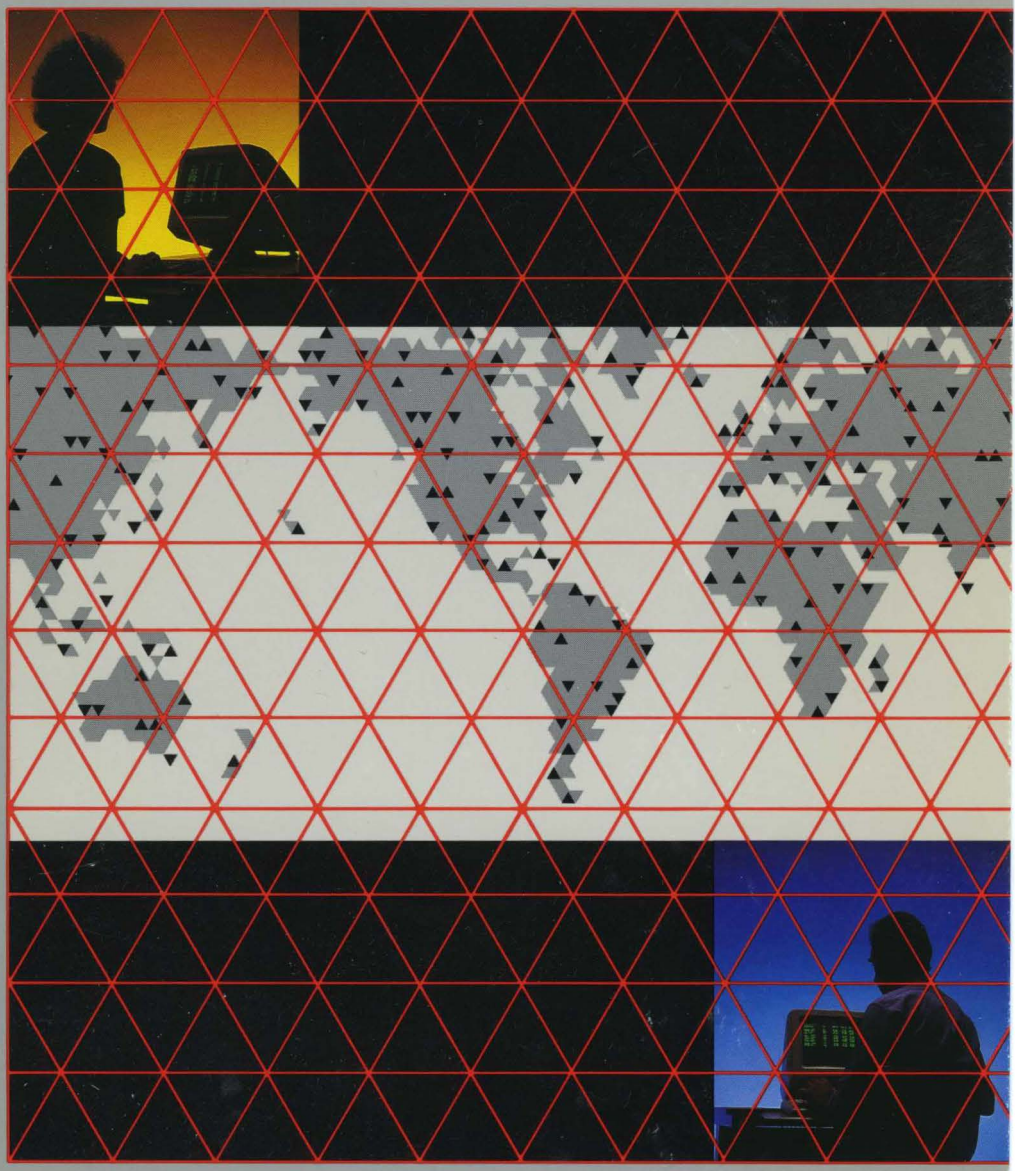
CDCNET Batch Device

User Guide



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CONTROL DATA

CDCNET

Batch Device

User Guide

This product is intended for use only as described in this document. Control Data cannot be responsible for the proper functioning of undescribed features and parameters.

Publication Number 60463863

Manual History

Revision	System Version	PSR Level	Date
A	1.1	664	July 1986
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Revision F documents CDCNET Version 1.5.1 batch device support for NOS/VE Version 1.5.1 and NOS Version 2.7.1 at PSR level 739. It was printed in December 1989.

Changes for this release include:

- New batch device utility, Display Station Utility, documented in chapter 3.
- Miscellaneous technical corrections.

Bars in the margins indicate altered text.

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About This Manual

This manual describes how to operate batch devices when connected to the CONTROL DATA® Distributed Communications Network (CDCNET).

Audience

This manual is for any NOS/VE or NOS user who needs to control batch devices connected to CDCNET. It assumes you are familiar with NOS/VE and NOS access, file concepts, and the System Command Language (SCL). This manual also assumes that you are familiar with CDCNET access.

Organization

This manual contains an overview of the batch services supported by CDCNET. It contains information about operating an I/O station through CDCNET from either a NOS/VE or NOS host, organized as follows:

- Chapter 1 presents an overview of the concepts to be understood when using batch services through CDCNET.
- Chapter 2 presents an overview of and the characteristics to be considered when operating an I/O station from either NOS/VE or the NOS Remote Batch Facility.
- Chapter 3 describes the batch device utilities available under NOS/VE.
- Chapter 4 describes batch operation tasks under NOS/VE and NOS.
- Chapter 5 describes the terminal and printer support available under CDCNET for specific terminals and printers.

In addition to the chapters listed above, this manual contains three appendixes. Appendixes A, B, and C provide reference information: a glossary, a listing of error messages, and HASP translation tables.

Conventions

The following conventions are used in this manual:

boldface	Command names and required parameters are shown in boldface type when illustrating a format.
`examples`	Examples are shown in lowercase, unless uppercase characters are required for accuracy. User entries and computer responses are shown in a font that resembles computer font.
italics	Optional parameters in quick-reference descriptions are shown in italics.
numbers	All numbers are decimal unless otherwise noted.
UPPERCASE	Uppercase is used to depict names of commands and parameters.

Related Manuals

The following Control Data manuals describe in greater detail some of the topics covered in this manual:

Manual Title	Publication Number	Online Title
CDCNET:		
CDCNET Configuration Guide	60461550	
CDCNET Network Operations and Analysis	60461520	
CDCNET Terminal Interface	60463850	
CDCNET Access Guide	L60000143	CDCNET_ ACCESS
CDCNET Commands Reference	60000414	
Other:		
NOS/VE System Usage	60464014	
NOS/VE Commands and Functions	60464018	SCL

Manual Title	Publication Number	Online Title
NOS/VE System Analyst Reference Set Network Interface Usage	60463916	
NOS 2 Operations Handbook	60459310	
Remote Batch Facility Version 1 Reference Manual	60499600	
NOS/VE Diagnostic Messages	60464613	MESSAGES

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Control Data manuals are available from:

Control Data Literature and Distribution Services
308 North Dale Street
St. Paul, Minnesota 55103-2495

Accessing Online Manuals

To access an online manual, log in to NOS/VE or NOS and supply the online title on the EXPLAIN command. For example, to see the NOS/VE CDCNET Batch Device User Guide, enter:

```
explain manual=cdcnet_batch
```

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Control Data welcomes your comments about this manual. Your comments may include your opinion of this manual, your suggestions for specific improvements, and the reporting of any errors you have found.

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2. Respond to prompts for site-specific information.
3. Select `Write a comment about a manual` from the new menu.
4. Respond to the prompts.

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Overview 1

This manual is written for any user interested in operating batch devices connected to CDCNET. Batch devices are the individual devices belonging to an I/O station.

The following lists the responsibilities of site personnel concerning I/O stations. As an I/O station operator, you should understand these basic concepts.

Site administrator

Defines I/O stations and their configurations and batch device attributes. Refer to the CDCNET Configuration Guide for more information.

Network operator

Changes an I/O station definition or configuration. Refer to the CDCNET Network Operations and Analysis manual for more information.

I/O station operator

Uses the Operate Station Utility (OPES), Remote Batch Facility (RBF), or Printer Support Utility (PSU) commands to control the I/O station. OPES and RBF commands are described in this manual. Refer to the NOS 2 Operations Handbook for more information about PSU commands.

The following paragraphs give a general overview of I/O station concepts. For additional information, refer to the CDCNET Configuration Guide.

Batch devices are the individual devices that allow you to perform such functions as batch input and/or output. Examples of batch devices include card readers, line printers, card punches, and plotters.

A logical grouping of these batch devices into a single named unit for routing files to the batch devices and for controlling the devices is called an I/O station.

An I/O station consists of one or more batch devices. The operator that controls this I/O station is called the I/O station operator.

