chapter 2

Installation

Notes and Cautions

This section highlights any information that may significantly affect the installation of the NOS TCP/IP/FTP/TELNET product.

Information Required Prior To Installation

Certain information is required about the hardware being configured. This information should be gather prior to starting the installation. The following checklist is provided to aid in gathering that information.

MDI information

EQPDECK ND value _____	(octal of LCF SNODE entry)
EQPDECK NT value _____	(octal of LCF DNODE entry)
Ethernet address: 080025 _____	(system id of MDI)
DEFNTG TITLE _____	(same as NOS host name)

GDI information

Ethernet address: 080025 _____	(system id of GDI)
IP address _____	
DEFSTG TITLE _____	(same as NOS host name)

NOS host information

Machine id _____	
Host name _____	(same as DEFNTG TITLE)
IP address _____	

LCF OUTCALL information

SNODE value _____	(decimal of EQPDECK ND entry)
DNODE value _____	(decimal of EQPDECK NT entry)
NAME2 value _____	(value is Hid where id is machine id)
NOS host model number _____	
NOS host serial number _____	

Work Station 1 information

Ethernet address _____	
IP address _____	
DEFUTG title _____	

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Notes and Cautions

Work Station 2 information

Ethernet address _____
IP address _____
DEFUTG title _____

Work Station n information

Ethernet address _____
IP address _____
DEFUTG title _____

Installation Process

The TCP/IP/FTP/TELNET release materials have been prepared so they can be installed either by performing a first-time or an upgrade installation. Additional information or directions is supplied below that relates specifically to this release for both the first-time installation or the upgrade installation.

First-Time Installation

The steps below correspond to the steps in the First-Time Installation chapter of the NOS Installation Handbook.

Prepare for the Installation

Step 1 of chapter 2 in the NOS Installation Handbook describes how to create the deadstart decks. The following paragraph details some additional information that is required for an FTP installation.

An EQ entry for the MDI connected to the same Ethernet as the GDI must be placed in the EQPDECK. Please make a note of the ND and NT values for this entry. The ND and NT values will be used when making the OUTCALL entries in the LCFFILE for FTP.

Deadstart the System

Follow the instructions in Step 2 of chapter 2 in the NOS Installation Handbook for deadstarting the system.

Install Permanent Files

Follow the instructions in Step 3 of chapter 2 in the NOS Installation Handbook for installing permanent files.

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Installation

Bring up a Network Terminal

Follow the instructions in Step 4 of chapter 2 in the NOS Installation Handbook for bringing up a network terminal.

Configure the System

Step 5 of chapter 3 in the NOS Installation Handbook describes how to configure the system. The following paragraphs detail some additional information that is required for an FTP installation.

The LCFFILE must be updated to run FTP. This involves additional APPL and OUTCALL statements. These statements are described in the TCP/IP/FTP/TELNET subsection of chapter 7 of the NOS Installation Handbook. Please note that the SNODE value must match the ND value on the EQ entry for the MDI in the EQPDECK. The DNODE value must match the NT value on the EQ entry. Also note, the ND and NT values are in octal and the SNODE and DNODE values are in decimal. Sample entries for the LCFFILE exist on file NDLDATA on user name NETADMN.

A TCPHOST file must be created and placed on user name NETADMN, and it must be public. This file defines the NOS host name and IP address for FTP. It should also contain host name to IP address mappings for all other hosts on the IP network that support FTP so that they can be accessed from the FTP/NOS client. The format is documented in the TCP/IP/FTP/TELNET subsection of chapter 7 of the NOS Installation Handbook.

A CDCNET configuration file for the MDI and GDI must be generated and installed. A TCPHOST file must reside on each foreign host so the host can communicate with the NOS host. Sample configuration files for an FTP installation are presented later in this chapter.

Deadstart the New System

Reset the GDI and MDI so they load the TCP/IP configuration files. Now readstart the system following the instructions in Step 6 of chapter 2 in NOS Installation Handbook.