The I/O station operator controls batch devices for the I/O station by entering commands from the I/O station operator console.

An I/O station can be auto-configured or operator-configured. An auto-configured I/O station's devices are always connected to the same lines. An operator-configured I/O station's devices may be connected to different lines at different times.

The site administrator sets up a CDCNET Terminal Definition Procedure (TDP) to define each I/O station at your site. For an auto-configured I/O station, the procedure executes automatically as the line belonging to the I/O station becomes active. For an operator-configured I/O station, the procedure executes when you enter a CDCNET DO command at the I/O station console. The format of the DO command is:

```
%DO PROCEDURE_NAME=procedure_name, PROCEDURE_TYPE=TDP
```

The % character is the default network command character for CDCNET (your site may use a different character). The procedure name is the name of the terminal definition procedure set up by the site administrator. For more information about the CDCNET DO command and terminal definition procedures, refer to the CDCNET Terminal Interface Manual and CDCNET Configuration Guide.

As a reader of this manual, you may be a local or remote site operator who controls an I/O station for your site (public I/O station), or a user operating your own I/O station (private I/O station).

The following are examples of different I/O stations that you may be operating.

Local Public I/O Station

An I/O station that may include, for example, a card reader, a plotter, and several line printers that are local to your computer facility. Such a configuration may represent your site's centralized facility for submitting user jobs and receiving user output. You control the printer from a terminal console or stand-alone terminal located near the printer.

Remote Public I/O Station

An I/O station that may include, for example, a batch terminal or single line printer that is remote from your computer facility. Such a configuration may represent a facility for submitting jobs or printing output at a location remote from your computer facility. You control the printer from a terminal console or stand-alone terminal located near the printer.

Remote Private I/O Station

An I/O station that may include, for example, a card reader and a printer. Such a configuration may represent a terminal located near your office that you use to submit jobs and receive your printed output. You use the terminal console to control your I/O station.

As the operator of the I/O station, you must be logged into the Operate Station (OPES) Utility on the NOS/VE system or the Remote Batch Facility (RBF) on NOS. As operator of a private I/O station, you must monitor and control that station for the station to remain active. As operator of a public I/O station, you need not monitor and control the station once the station is active.

Once the I/O station is active, you can submit jobs from a card reader and receive printer, card punch, and plotter output.

To control the batch devices connected to your I/O station, enter commands from the I/O station operator console (interactive terminal).

To control the batch devices connected to NOS/VE, use the Operate Station (OPES) Utility commands. Refer to chapter 3 of this manual for more information about OPES commands.

To control the batch devices connected to NOS, use the Remote Batch Facility (RBF) commands. RBF commands are discussed in the NOS 2 Remote Batch Facility Reference manual.

Refer to chapter 4 of this manual for a comparison of RBF and OPES commands.

NOTE

The system operator controls devices connected to PSU from the system console. PSU commands are discussed in the NOS 2 Operations Handbook.

Both of these applications provide basically the same capabilities to you, the operator, but the command syntax and method of entry differ with each utility.

You can also control printers from any stand-alone terminal (consoles without any batch devices) that your installation chooses.

Stand-alone printers (printers without consoles connected) are usually permanently connected to CDCNET and must be auto-configured. Stand-alone printers are usually controlled from a stand-alone terminal located near the printer.

Some I/O stations can require you to dial into CDCNET via a modem. If you have your own terminal and access CDCNET via a dial-up connection, you may want to provide your site with information about your terminal and how you use it.

This manual discusses how to access the NOS/VE and NOS hosts and compares how you perform functions such as stopping, starting, or controlling the flow of data to and from your batch devices.

Specific details on the kinds and uses of I/O stations are discussed later in this manual.

Batch Services

The following concepts involve controlling batch terminals on CDCNET. Since NOS/VE and NOS have different requirements, their requirements are each covered separately.

NOS/VE Batch Services

For NOS/VE batch services, there are a number of concepts that are important that you understand in order to control your batch equipment on CDCNET.

I/O Station

An I/O station is the principal entity defined for batch interface software. An I/O station groups several batch devices into a single named unit for the purposes of routing jobs and files to the batch devices and for device control. The I/O station also defines characteristics that apply to all the devices belonging to that station. Jobs submitted from an I/O station can be routed to any NOS/VE system in the network. Output for the I/O station may come from any NOS/VE system in the network.

An I/O station is defined by a terminal definition procedure (TDP). Refer to the CDCNET Configuration and Site Administration Guide for information on defining TDPs. The TDP contains commands to

lefine the I/O station and the individual devices within the I/O station. The following paragraphs describe key characteristics of I/O stations.

Batch Devices in the I/O Station

Batch devices are the individual devices belonging to an I/O station. The devices that belong to an I/O station may all connect to the same communication line or to several different lines. The station may connect to a device through a communication line that always remains connected to a specific device, or the station may connect to a device through a dial-up line (or lines) that may switch between the devices assigned to the station.

I/O Station Configuration

I/O stations are configured either when the lines to which the devices are connected become active, or when an I/O station operator invokes the definition when the I/O station devices connect to CDCNET. The first case is known as an auto-configured I/O station, since the I/O station is defined and ready for use when a station operator connects to batch services. The second case is known as an operator-configured I/O station, since a station operator must define the I/O station before it can be used. A dial-up batch terminal is an usually example of an operator-configured I/O station.

An auto-configured I/O station is used when all the devices of an I/O station connect to the same port(s). An operator-configured I/O station is used when the devices do not always connect to the same port(s), such as when a dial-up line is used.

Public I/O Station

A public I/O station is shared by many users who may submit jobs through it and receive the output from these jobs at it. Users may also route the output from interactive jobs to a public I/O station. The routing of output files for a public I/O station is controlled through the I/O station name. A public I/O station does not need a station operator monitoring and controlling the I/O station for the station to be active.

Both public I/O stations and batch output devices can be defined with one or more aliases by which they may be referred. Aliases allow users to route output to an I/O station device by referencing any one of the I/O station or batch device aliases. The same alias may be

assigned to several I/O stations or devices in cases where it does not matter to users which of the I/O stations or devices receives their output. In these cases, output files are sent to the first available device on any of the I/O stations or devices with the alias defined.

Private I/O Station

A private I/O station, in contrast to a public I/O station, may only be used by one user at a time, the I/O station operator who controls the station through its console. Therefore, a station operator must be controlling the I/O station in order for it to be active. The network software considers the jobs entered at a private I/O station and the output files generated by these jobs to be owned by the operator, and routes the files for the station through the operator's user name. Files routed to the I/O station must specify the control facility name rather than the station name.

Control Facility

The Control Facility is a NOS/VE service that:

- Controls selection of files for output devices for the I/O station.
- Receives device and file control commands for the I/O station.
- Reports device and I/O file status for the I/O station.

Every I/O station must be assigned to a control facility when it is configured. The Control Facility is defined during NOS/VE installation. The DEFINE_USER_I_O_STATION (DEFUIOS) command correlates an I/O station to its Control Facility.

Operator Console

The I/O station operator console is an interactive terminal that can be used to control the batch equipment of the I/O station. For I/O stations that connect to NOS/VE, the operator console is used for entering NOS/VE Operate Station (OPES) Utility commands to control the I/O station. The OPES utility is described later in this manual. The configuration of an operator's console for an I/O station depends on how the station is defined. For an auto-configured public or private I/O station, CDCNET allows any interactive console in the CDCNET network to be used as the operator console.

The site administrator may also restrict I/O station control to a single device by specifying that device as a required operator device. Operator-configured (public or private) I/O stations are assigned required operator consoles, which are the consoles used by the operator to define the stations.

NOS Batch Services

Basically, NOS batch services use the same concepts as described in the preceding NOS/VE Batch Services section; however, some concepts are applied differently for NOS. The following section addresses these differences.

CDCNET gateways are required for NOS batch services. The gateways are required for NOS to translate CDCNET protocols into NOS protocols; in this case, the protocols used by the NOS Remote Batch Facility and the NOS Printer Support Utility.

Users of NOS batch services must be informed of the titles of the batch gateways in order to access these services using the CREATE_CONNECTION (CREC) terminal user command.

The rest of this chapter discusses the following batch device concepts as implemented under NOS:

- I/O station
- Batch devices in the I/O station
- Public I/O station
- Private I/O station
- Control facility
- Operator console

I/O Station

All jobs are automatically routed from the I/O station to the NOS system to which the station operator is connected or for which the stand-alone printer is configured. All output must come from the NOS system.

Batch Devices in the I/O Station

All batch devices in an I/O station that connects to NOS RBF must be connected to the same line. NOS PSU supports only stand-alone printers defined as auto-configured I/O stations.

Public I/O Station

I/O stations defined as public are treated as private I/O stations by NOS RBF.