Wrap Up

Follow the instructions in Step 7 of chapter 2 in the NOS Installation Handbook to complete the first-time installation process.

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Installation

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Installation Process

Upgrade Installation

The TCP/IP/FTP/TELNET release materials have been prepared so they can be installed by performing an upgrade installation as documented in chapter 3 of the NOS Installation Handbook. The steps below correspond to the steps in the Upgrade Installation chapter of the NOS Installation Handbook. Additional information or directions is supplied below that relates specifically to this release.

Set Up Installation Tools

Follow the instructions in Step 2 of chapter 3 in the NOS Installation Handbook for setting up the installation tools.

Update Decks and Configuration Files

Step 3 of chapter 3 in the NOS Installation Handbook describes how to create or update the deadstart decks and configuration files. The following paragraphs detail some additional information that is required for an FTP installation.

An EQ entry for the MDI connected to the same Ethernet as the GDI must be placed in the EQPDECK. Please make a note of the ND and NT values for this entry. The ND and NT values will be used when making the OUTCALL entries in the LCFFILE for FTP.

The LCFFILE must be updated to run FTP. This involves additional APPL and OUTCALL statements. These statements are described in the TCP/IP/FTP/TELNET subsection of chapter 7 of the NOS Installation Handbook. Please note that the SNODE value must match the ND value on the EQ entry for the MDI in the EQPDECK. The DNODE value must match the NT value on the EQ entry. Also note, the ND and NT values are in octal and the SNODE and DNODE values are in decimal. To obtain sample entries for the LCFFILE from file NDLDATA, execute the following command from an interactive terminal logged into user name INSTALL.

```
SYSGEN(NDL1)
```

A TCPHOST file must be created and placed on user name NETADMN, and it must be public. This file defines the NOS host name and IP address for FTP. It should also contain host name to IP address mappings for all other hosts on the IP network that support FTP so that they can be accessed from the FTP/NOS client. The format is documented in the TCP/IP/FTP/TELNET subsection of chapter 7 of the NOS Installation Handbook.

A CDCNET configuration file for the MDI and GDI must be generated. A TCPHOST file must reside on each foreign host so the host can communicate with the NOS host. Sample configuration files for an FTP installation are presented later in this chapter.

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Installation

Write a New Deadstart Tape

Follow the instructions in Step 4 of chapter 3 in the NOS Installation Handbook for writing a new deadstart tape.

Override Automatic File Installation

Since the objective is to update NAM5 and to install FTP, files PFGCHAL, PFGNAM5 and PFGTCPH must be loaded. Step 5 of chapter 3 in the NOS Installation Handbook explains the steps to follow to load these files. If any of the following products are already installed, the corresponding PFGxxxx file must also be loaded to create the correct NAMSTR file.

Product Name	PFGxxxx Name
Interactive Transfer Facility (ITF)	PFGITF1
Printer Support Utility (PSU)	PFGPSU1
PTF/QTF File Transfer Facility	PFGRHP1
Remote Batch Facility (RBF)	PFGRBF5

All other files should be prevented from loading.

Install Permanent Files

Follow the instructions in Step 6 of chapter 3 in the NOS Installation Handbook for installing permanent files. Note the following changes:

- SYSGEN(MOVE) is not required for this installation.
- The LCPFILE should be updated at this time.
- Level 700DH (4608) of CDCNET should be active at this time.
- The CDCNET configuration files for the MDI and GDI must be installed.

Deadstart the New System

Reset the GDI and MDI so they load CDCNET level 700DH and the TCP/IP configuration files. Now redeadstart the system following the instructions in Step 7 of chapter 3 in NOS Installation Handbook.