Private I/O Station

I/O stations defined as private are treated as public I/O stations by NOS PSU.

Control Facility

For I/O stations that connect to NOS RBF, the control facility function for I/O stations is performed by RBF in the host to which the I/O station is connected at the time. The I/O station is controlled through RBF job control commands.

For I/O stations that connect to NOS PSU, the control facility function for I/O stations is performed by PSU in the host to which the I/O station is connected at the time. The I/O station is controlled through PSU job control commands.

Operator Console

The operator for the I/O station must be logged into RBF on the NOS system for the I/O station to be active. The operator's control console must be connected to the same communication line as the I/O station. For I/O stations that connect to NOS RBF, the operator console is used for entering NOS RBF commands to control the I/O station. This console becomes the required operator console for control of the I/O station.

For I/O stations that connect to NOS PSU, the I/O station is controlled from the system console.

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Operating an I/O Station 2

This chapter explains how to operate an I/O station from NOS/VE and NOS. It includes general background information, information on how to access the two batch device utilities, and a summary of the commands and subcommands available within the utilities.

Overview

As an I/O station operator controlling I/O stations, or as an individual batch device user, NOS/VE and NOS provide utilities supporting your efforts. The specific utility available to you depends upon the operating system you use and the validation level you have. See your site administrator if you have any questions.

As an I/O station operator with the appropriate validation, you can:

- Operate I/O stations that access NOS/VE systems by using the Operate Station Utility (OPES).
- Operate I/O stations that access NOS systems by using the Remote Batch Facility (RBF).
- Operate I/O stations that access both NOS/VE and NOS systems by switching between OPES and RBF.

As an individual batch user, you can display various data about your output queue files by using the Display Station Utility (DISS).

This manual does not discuss printer operations through the NOS Printer Support Utility (PSU). For a full description of the PSU commands, refer to the NOS 2 Operations Handbook.

For information on connecting your terminal to a service, refer to the CDCNET Terminal Interface manual.

I/O Station Characteristics Under NOS/VE

When operating an I/O station from NOS/VE, the following characteristics apply to I/O stations:

- Jobs from the I/O station can be submitted to more than one NOS/VE system.
- Output files from more than one NOS/VE system can be received at the I/O station.
- Devices in the I/O station can be connected to more than one communications line and can use more than one protocol (auto-configured I/O stations only).
- Files routed to a public I/O station can be output whenever a device is connected. Files routed to your user name are output at whatever private I/O station you are controlling.
- I/O stations can contain:

  HASP card reader, card punch, plotter, and printer devices

  Mode 4 card reader and printers

  3270 BSC printer devices

  ASYNC printer devices

  X.25 PAD printer devices

  URI printer devices

- *Autoconfigured* public I/O stations become operational when the line on which the devices are connected becomes active. To request control, use the OPERATE_STATION command. When finished, enter a QUIT subcommand. Relinquishing control of an auto-configured I/O station has no effect on the operation of the I/O station.
- However, when you give up control of an *operator-configured* private or public I/O station, any file transfers in progress continue, but no new file transfers are allowed to start until the I/O station has a controlling operator again.

- After you give up control of an I/O station, you can regain control before your file transfer completes without terminating the file transfers in progress by entering an OPERATE_STATION command. However, if another operator enters the OPERATE_STATION command to gain control of your I/O station before your file transfers complete, your file transfers in progress terminate and the files are requeued for later transfer.

- Private I/O stations and operator-configured I/O stations cannot become operational until you log in and invoke the Operate Station Utility using the OPERATE_STATION command. To control public and private I/O stations, you must:

  1. Be validated to operate the specified I/O station (which cannot be under the control of another operator at that time).

  2. Log in to a time-sharing service from a designated terminal (if required for your I/O station).

  3. Invoke the Operate Station Utility from the time-sharing service.

Accessing Operate Station Utility

The following is the standard procedure for accessing CDCNET and logging into the Operate Station Utility on NOS/VE.

1. Connect to a NOS/VE host through CDCNET.
2. Log in on the NOS/VE host.
3. Enter the OPERATE_STATION command. Specify the name of the station you want to operate on the OPES command. (If the station is a private I/O station, specify the name of the Control Facility for the I/O station.)

The following example shows how to access CDCNET and log in to the Operate Station Utility on NOS/VE.

```
CDCNET - Copyright Control Data Corporation, yyyy

DI System Name is 080025ssssss, SVLTDI2
Terminal Name is nnnnnn, $CONSOLE_ssssss_nnnnnn
You may enter CDCNET commands
create_connection xxx
Connection yy created.

Enter validation for service access.
User: xxx
Password: xxx
Family: xxx

Welcome to the NOS/VE Software System.
Copyright Control Data yyyy, yyyy.
CYBER 855 Class SN109,209 NOS/VE  14802 7R0
MM/DD/YY.  HH.MM.

/operate_station your_work_station1
ops/
```

Unsolicited Operator Messages

As an I/O station operator, you may receive the following types of unsolicited messages at your console.

- Printer messages
- File acknowledgement messages
- Device load procedure error messages
- Input file error messages (ROUTE_JOB or user validation)
- Printer status messages

Printer Messages

Printer messages cause file transfers to affected printers to be automatically suspended. You must use the START_BATCH_DEVICE subcommand to restart the file transfer. A CDCNET site administrator selects or suppresses printer messages for an I/O station using CDCNET station definition commands. Refer to the CDCNET Commands Reference manual and the CDCNET Configuration Guide for a description of the DEFINE_I_O_STATION and DEFINE_USER_I_O_STATION commands and their use.

The following is an example of a printer message:

```
Device          :  PRINTER_1 at CENTRAL_STATION
PM Please change to 8.5 inch forms
```

File Acknowledgement Messages

File acknowledgement messages are informational and do not cause file suspension. A CDCNET site administrator selects or suppresses file acknowledgement messages for an I/O station using CDCNET station definition commands (refer to the CDCNET Commands Reference manual for more information.) If the messages are selected for the I/O station, they cannot be suppressed for individual printers. If the messages are not selected for the I/O station, they can be selectively chosen for each device using the CHANGE_BATCH_DEVICE_ATTRIBUTES subcommand (refer to chapter 3 for more information).

The following are examples of file acknowledgement messages:

```
ops/prif ascii.one ufn=listing
ops/
Device : ASYNC_PR1 at IO_STATION_631
STARTED : LISTING User: XXX Size: 8040

ops/tert async_pri fd=drop
ops/
Device : ASYNC_PR1 at IO_STATION_631
Dropped: LISTING User: XXX Size: 8040

ops/prif listing
ops/
Device : ASYNC_PR1 at IO_STATION_631
Started : LISTING User: XXX Size: 545

Device: ASYNC_PR1 at IO_STATION_631
Finished : LISTING User: XXX Size: 545
```

Device Load Procedure Error Messages

Device load procedure error messages may occur when an error is detected while trying to load a required load procedure for a printer. Such a required load procedure may be a default VFU load procedure, a device initialization procedure, or a file prefix procedure.

If a device load procedure error message is received, you must correct the statements within the load procedure and replace the procedure on the site-controlled device procedures library before the device can be successfully initiated.

After correcting the problem, you must issue a START_BATCH_DEVICE command in order for the device interface (DI) to attempt to load the load procedure again.

The following is an example of a device load procedure error message:

```
Device    : POSTSCRIPT_PRINTER at IO_STATION_2
File_prefix_procedure START_POSTSCRIPT_FILE is not loadable
```

Input Error Messages

If an input file error message is received, you must correct the ROUTE_JOB or login statement before the input file can be successfully transferred.

The following are examples of input error messages:

```
Device    :  READER_1 at BERT
 --ERROR CL 707-- Login command is
either missing or incorrect in
:$LOCAL.$4195031P1s061D1986121OT133041.1.

Device    :  CR1 at CYBER_18_1
 --ERROR AV 127--  Incorrect user validation information.
```

Input error messages are listed and explained in appendix B.

Printer Status Messages

An informative message is sent to the operator when certain conditions are detected that indicate the printer is temporarily out of service. Examples of such conditions are a CDC 537 printer being in an off-line state for more than 2 minutes and a PostScript printer being out of paper.

You may need to check the printer and correct the problem. You need not issue any command to get the printer going again.

The following are examples of printer status messages:

```
Device    : POSTSCRIPT_PRINTER at IO_STATION_1
 PrinterError: no paper tray

Device    : DEPT1_537 at IO_STATION_3
 Device is not accepting output
```

Accessing Display Station Utility

Use the following procedure to access CDCNET and log in to the Display Station Utility.

1. Obtain validation to use the utility, if required by your site.
2. Connect to a NOS/VE host through CDCNET.
3. Log in on the NOS/VE host.
4. Enter the DISPLAY_STATION command. Specify the name of the station you want to access with the DISS command.

The following example shows how to access CDCNET and log in to the Display Station Utility.

```
CDCNET - Copyright Control Data Corporation, yyyy

DI System Name is 080025ssssss, SVLTDI2
Terminal Name is nnnnnn, $CONSOLE_ssssss_nnnnnn
You may enter CDCNET commands
create_connection xxx
Connection yy created.

Enter validation for service access.
User: xxx
Password: xxx
Family: xxx

Welcome to the NOS/VE Software System.
Copyright Control Data yyyy, yyyy.
CYBER 855 Class SN109,209 NOS/VE  14802 7R0
MM/DD/YY.  HH.MM.

/display_station your_work_station1
diss/
```

Operating an I/O Station from NOS RBF

When operating an I/O station from NOS RBF, the following capabilities are available to you:

- All input is submitted to and comes from the single NOS RBF system.
- The I/O station is controlled through RBF commands. (Refer to the Remote Batch Facility Version 1 Reference manual, for a discussion of RBF commands.)
- All devices for the I/O station and the console are connected to the same communication line and, therefore, to the same terminal device interface (TDI). (Refer to the CDCNET Configuration Guide for more information on TDIs.)
- All HASP, Mode 4, and 3270 BSC terminal devices are supported (card readers, card punches, line printers, and plotters).

To operate an I/O station, you must:

- Be validated to connect to RBF. No one with the same user name can be connected to RBF at the same time.
- Create a connection to the Batch Gateway Service name. Use the CREATE_CONNECTION command with the service name of the batch gateway.
- Log in to NOS from the console of the HASP, Mode 4, or 3270 terminal and select the RBF application.

The following example shows how to access CDCNET and log in to the RBF application.

```
CDCNET - Copyright Control Data Corporation, yyyy

DI System Name is 080025ssssss, title
Terminal Name is nnnnnn, $CONSOLE_ssssss_nnnnnn
You may enter CDCNET commands
create_connection xxx

Connection yy created.
WELCOME TO THE NOS SOFTWARE SYSTEM.
COPYRIGHT CONTROL DATA yyyy, yyyy.

YY/MM/DD.  HH.MM.SS.  aaaaaaa
NETWORK OPERATING SYSTEM b.              NOS 2.x.y  Lzzz
FAMILY: xxx
USER: xxx
PASSWORD: xxx

T322818 - APPLICATION: rbf

RBF  VER 1.8-STARTED YY/MM/DD. HH.MM.SS.
READY
```

Unsolicited Operator Messages

As an I/O station operator, you may receive the following types of unsolicited messages at your console.

- Printer messages
- File acknowledgement messages

Printer Messages

If a print file being sent to a terminal contains a print line beginning with the characters PM (printer message), the printer stops and displays the printer message on the terminal console. Up to 77 characters (plus the device mnemonics, such as 'LP1') are displayed following the PM indication.

After responding to the printer message, you can continue printing the print file by entering a GO, LPn command. Printer messages are not supported for card punch and plotter files, and are ignored on printers with carriage control suppressed.

The following is an example of a printer message:

```
PM LP3 Verify proper forms alignment
```

File Acknowledgement Messages

After a card deck has been read, a file acknowledgement message is displayed on your terminal informing you that your job has entered the input queue.

Before an output file begins printing, a file acknowledgement message is displayed at your console informing you of the file name and file length. After a file finishes printing, a file acknowledgement message is displayed informing you that the device is finished printing.

You are not required to respond to these messages; if you no longer want to receive file acknowledgement messages, they can be suppressed. (Refer to the Remote Batch Facility Version 1 Reference Manual for further information.)

The following is an example of an input file acknowledgement message:

```
15.22.11  CR1 JOB NAME AABC ENTERED INPUT QUEUE
```

The following is an example of an output file acknowledgement message displayed before an output file begins printing:

```
16.24.01 LP1 JOB NAME DXYZ xxxxxxxxxx PRU-S
```

The following is an example of an output file acknowledgement message displayed after an output file finishes printing:

```
END LP1
```

Switching Control Facilities

If you want to switch between sending/receiving files to/from NOS/VE and sending/receiving files to/from NOS RBF, do the following:

1. Quit OPES and delete your CDCNET connection to NOS/VE timesharing. This means that your I/O station is no longer controlled by OPES and files are no longer delivered to your I/O station from NOS/VE.

2. Create a connection to the NOS Batch Gateway Service.

3. Log in to NOS and select the RBF application. You are now able to send and receive files to/from NOS RBF.

4. Log out from RBF when you are done. Your connection to the Batch Gateway is automatically deleted.

5. Create a new CDCNET connection to NOS/VE time-sharing, log in to NOS/VE, and invoke the Operate Station Utility. You are now able to control your I/O station by OPES and receive output files from NOS/VE.

The following examples demonstrate switching control facilities from NOS/VE to NOS and back to NOS/VE.

Switching Control Facilities from OPES to RBF

The following commands change a CDCNET-named connection with the Operate Station Utility to the NOS Remote Batch Facility (RBF).

```
ops/quit
/logout
Job:  $0855_0109_AAH_7165 User: AJZ  Account: DNNNN  Project:  PNNSANBTN

Resource                              Quantity         Cost
--------                              --------         ------
CONNECT                                  x.xxx           x.xx
SRUS                                     x.xxx           x.xx
                                                        ------
Total Cost                                               x.xx

You may enter CDCNET commands.
create_connection xxx

Connection yy created.
WELCOME TO THE NOS SOFTWARE SYSTEM.
COPYRIGHT CONTROL DATA yyyy, yyyy.

YY/MM/DD.  HH.MM.SS.  aaaaaaa
NETWORK OPERTATING SYSTEM. b.          NOS 2.x.y  Lzzz.
FAMILY: xxx
USER: xxxx
PASSWORD: xxx

T322818 - APPLICATION: rbf

RBF  VER 1.8 -STARTED YY/MM/DD. HH.MM.SS.
READY
```

Switching Control Facilities from RBF to OPES

The following commands change a CDCNET-named connection with a Batch Gateway to the Operate Station Utility.

```
READY logout

RBF ENDED YY/MM/DD. HH.MM.SS.RBF    CONNECT TIME HH.MM.SS
LOGGED OUT.

CDCNET - Copyright Control Data Corporation 1985, 1986

DI System Name is 080025ssssss,title
Terminal Name is nnnnnn, $CONSOLE_ssssss_nnnnnn
You may enter CDCNET commands.
create_connection xxx
Connection yy created.

Enter validation for service access.
User: xxx
Password: xxx
Family: xxx

Welcome to the NOS/VE Software System.
COPYRIGHT CONTROL DATA yyyy, yyyy.
CYBER 855 Class SN109,29.  NOS/VE  14802  7R0
MM/DD/YY.  HH:MM.

/operate_station your_work_station
ops/
```

Batch Device Utilities - NOS/VE 3

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Batch Device Utilities - NOS/VE 3

This chapter discusses the two utilities available to I/O station operators and batch device users using NOS/VE. It includes a brief overview of each utility, a summary description of the commands and subcommands, a discussion of the conventions recognized by the commands, and a detailed description of each command and subcommand.

The batch device utilities allow validated operators to control batch device operation, as well as to display output queue status, content, and size information. These utilities, each invoked with a unique command, provide several subcommands with which you, the I/O station operator or batch device user, control I/O station operation or display output queue contents.

The batch device utilities currently include the following utilities:

- Display Station Utility
- Operate Station Utility

Display Station Utility

The Display Station Utility allows a batch device user of a public I/O station, or a public I/O station operator to display the relative position of a user's file in the output queue as well as the size of the output queue in which the user file currently resides. NOS/VE considers this utility a general utility, so it is available for all NOS/VE users, unless your site administrator has decided otherwise.

The command invoking the Display Station Utility as well as its related subcommands are described in this chapter.

Operate Station Utility

The Operate Station Utility allows an I/O station operator to control the operation of an I/O station, whether the station is autoconfigured or operator-configured. NOS/VE considers this utility a privileged utility, which means you must be validated to invoke it. See your site administrator, if necessary.

Batch Device Utility Commands Summary

The following list summarizes the commands and subcommands available to users of the NOS/VE batch device utilities.