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Installation

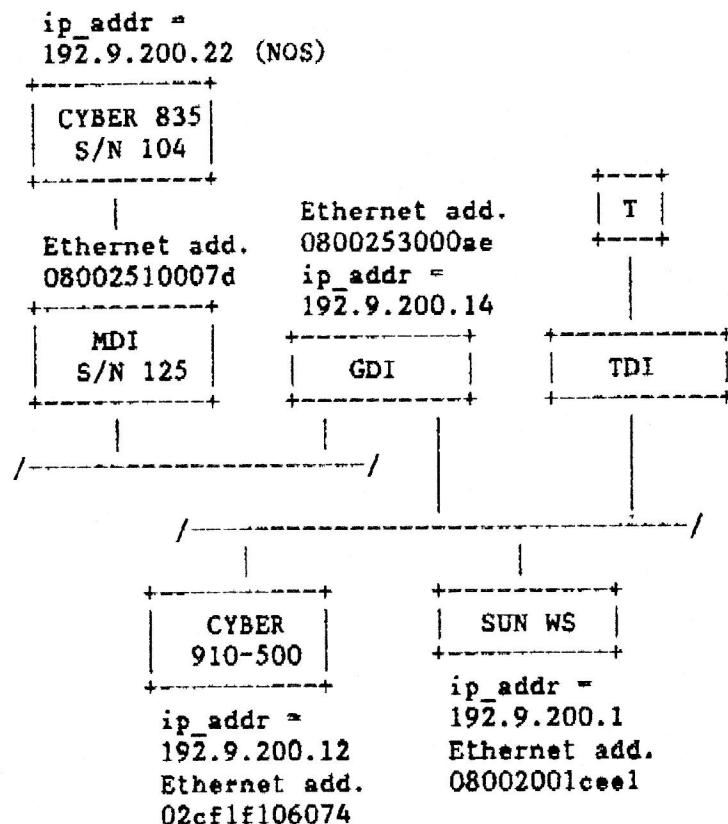
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Installation Process

Installation Example

The following is an example of an installation configuration.

Hardware Configuration

TCP/IP INTERFACE DEFINITION EXAMPLE LAN Configuration



The desired configuration characteristics are:

1. To be able to use TELNET, via the user TELNET gateway, to access the services of CYBER 910 and SUN workstations from a terminal connected to the TDI.
2. To be able to use TELNET, via the server TELNET gateway, from CYBER 910 and SUN workstations to access the interactive services of NOS on a CYBER 835.
3. To be able to transfer files to CYBER 910 and SUN workstations from a CYBER 835 using FTP via the TCP/IP gateway.
4. To be able to transfer files from either a CYBER 910 or a SUN workstation to a CYBER 835 using FTP via the TCP/IP gateway.

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Installation Example

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Installation

Required Information

MDI information

EQPDECK ND value 45 (octal of LCF SNODE entry)
EQPDECK NT value 55 (octal of LCF DNODE entry)
Ethernet address 08002510007d (system id of MDI)
DEFNTG TITLE NOS104 (same as NOS host name)

GDI information

Ethernet address 0800253000ae (system id of GDI)
IP address 192.9.200.14
DEFSTG TITLE NOS104 (same as NOS host name)

NOS host information

Machine id 81
Host name NOS104 (same as DEFNTG TITLE)
IP address 192.9.200.22

LCF OUTCALL information

SNODE value 37 (decimal of EQPDECK ND entry)
DNODE value 45 (decimal of EQPDECK NT entry)
NAME2 value 81 (value is Hid where id is machine id)
NOS host model number 835
NOS host serial number 104

CYBER 910 workstation information

Ethernet address 02cflf106074
IP address 192.9.200.12
DEFUTG title CLOVER2

SUN Work Station information

Ethernet address 08002001ceel
IP address 192.9.200.1
DEFUTG title ODEON

MDI EQPDECK Entry

EQ033=ND,ST=ON,EQ=00,PI=1,CH=27,ND=45,NT=55.

NOTE

ND equals SNODE in octal and NT equals DNODE in octal.

LCFFILE Entries For FTP

FTP :APPL MXCOPYS=15.
FTPI :APPL MXCOPYS=15,PRIV.
FTPS :APPL MXCOPYS=15,PRIV.
*
** OUTCALL FOR S/N 104 TO USE FTP ON CDCNET
*
OUTCALL NAME1 = TCPIPGW, NAME2 = H81, SNODE = 37, DNODE = 45,
NETOSD = DDV, ABL = 7, DBL = 7, DBZ = 2000, UBL = 7,
UBZ = 18, SERVICE = GW_TCPIP_835_104.

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Installation

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Installation Example

TCPHOST File

```
#
#          TCP/IP hosts file 835/104.
#
# IP number      Host Name      Ethernet Address
#-----
192.9.200.21     vel104          # 0800253000ae 835/104 (VE)
192.9.200.22     nos104 localhost_81 # 0800253000ae 835/104 (NOS)
#
192.9.200.1      sun_ws          # 08002001ceel
192.9.200.12     cyber_910       # 02cf1f106074
```

MDI Configuration File

```
PROC SYSTEM_08002510007D
define_system ..
  cs = TRUE sn = mditcp_7d
define_ether_trunk ..
  tn = ETHERNET1
define_ether_net ..
  tn = ETHERNET1 ..
  ni = OBB(16)
define_file_support ..
  ft = ALL
define_operator_support
define_recorder_log_group
define_remote_load_support
define_source_log_group
define_source_alarm_message
define_np_gw
define_np_terminal_gw ..
  t = NOS104
PROCEND SYSTEM_08002510007D
```

GDI Configuration File

```
PROC SYSTEM_0800253000AE
" TCP/IP DI system configuration procedure.
" Define the Ethernet trunk and network solution, with a trunk_name
" of $ESCI6.
"
  define_system sn = nostcp_274
  define_operator_support
  define_ether_trunk tn = $ESCI6 slot = 6

  define_ether_net ..
    trunk_name = $ESCI6 ..
    network_name = $net_40975 ..
    network_id = 0000a00f(16)
```

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Installation Example

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Installation

```

"
" Define the Ethernet trunk SESCO16 so it is directly connected and
" supports TCP/IP protocols. The IP network address is 192.9.200.0.
"
    define_ip_net ..
        trunk_name = SESCO16 ..
        ip_network = (192,9,200,0) ..
        hop_count = 0

"
" Define the TCP layer in this DI.
"
    define_tcp_interface quiet_time = 10

"
" Define this DI with an IP address of 192.9.200.14 and an Ethernet
" address of 0800253000ae using 802.2 and 802.3 headers.
"
    define_ip_host ..
        ip_address = (192,9,200,14) ..
        host_type = local ..
        lan_header_format = standard_header ..
        system_id = (080025(16),3000ae(16))

"
" Define the CYBER with an IP address of 192.9.200.22. The CYBER
" uses the GDI as its gateway to TCP/IP. The GDI has an Ethernet
" address of 0800253000ae using 802.2 and 802.3 headers.
"
    define_ip_host ..
        ip_address = (192,9,200,22) ..
        host_type = cdc_host ..
        lan_header_format = standard_header ..
        system_id = (080025(16),3000ae(16))

"
" Define the user TELNET gateway. When a '%crec clover2' is entered
" by the CDCNET terminal user, a TELNET connection is established to
" 192.9.200.12 (the CYBER 910).
"
    define_user_telnet_gw ..
        gateway_name = gw_to_910 ..
        ip_address = (192,9,200,12) ..
        title = clover2

"
" Define the user TELNET gateway. When a '%crec odeon' is entered
" by the CDCNET terminal user, a TELNET connection is established to
" 192.9.200.1 (the SUN workstation).
"
    define_user_telnet_gw ..
        gateway_name = gw_to_sun ..
        ip_address = (192,9,200,1) ..