Command/Subcommand	Description
DISPLAY_STATION Command	Starts a DISPLAY_STATION utility session.
OPERATE_STATION Command	Starts an OPERATE_STATION utility session.
CHANGE_BATCH_DEVICE_ ATTRIBUTES Subcommand	Changes the attributes of an I/O station device.
DISPLAY_BATCH_DEVICE_ STATUS Subcommand	Displays the attributes and status of an I/O station's device.
DISPLAY_STATION_ QUEUE_ENTRY Subcommand	Displays status information about one or more files in the I/O station's output queue.
DISPLAY_STATION_ QUEUE_STATUS Subcommand	Displays the status of the queue of output files destined for the I/O station.
DISPLAY_STATION_STATUS Subcommand	Displays the status of the I/O station that you are operating.
POSITION_FILE Subcommand	Stops, repositions, and restarts a file that is currently printing.
SELECT_FILE Subcommand	Selects the next file for an output device.
START_BATCH_DEVICE Subcommand	Puts a device back in service or resumes any suspended file transfer to or from a device.
STOP_BATCH_DEVICE Subcommand	Removes a device from service.
SUPPRESS_CARRIAGE_ CONTROL Subcommand	Supresses the interpretation of carriage control characters in a file being transferred to a printer.

Command/Subcommand	Description
TERMINATE_QUEUED_ OUTPUT Subcomand	Deletes files from the station's output queue.
TERMINATE_TRANSFER Subcommand	Terminates the transfer of a file to or from a device.
QUIT Subcommand	Ends the current session.

Batch Device Utility Command Conventions

The following subsections identify the conventions followed by the batch device utility commands.

Command Format Conventions

The Operate Station Utility subcommands use the NOS/VE command syntax. For a complete description of the NOS/VE command syntax, refer to the NOS/VE System Usage manual.

The following is a list of reminders for when you are using NOS/VE command syntax.

- The abbreviation for each command, subcommand, or parameter name is shown after the name in the individual command, subcommand, or parameter description. The standard abbreviation convention for command and subcommand names is the first three characters of the first word followed by the first character of each succeeding word.

  For example, DISBDS is the abbreviation for DISPLAY_BATCH_DEVICE_STATUS.

- A delimiter character must separate the command or subcommand name from the parameter list, each parameter within the parameter list, and each value specified for a parameter. A valid delimiter character is either a comma or a space.

- Each parameter has a name. You specify a parameter value either with the value after the parameter name and an = character, or with the value alone in its position within the parameter list. When you specify parameter values using their parameter names, you can enter the parameter values in any order.

  For example, the following are variations of the same subcommand because the DEVICE_NAME and LOCATION parameters are the first and second parameters, respectively, within the parameter list for the POSTION_FILE subcommand.

```
ops/position_file device_name=printer location=3
ops/position_file printer 3
```

  The following subcommand is the equivalent of the previous two subcommands.

```
ops/position_file,,3 device_name=printer
```

- If you specify more than one value for a parameter (such as more than one file name on the NAMES parameter of the DISPLAY_STATION_QUEUE_ENTRY subcommand), you must specify the list values in parentheses.

  For example, the following is a valid subcommand to display the status of two files using their system-supplied file names.

```
ops/display_station_queue_entry ($0830_0631_AAA_0197, ..
ops../$0830_0631_AAA_0198)
```

- You can use more than one line to enter a subcommand. The second and subsequent lines are called continuation lines. To continue a subsequent subcommand on the next line enter an ellipsis at the end of the line.

  For example, the following lines enter one subcommand.

```
ops/position_file device_name=printer ..
ops../location=3
```

- Uppercase and lowercase letters are interpreted as being the same within a name. For example, a device name of PRINTER1 is interpreted the same as printer1 or Printer1. However, a distinction is made between uppercase and lowercase letters within a string.

Command Description Conventions

Each command or subcommand description in this manual provides the following information.

- Command or subcommand name.
- Brief statement of the command or subcommand function.
- Format including both singular and plural forms of the command or subcommand name with its abbreviation and the position of each parameter in the parameter list.
- Parameter value kinds. Within the command or subcommand format, each parameter name is equated to a word indicating the parameter value kind. For more information on parameter value kinds, refer to the NOS/VE System Usage manual.
- Brief statement of the function of each parameter.
- Indication of whether the parameter is required or optional and, if optional, the default value.
- Additional remarks on command or subcommand options and processing details.
- Brief example using the command or subcommand.

DISPLAY_STATION Command

Purpose Starts the Display Station Utility session and allows you to display status information about a CDCNET batch public I/O station.

Format

DISPLAY_STATION or
DISS
STATION_NAME=name
STATUS=status variable

Parameters

STATION_NAME (SN)

Specifies the name of the I/O station. This parameter is required.

Remarks

- You may need validation to use this command utility. See your site administrator for the appropriate validation, if needed.
- This command applies only to public I/O stations.

Responses The utility issues the following response following a command from a non-validated user. See your system or family administrator for validation information.

User not validated to use DISPLAY_STATION.

Examples The following example starts an Display Station Utility session and specifies I/O station WORK1.

```
/display_station sn=work1
diss/
```

OPERATE_STATION Command

Purpose Starts the Operate Station Utility session and establishes you as the I/O station operator.

NOTE

NOS/VE considers this utility a privileged utility, available only to public I/O station operators. See your site administrator for validation information, if necessary.

Format

OPERATE_STATION or
OPES
STATION_NAME=name
STATUS=status variable

Parameters

STATION_NAME (SN)

Specifies the name of the I/O station. If the I/O station has no name (for example, a private I/O station), use the name of the Control Facility obtained from your site administrator. This parameter is required.

Remarks

- You must be validated to operate an I/O station and the I/O station must not be already under the control of another operator.
- Some I/O stations require that you use a designated console as the operator's console. See the DEFINE_USER_I_O_STATION and DEFINE_I_O_STATION commands in the CDCNET Commands Reference Manual.

Examples The following example starts an Operate Station Utility session and specifies I/O station WORK1.

```
/operate_station sn=work1
ops/
```

CHANGE_BATCH_DEVICE_ATTRIBUTES OPES Subcommand

Purpose Changes the attributes of an I/O station device.

Format

CHANGE_BATCH_DEVICE_ATTRIBUTE or
CHANGE_BATCH_DEVICE_ATTRIBUTES or
CHABDA

DEVICE_NAME=name
BANNER_HIGHLIGHT_FIELD=keyword
BANNER_PAGE_COUNT=integer
CARRIAGE_CONTROL_SUPPORT=keyword
CODE_SET=keyword
DEVICE_ALIAS_1=name or keyword
DEVICE_ALIAS_2=name or keyword
DEVICE_ALIAS_3=name or keyword
EXTERNAL_CHARACTERISTICS_1=string
EXTERNAL_CHARACTERISTICS_2=string
EXTERNAL_CHARACTERISTICS_3=string
EXTERNAL_CHARACTERISTICS_4=string
FILE_ACKNOWLEDGEMENT=boolean
FORMS_CODE_1=string
FORMS_CODE_2=string
FORMS_CODE_3=string
FORMS_CODE_4=string
FORMS_SIZE=string
MAXIMUM_FILE_SIZE=integer
PAGE_WIDTH=integer
TERMINAL_MODEL=name
TRANSMISSION_BLOCK_SIZE=integer
UNDEFINED_FE_ACTION=keyword
UNSUPPORTED_FE_ACTION=keyword
VERTICAL_PRINT_DENSITY=keyword
VFU_LOAD_PROCEDURE=name
STATUS=status variable

Parameters

DEVICE_NAME (DN)

Specifies the name of the device whose attributes are to be changed. This parameter is required.

BANNER_HIGHLIGHT_FIELD (BHF)

Specifies which banner field is given prominence for files printed on this device. Options are:

COMMENT_BANNER (CB)
ROUTING_BANNER (RB)
SITE_BANNER (SB)
USER_FILE_NAME (UFN)
USER_NAME (UN)

The default is that no change is made to the banner highlight field.

BANNER_PAGE_COUNT (BPC)

Specifies the number of copies of the banner page (0 through 3) that this device includes with print files.

If this parameter is 0, the accounting information is not printed at the end of the output listing unless the device was initially configured with the DEFINE_BATCH_DEVICE TRAILER_PAGE parameter explicitly set to TRUE.

NOTE

Support for BANNER_PAGE_COUNT=0 as a means to disable printing of the trailer page will be removed in a future release. As an alternative to using BANNER_PAGE_COUNT=0, your site administrator can enable or disable printing of the trailer page by using the DEFINE_BATCH_DEVICE command (see the CDCNET Commands Reference manual).

If this parameter is not equal to 0, the accounting information is printed at the end of the output listing unless the device was initially configured with the DEFINE_BATCH_DEVICE TRAILER_PAGE parameter explicitly set to FALSE.

The default is that no change is made to the number of copies.

CARRIAGE_CONTROL_SUPPORT (CCS)

Specifies the types of carriage control action that this device supports. Options are:

Keyword Value	Description
PRE_PRINT	Vertical positioning occurs only prior to printing the line.
POST_PRINT	Vertical positioning occurs only after printing the line.
BOTH (B)	Vertical positioning may occur prior to or after printing the line.

The default is that no change is made to the carriage control attribute.

CODE_SET (CS)

Specifies the character set supported by the printer code set. Mapping signifies that characters outside the specified character set are folded by CDCNET into characters within the set. This parameter is intended for asynchronous and Unit Record Interface (URI) printers.

The default is that no change is made to the code set.

Options are:

Keyword Value	Description
ASCII	Characters are not mapped but printed as is.
ASCII48	Characters are mapped to the ASCII code set for 48 characters.
ASCII64	Characters are mapped to the ASCII code set for 64 characters.
ASCII95	Characters are mapped to the ASCII code set for 95 characters.
ASCII128	Characters are mapped to the ASCII code set for 128 characters.

This parameter is intended for asynchronous and Unit Record Interface (URI) printers. The default is that no change is made to the code set.

DEVICE_ALIAS_n (DAn) (n is 1, 2, or 3)

Specifies up to three alternate names for the output device. The same alias can be assigned to more than one device within a station. To cancel a previously assigned alias name, use the keyword NONE.

EXTERNAL_CHARACTERISTICS_n (ECn) (n is 1, 2, 3, or 4)

Specifies the external device characteristic strings that this device supports. A string can be from zero to six characters.

For output devices, these device attributes affect the selection of files that are printed on the device. The external characteristics attribute of a file must match one of the external characteristics of the device in order for the file to be selected for the device.

When a job generates an output file without specifying an external characteristic string (the usual case), the system supplies a string of NORMAL for the file. Thus, most devices should have NORMAL as one of their external characteristic strings.

To cancel a previously established string, change it to spaces. The default is that no change is made to the external characteristic attributes.

For card reader input devices, only EXTERNAL_CHARACTERISTICS_1 is defined; it specifies the default code set of the card reader. Options are:

026

029

EXTERNAL_CHARACTERISTICS_2, EXTERNAL_CHARACTERISTICS_3, and EXTERNAL_CHARACTERISTICS_4 are ignored if the device is a card reader.

FILE _ACKNOWLEDGEMENT (FA)

Specifies whether or not file acknowledgement messages related to this device are to be displayed on the I/O station operator's console. Options are:

Keyword Value	Description
YES	File acknowledgement messages are displayed.
NO	File acknowledgement messages are not displayed.

The file acknowledgement messages are informational only and do not cause suspension of a device. Your site administrator can select or suppress these messages for the entire I/O station using the station definition commands (see the CDCNET Commands Reference manual). If file acknowledgement messages are selected for the entire I/O station, you cannot suppress them for individual devices. If the messages are not selected for the entire I/O station, you can selectively activate them for a particular device using this subcommand.

If file acknowledgement is selected for an input device, a message is sent to the operator at the completion of every job transfer from that device. If file acknowledgement is selected for an output device, a message is sent to the operator at the beginning and end of every file transfer to that device.

The default is that no change is made to the file acknowledgement attribute.

FORMS _CODE _n (FCn) (n is 1, 2, 3, or 4)

Specifies the forms code strings that this output device supports. A string can be from zero to six characters.

These device attributes affect the selection of files that are printed. The forms code attribute of a file must match one of the forms code strings of the device in order for the file to be selected.

When a job generates an output file without specifying a forms code string (the usual case), the system supplies a string of NORMAL for the file. Thus, most output devices should have NORMAL as one of their forms code strings.

To cancel a previously established string, change it to spaces.

The default is that no change is made to the forms code attribute.

FORMS_SIZE (FS)

Specifies a string containing the length, in inches, of the form being used in the printer. Half inch values are represented as 0.5. The allowable range is 0.5 to 31.0.

This parameter affects the selection of files that are printed on the device.

The PAGE_LENGTH attribute for the file divided by its VERTICAL_PRINT_DENSITY attribute must be less than or equal to the FORMS_SIZE attribute for the device for the file to be selected.

The default is that no change is made to the forms size attribute.

For a PostScript printer, or a Xerox laser printer, the forms size is automatically adjusted to take page margins into account. In particular, the following adjustments are made for forms_size values specified on a CHABDA command:

FS Value Specified on CHABDA Command	Adjusted Value of Forms_Size
FS < 1.5	.5
1.5 ≤ FS ≤ 12.0	FS - 1
FS > 12.0	FS - 2

Using the CDCNET recommended job descriptor entries in the JOB Descriptor Library (JDL) for terminal_model XEROX_SPUR, the following maximum number of lines per page are printed for portrait and landscape orientation:

Forms	Portrait	Landscape
11.0 (letter)	60	60
12.0 (A4)	66	60
14.0 (legal)	72	60

CDCNET automatically decreases the specified forms_size by 1 inch for letter size or A4 paper and by 2 inches for legal size paper. This results in effective forms_sizes of 10 inches for letter size paper, 11 inches for A4 paper, and 12 inches for legal size paper.

On NOS/VE, one of the criteria used in selecting files for printing on a particular device is that the page_length of the file divided by the density of the file is less than or equal to the device forms_size.

In the case of the XEROX_SPUR terminal_model, this algorithm selects files properly for files to be printed in portrait orientation. However, if a file is to be printed in landscape orientation on legal size or A4 paper, its page_length may be larger than the actual maximum number of lines printed per page since fewer than forms_size times density lines are printed in landscape orientation.

Therefore, if your site prints files that require a page_length attribute greater than 60, the device forms_size should be set to 11 inches (or a forms_code value should be used) to prevent those files from being printed on the Xerox printer.

For terminal_model XEROX_SPUR, landscape or portrait orientation is determined by the default job descriptor entry (DJDE) statements inserted into the file by the user when routing the file to the printer.

MAXIMUM_FILE_SIZE (MFS)

Specifies the maximum size in bytes (0...99,999,999) of output files that are accepted by this device. A value of zero means no file size limit.

This device attribute affects the selection of files that are printed. The maximum file size attribute of a file must be less than or equal to the maximum file size attribute of the device in order for the file to be printed.

The default is that no change is made to the maximum file size attribute.

PAGE_WIDTH (PW)

Specifies the number of characters (10 through 255) that constitute a line for this device.

For printer devices, this device attribute affects the selection of files that are printed. The page width attribute of a file must be less than or equal to the page width attribute of the device in order for the file to be selected for printing.

The default is that no change is made to the page width attribute.

TERMINAL_MODEL (TM)

Specifies the terminal model name for this device. The terminal model name can be from 1 to 31 characters. The official CDCNET terminal model names are:

ASYNC_PRINTER_WITHOUT_VFU
CDC_CYBER18
CDC_533V_536V
CDC_537V
CDC_585V
M4IMP
M4NIMP
POSTSCRIPT
XEROX_SPUR

The default is that no change is made to the terminal model attribute.

If the terminal model is changed from a non-PostScript printer model to a PostScript printer model or from another terminal_model to terminal_model XEROX_SPUR, the current forms size is adjusted to be smaller as indicated under the description of the FORMS_SIZE parameter. If the terminal model is changed from a PostScript printer model to a non-PostScript printer model or from printer terminal_model XEROX_SPUR to another printer model, the forms size is adjusted to be larger (set to the value specified on the DEFBD or CHABDA command).

TRANSMISSION_BLOCK_SIZE (TBS)

Specifies the block size in bytes (0...65,535) to be used in transferring data to this device.

The default is that no change is made to the block size attribute.

UNDEFINED_FE_ACTION (UNDFA)

NOTE

Previous forms of this parameter (UN_DEFINED_FE_ACTION and UDFA) continue to be supported in this release, but will be removed in a future release.

Specifies the action to be taken with format effectors that are not defined. Options are:

PRINT_AFTER_SPACING (PAS)
PRINT_BEFORE_SPACING (PBS)
DISCARD_PRINT_LINE (DPL)

The default is that no change is made to the undefined_fe_action attribute.

UNSUPPORTED_FE_ACTION (UNSFA)

NOTE

Previous forms of this parameter (UN_SUPPORTED_FE_ACTION and USFA) continue to be supported in this release, but will be removed in a future release.

Specifies the action to be taken with format effectors that are defined but not supported by the device. Options are:

PRINT_AFTER_SPACING (PAS)
PRINT_BEFORE_SPACING (PBS)
DISCARD_PRINT_LINE (DPL)

The default is that no change is made to the unsupported_fe_action attribute.

VERTICAL_PRINT_DENSITY (VPD)

Specifies the vertical print density (number of lines per inch) a printer is capable of supporting. Options are:

Keyword Value	Description
SIX_ONLY	Six lines per inch only.
EIGHT_ONLY	Eight lines per inch only.
SIX_ANY	Six or eight lines per inch; defaults to six for an individual print file if the print file specifies a vertical print density of NONE.
EIGHT_ANY	Six or eight lines per inch; defaults to eight for an individual print file if the print file specifies a vertical print density of NONE.