```

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Installation

NOS TCP/IP/FTP/TELNET L708 SRB
Installation Example

```
title = odeon

"
" Define the server TELNET gateway. When terminals on foreign
" TCP/IP hosts establish TELNET connections to 192.9.200.22, the
" server TELNET gateway creates a CDCNET connection with the MDI
" connected to the NOS host by translating title 'nos104'.
"

define_server_telnet_gw ..
    gateway_name = gw_to_cyber ..
    ip_address = (192,9,200,22) ..
    title = nos104

"
" Define the TCP/IP gateway to support a Control Data host
" application interface to TCP. The FTP client and server create
" CDCNET connections to the TCP/IP gateway by translating the title
" 'GW_TCPIP_830_104'. The CYBER model and serial number are
" appended to the fixed string 'GW_TCPIP_' to determine this title.
" The LCF on the NOS system contains an OUTCALL statement with the
" title for the gateway being addressed (generated using the above
" algorithm). FTP provides the IP addressing and the TCP/IP gateway
" maps the TCP connections to CDCNET connections.
"

define_tcpip_gw ..
    gateway_name = ftp_gw_tcp ..
    title = gw_tcpip_835_104 ..
    protocol = tcp
PROCEND SYSTEM_0800253000AE
```

Chapter 3

Analysis

Notes and Cautions

This section highlights information regarding the FTP/NOS applications which may be of interest to the site analyst.

PF Charges Can Go to System

If a user's validation file entry has the CCNR bit set to true (charge is not required) and no default charge is specified, the FTP/NOS server does not prompt the user for accounting information. Any files created by the server are then charged to the charge number in effect for SYSTEMX because the FTP/NOS server job was submitted to the system under this user name. To avoid this, the site should set a default charge for all user names that do not require explicit entry of a charge number.

ACCT Commands Containing Asterisk Are Not Supported

The FTP/NOS server always sets the user's charge to the default value from the validation file. It prompts for accounting information if no default value is provided and the CCNR bit in the user's validation file entry is false (which indicates a charge is required). A prompt for accounting information is not issued if a default value is available. Consequently, the FTP/NOS server does not accept an ACCT * command and generates a syntax error if it is received.

Data Transfer Commands Unsupported by the SEND_FTP_COMMAND

The SEND_FTP_COMMAND command is designed for debugging purposes only. After sending an FTP command to a remote host, the FTP/NOS client waits for one response from the remote host. It does not wait for an active connect on the data connection. FTP commands which generate multiple responses or utilize the data connection, such as GET_FILE, PUT_FILE, DISPLAY_FILE_NAMES, are not supported. This is necessary to avoid the situation where the client waits indefinitely for a response from a remote host.

3-2
Analysis

NOS TCP/IP/FTP/TELNET L708 SRB
Significant Problems

Significant Problems

This section describes significant problems known at the time of the release.

GET to FTP/NOS Fails From EXCELAN Version 3.3

The EXCELAN Version 3.3 FTP software requires that its peer FTP supports either the optional PWD or non-standard XPWD FTP protocol elements (FTP commands) for a GET operation to function. Since NOS does not have a hierarchical file system, it does not support these protocol elements; therefore, the EXCELAN Version 3.3 software cannot retrieve a file from the FTP/NOS server. Control Data is currently investigating possible solutions to this problem and will communicate them via an Installation Bulletin when one is available. This problem can be tracked via PSR TCHA018 on SOLVER.

NAM Cannot Abort Detached or Wait-Input FTP Jobs

To prevent the maximum number of copies of the FTP user interface application being reached due to detached or idle terminal jobs, the FTP/NOS client instructs NAM to abort it when the connection inactivity timer expires. The SCP requests issued by NAM to abort an application are not processed correctly by NOS for jobs in the above states. This problem can be tracked via PSR NS2G099 on SOLVER.

User Names With CCNR False Produce Server Dayfiles

If the FTP/NOS server switches to a user name that has CCNR set to false, a printed dayfile is produced for both a normal and an abnormal termination. Dump and trace information is lost in the abnormal termination case. A temporary solution is to add a USER statement for user name NETOPS immediately after the FTPS control statement and the EXIT control in the FTPS job. This problem can be tracked via PSR TCHA027 on SOLVER.

User Abort of FTP on a Foreign Host

If a user aborts an FTP transfer to NOS before the first data block has been transmitted by the sending system, the user's connection may hang. The problem occurs if the sending system transmits the TCP disconnect message with an incorrect sequence number.

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Significant Problems

3-3
Analysis

Operational Limitations

Some FTP problems were uncovered during testing which appear to be due to software errors in other FTP implementations rather than in the NOS FTP implementation. These limitations are documented in PSRs TCHAO22, TCHAO23 and TCHAO24. Sites experiencing operational problems with VAX or SUN FTP implementations are encouraged to review these PSRs on SOLVER.

Manual Errata

CDCNET Configuration and Site Administration Guide

The CDCNET and NAM configuration information contained in this SRB and in the NOS Installation Handbook supercedes the information documented on pages 5-151 through 5-155 of the CDCNET Configuration and Site Administration Guide, revision E.

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Chapter 4

End User

Notes and Cautions

This section highlights information regarding the FTP/NOS applications which may be of interest to the end user.

User Names Containing an Asterisk Are Not Supported

The FTP/NOS server does not support user names containing an asterisk. It returns a syntax error to the originating client FTP if it receives an FTP USER command with an asterisk present in the argument field.

User Names Without a Password Are Not Supported

The FTP/NOS server prompts for a password if it receives an FTP USER command without a password.

Files Transferred by NOS FTP Client Must be Local

All files to be transferred by the NOS FTP client must be local before entering the FTP control statement. If an input file is specified on the FTP control statement, that input file must also be local.

NOS 64 Character Set Colon Protection

The NOS 64 character set requires that a line terminating with a colon (display code 00B) have a blank added after the colon so that it is not considered part of the zero-byte terminator. FTP does this for files it receives. If a file having a colon as the last character of a line is received by FTP on NOS and then returned to the system that it originated on, it fails to compare. The blank added on input is not stripped during output. This is because it cannot be determined if the blank was added during receipt or was originally present in the file.

UNIX Handling of Embedded Line Feed Characters

When transmitting an ASCII file, UNIX FTP inserts a carriage return (CR) character before a line feed (LF) character if one is not already present. Files sent from a NOS system to a UNIX system and then returned to a NOS system therefore fail to compare if they contain embedded LF characters.

ASCII Files With Last Line Terminator Missing

If the last line of an ASCII file being received by FTP on a NOS system and mapped to ASCII 6/12 is not terminated by CR/LF, no zero-byte terminator is generated for the last line. This causes any program using CYBER Record Manager (CRM) and some NOS utilities to encounter an error when processing the file. No zero-byte terminator can be generated since it would be mapped to a CR/LF sequence on output, which would cause compare errors.

Significant Problems

This section describes significant problems known at the time of the release.

FTP/NOS Aborts if a Received File Exceeds User Limit

If FTP/NOS receives a file that exceeds the file size limits in effect for the current user name, it aborts without any meaningful message being issued to the user. This problem can be tracked via PSR TCHA020 on SOLVER.

Manual Errata

CDCNET TCP/IP Usage Manual

The description of the FTP command on page 3-10 lists extra parameters that are not supported by the FTP/NOS implementation of the command. As described on page 3-9, the INPUT, OUTPUT and PROLOG parameters are the only ones supported.

The description of the FTP/NOS response to a user_break_1 on page 3-13 is incorrect. FTP/NOS ignores a user_break_1.

The discussion of the ! option for the REMOTE_FILE string on page 3-50 is incomplete. The transfer_type as defaulted or selected by the CHANGE_TRANSFER TYPE command must be ASCII for the command prefixed by ! to be interpreted correctly.

Specification of the CATLIST LO parameter or the use of asterisks in the FN parameter as described on pages 3-85 and 3-86 are not supported by the LIST and NLST FTP command processors.