This attribute affects the selection of files that are printed on a device:

Files that specify six lines per inch are printed on a device that specifies SIX_ONLY, SIX_ANY, or EIGHT_ANY.

Files that specify eight lines per inch are printed on a device that specifies EIGHT_ONLY, EIGHT_ANY, or SIX_ANY.

Files that specify a VERTICAL_PRINT_DENSITY value of NONE are printed on a device that specifies SIX_ONLY, EIGHT_ONLY, SIX_ANY, or EIGHT_ANY.

For a device with terminal_model of POSTSCRIPT or XEROX_SPUR, the only supported parameter value is SIX_ONLY.

VFU_LOAD_PROCEDURE (VLP)

Specifies the name of a Vertical Format Unit (VFU) load procedure that defines the default VFU Load Image (VLI) for the device. This default VLI is loaded into the device if the file being printed does not specify a VFU load procedure.

This attribute cannot be changed by a station operator unless the device was defined with a VFU_LOAD_OPTION value of OPER or USER by the site administrator.

Specification of this parameter causes CDCNET to reprocess the VFU_LOAD_PROCEDURE and create a new VFU load image even if the name of the VFU_LOAD_PROCEDURE has not changed.

The default is that no change is made to the VFU Load Procedure attribute.

Remarks

- To display the attributes and status of an I/O station, enter a DISPLAY_BATCH_DEVICE_STATUS subcommand with parameter DO=ALL.
- If the VERTICAL_PRINT_DENSITY for the file is NONE and the VERTICAL_PRINT_DENSITY for the device is SIX_ONLY or SIX_ANY, then the page length of the file divided by six must be less than or equal to the FORMS_SIZE attribute of the device. Likewise, if the VERTICAL_PRINT_DENSITY for the device is EIGHT_ONLY or EIGHT_ANY, then the page length of the file divided by eight must be less than or equal to the FORMS_SIZE attribute of the device.
- See the following I/O station definition commands in the CDCNET Commands Reference manual:
  - DEFINE_I_O_STATION
  - DEFINE_USER_I_O_STATION
  - DEFINE_NP_BATCH_STATION

Examples

The following example highlights the user name banner field, assigns an external characteristic string of NORMAL, displays file acknowledgement messages at your console, and selects only those files with a page width of 80 columns or less for printing at printer PR2.

```
ops/change_batch_device_attributes dn=pr2 ..
ops../bhf=un ec1='normal' fa=yes pw=80
ops/
```

DISPLAY_BATCH_DEVICE_STATUS
OPES Subcommand
DISS Subcommand

Purpose Displays the attributes and status of an I/O station's devices. However, when entered from within the DISS utility, certain attributes and status information are displayed only to the owner of the output queue file being processed by the device.

Format

DISPLAY_BATCH_DEVICE_STATUS or
DISBDS
DEVICE_NAME=keyword or list of name
DISPLAY_OPTION=keyword
OUTPUT=file
STATUS=status variable

Parameters

DEVICE_NAME (DN)

Specifies a list of one or more names of the devices whose status is to be displayed. You can also select the devices by device type or select all devices associated with the I/O station. Options are:

Keyword Value	Description
PRINTERS	Displays the status of the I/O station's printers.
ALL	Displays the status of all devices associated with the I/O station.

This parameter is required.

DISPLAY_OPTION (DO)

Specifies the amount of information to be displayed. Options are:

Keyword Value	Description
ALL (A)	When used within OPES, displays all items of information for the selected devices. When used within DISS, displays selected items of information for the selected devices. See Remarks.
BRIEF (B)	Displays only the following items of information for the selected devices: Device name Device status Transfer status Percentage of the file transfer complete Last unsolicited message

The default is BRIEF.

OUTPUT (O)

Specifies the name of the output file where the status information is to be displayed and, optionally, specifies how the file is to be positioned prior to use. Refer to File Reference in the NOS/VE System Usage manual for a description of file positioning prior to use.

The default is file $OUTPUT.

Remarks

- The OPES and DISS utilities display the following information for all devices.
  - Device name
  - Device status (active/stopped/not ready/down)
  - Device type
  - External device characteristic strings
  - File acknowledgement status (yes/no)
  - File transfer status (idle/busy/suspended)
  - Last unsolicited message concerning the device
  - Page width
  - Terminal model
- For output devices, the utilities display the following additional information.
  - Banner highlight field (comment_banner/routing_banner/site_banner/user_file_name/user_name)
  - Banner page count
  - Code set (ASCII/ASCII128/ASCII95/ASCII64/ASCII48/EBCDIC)
  - Forms size
  - Forms code strings
  - Device alias
  - Maximum file size in bytes
  - Suppress carriage control (yes/no)
  - Transmission block size in bytes
  - Undefined_FE_action (print_after_spacing/print_before_spacing/discard_print_line)
  - Unsupported_FE_action (print_after_spacing/print_before_spacing/discard_print_line)

- Vertical print density (SIX_ONLY/EIGHT_ONLY/SIX_ANY/EIGHT_ANY)
- VFU image load option (init/oper/user/none)
- VFU load procedure
- The utilities display additional information about the file being transferred to the device. However, the DISS utility displays the information marked with an asterisk to only the owner of the output queue file being processed by the device.
- * Family name of generating job
- * Login user name of generating job
- Percent complete
- System-supplied file name
- * System-supplied job name
- * User-supplied file name
- * User-supplied job name

- For input devices, the following additional information is displayed:
  - Information about the file being transferred from the device.
  - *Job destination name
  - Input bytes transferred

Examples

In the following two examples, the utilities display the full status of printer PRINT1 (output device) configured as a public I/O station. Note that the first example is issued by an I/O operator within OPES, while the second example is issued by a batch device user within DISS who is not the owner of the output file.

```
ops/display_batch_device_status dn=print1 do=all
Device_Name                    : PRINT1
  Banner_Highlight_Field       : routing_banner
  Banner_Page_Count            : 1
  Carriage_Control_Action      : pre_print and post_print
  Code_Set                     : ascii95
  Device_Alias_1               : URI
  Device_Status                : active
  Device_Type                  : printer
  External_Characteristics_1   : NORMAL
  File_Acknowledgement         : yes
  File_Transfer_Status         : idle
  Forms_Code_1                 : NORMAL
  Forms_Size                   : 11.0
  Last_Unsolicited_Message     : Finished: FOUR  User: LC  Size: 52
  Maximum_File_Size            : unlimited
  Page_Width .                 : 132
  Suppress_Carriage_Control    : no
  Terminal_Model               : CDC_585V
  Transmission_Block_Size      : 1000
  Undefined_FE_Action          : print_after_spacing
  Unsupported_FE_Action        : discard_print_line
  Vertical_Print_Density       : six_only
  VFU_Load_Option              : VFU changeable by user
  VFU_Load_Procedure           : CDC_VFU
  Family_Name                  : NVE
  Login_User_Name              : LC
  Percent_Complete             : 0
  System_Supplied_File_Name    : $0830_0631_AAA_4336
  System_Supplied_Job_Name     : $0830_0631_AAA_4315
  User_Supplied_File_Name      : TEN
  User_Supplied_Job_Name       : LC
ops/
```

Note that in the following example, because the batch device user requesting the display is not the owner of the output file PRINT1, the following attributes are not displayed:

- Family_Name
- Login_User_Name
- System_Supplied_Job_Name
- User_Supplied_File_Name
- User_Supplied_Job_Name

```
diss/display_batch_device_status dn=print1 do=all
Device_Name                    : PRINT1
  Banner_Highlight_Field       : routing_banner
  Banner_Page_Count            : 1
  Carriage_Control_Action      : pre_print and post_print
  Code_Set                     : ascii95
  Device_Status                : active
  Device_Type                  : printer
  External_Characteristics_1   : NORMAL
  File_Acknowledgement         : yes
  File_Transfer_Status         : busy
  Forms_Code_1                 : NORMAL
  Forms_Size                   : 11.0
  Page_Width                   : 132
  Maximum_File_Size            : unlimited
  Suppress_Carriage_Control    : no
  Terminal_Model               : CDC_585V
  Transmission_Block_Size      : 1000
  Undefined_FE_Action          : print_after_spacing
  Unsupported_FE_Action        : discard_print_line
  Vertical_Print_Density       : six_any
  VFU_Load_Option              : VFU changeable by user
  VFU_Load_Procedure           : CDC_VFU
  Percent_Complete             : 67
  System_Supplied_File_Name    : $0830_0631_AAA_4336
diss/
```

The following example displays the full status of a card reader named RDR (input device) as requested through the OPES utility. If the status had been requested through the DISS utility, the Job_Destination information would not have been displayed.

```
ops/display_batch_device_status dn=rdr do=all
Device_Name                    : RDR
  Device_Status                : active
  Device_Type                  : reader
  External_Characteristics_1   : 029
  File_Acknowledgement         : yes
  File_Transfer_Status         : busy
  Terminal_Model               : CDC_CYBER18
  Job_Destination              : NVE
ops/
```

The following example displays a brief status of all devices associated with the I/O station:

```
ops/display_batch_device_status dn=all do=brief
Device_Name                    : PRINT1
  Device_Status                : active
  File_Transfer_Status         : idle
  Last_Unsolicited_Message     : finished

Device_Name                    : PRINT2
  Device_Status                : active
  File_Transfer_Status         : idle
  Last_Unsolicited_Message     : finished
ops/
```

DISPLAY_STATION _QUEUE _ENTRY
OPES Subcommand
DISS Subcommand

Purpose Displays status information about one or more files in the I/O station's output queue. When entered from within the DISS utility, displays status information about only those files in the output queue that you own.

Format

DISPLAY_STATION _QUEUE _ENTRY or
DISPLAY_STATION _QUEUE _ENTRIES or
DISSQE
NAME=keyword or list of name
DISPLAY_OPTION=keyword
OUTPUT=file
STATUS=status variable

Parameters

NAME (N)

Specifies a list of one or more file names for which information is to be displayed. Either the system-supplied or user-supplied name can be used. You can also request the top 10 files or all files. If you are using this subcommand within the DISS utility, you must be the owner of the specified file(s). Options are:

Keyword Value	Description
TOP_TEN	Displays information about the 10 files that are top candidates for transfer.
ALL	Displays information about all files in the I/O station's output queue.

This parameter is required.

DISPLAY_OPTION (DO)

Specifies the amount of information to be displayed. Options are:

Keyword Value	Description
ALL (A)	Displays all items of information for the selected files. See Remarks.
BRIEF (B)	Displays only the following items of information for the selected files: System-supplied file name User-supplied file name File length File owner identification

The default is BRIEF.

OUTPUT (O)

Specifies the name of the output file that the status information is written to and, optionally, specifies how the file is to be positioned prior to use. Refer to File Reference in the NOS/VE System Usage manual for a description of file positioning prior to use.

The default is file $OUTPUT.

Remarks

- The DISS utility only displays status information about files that you own that are in the I/O station output queue. You receive no display if you have no files in the queue.
- The display includes the following items of information for each file selected from the output queue:
  - System-supplied file name
  - Copies requested
  - Destination name (I/O station name)
  - Explicit device or alias name
  - Device type (printer/reader/plotter/punch)

- External device characteristic strings
- Family name of generating job
- File length in bytes
- Forms code strings
- Data mode (coded/transparent)
- Output state
- Page format (continuous/burstable/nonburstable)
- Page length
- Page width
- Current position in queue
- Priority
- System-supplied job name
- Date and time the file was queued
- User name of generating job
- User-supplied file name
- User-supplied job name
- Vertical print density (SIX/EIGHT/NONE)
- VFU load procedure name

- Each file owner is responsible for establishing file attributes via the SET_FILE_ATTRIBUTES command (see the NOS/VE System Usage manual for more information). This is not a function of an I/O station operator.

Examples The following example displays the full status for file ABC in the I/O station's output queue as requested by an I/O station operator under the OPES utility.

```
ops/display_station_queue_entry n=all
System_Supplied_File_Name      : $0830_0631_AAA_0197
  Copies                       : 1
  Destination_Name             : URI
  Device_Name                  : PRINT1
  Device_Type                  : printer
  External_Characteristics     : NORMAL
  Family_Name                  : NVE
  File_Length                  : 16080
  Forms_Code                   : NORMAL
  Output_Data_Mode             : coded
  Output_State                 : eligible to transfer
  Page_Format                  : burstable
  Page_Length                  : 60
  Page_Width                   : 132
  Position_In_Queue            : 1
  Priority                     : 116
  System_Supplied_Job_Name     : $0830_0631_AAA_0195
  Time_Enqueued                : yyyy-mm-dd hh:mm:ss
  User_Name                    : LC
  User_Supplied_File_Name      : ABC
  User_Supplied_Job_Name       : LC
  Vertical_Print_Density       : six
ops/
```

The following example displays the full status for file ABC in the I/O station's output queue as requested by a batch device user (the file owner) under the DISS utility.

```
diss/display_station_queue_entry n=all
System_Supplied_File_Name      : $0830_0631_AAA_0197
  Copies                       : 1
  Destination_Name             : URI
  Device_Name                  : PRINT1
  Device_Type                  : printer
  External_Characteristics     : NORMAL
  Family_Name                  : NVE
  File_Length                  : 16080
  Forms_Code                   : NORMAL
  Output_Data_Mode             : coded
  Page_Format                  : burstable
  Page_Length                  : 60
```

```
  Page_Width                    : 132
  Position_In_Queue             : 1
  Priority                      : 116
  System_Supplied_Job_Name      : $0830_0631_AAA_0195
  Time_Enqueued                 : yyyy-mm-dd hh:mm:ss
  User_Name                     : LC
  User_Supplied_File_Name       : ABC
  User_Supplied_Job_Name        : LC
  Vertical_Print_Density        : six
diss/
```

The following example displays a brief status of all files in the I/O station's output queue.

```
ops/display_station_queue_entry n=all do=brief
System_Supplied_File_Name     : $0830_0631_AAA_2178
  File_Length                 : 8040
  Output_State                : eligible to transfer
  User_Name                   : LC
  User_Supplied_File_Name     : ABC

System_Supplied_File_Name     : $0830_0631_AAA_2189
  File_Length                 : 160800
  Output_State                : eligible to transfer
  User_Name                   : LC
  User_Supplied_File_Name     : DEF
ops/
```

DISPLAY_STATION_QUEUE_STATUS
OPES Subcommand
DISS Subcommand

Purpose Displays the status of the queue of output files destined for the I/O station.

Format **DISPLAY_STATION_QUEUE_STATUS** or **DISSQS**

DISPLAY_OPTION=keyword
OUTPUT=file
STATUS=status variable

Parameters *DISPLAY_OPTION (DO)*

Specifies the amount of information to be displayed. Options are:

Keyword Value	Description
ALL (A)	Displays all categories of information for the I/O station's output queue. See Remarks.
BRIEF (B)	Displays all output queues.

The default is BRIEF.

OUTPUT (O)

Specifies the name of the output file where the status information is displayed and, optionally, specifies how the file is to be positioned prior to use. Refer to File Reference in the NOS/VE System Usage manual for a description of file positioning prior to use.

The default is file $OUTPUT.

Remarks The following categories of information are displayed when DO=ALL:

- Number of files in the queue
- Each destination name (I/O station name) and the number of files queued for each destination name
- Explicitly requested device names in the queue and the number of files queued for each device

- Each device type and the number of files queued for each device type
- Each of the external device characteristic strings in the queue and the number of files queued for each string
- Each of the forms code strings in the queue and the number of files queued for each string

Examples

Although the following examples are shown from within the OPES utility, you see the same results from within the DISS utility.

The following example displays all categories of information for the I/O station's output queue.

```
ops/display_station_queue_status do=all
Station_Name                    : URI
Number_Of_Files                 : 1
  Destination                   : URI
    Age_of_Oldest_File          : 127
    Average_Age_of_Files        : 127
    File_Count                  : 1
    Total_File_Size             : 16080
  Device_Name                   : PRINT1
    Age_of_Oldest_File          : 127
    Average_Age_of_Files        : 127
    File_Count                  : 1
    Total_File_Size             : 16080
  Device_Type                   : PRINTER
    Age_of_Oldest_File          : 127
    Average_Age_of_Files        : 127
    File_Count                  : 1
    Total_File_Size             : 16080
  External_Characteristics      : NORMAL
    Age_of_Oldest_File          : 127
    Average_Age_of_Files        : 127
    File_Count                  : 1
    Total_File_Size             : 16080
  Forms_Code                    : NORMAL
    Age_of_Oldest_File          : 127
    Average_Age_of_Files        : 127
    File_Count                  : 1
    Total_File_Size             : 16080
ops/
```

The following example displays a brief status of all categories of information for the I/O station's output queue.

```
ops/display_station_queue_status do=brief
Station_Name                    : URI
Number_Of_Files                 : 1
  Device_Type                   : printer
  Age_Of_Oldest_File            : 127
  Average_Age_Of_Files          : 127
  File_Count                    : 322
  Total_File_Size               : 16080
ops/
```

DISPLAY_STATION _STATUS
OPES Subcommand
DISS Subcommand

Purpose Displays the status of the I/O station that you are operating.

Format

DISPLAY_STATION _STATUS or
DISSS
OUTPUT=file
STATUS=status variable

Parameters

OUTPUT (O)

Specifies the name of the output file where the status information is displayed and, optionally, specifies how the file is to be positioned prior to use. Refer to File Reference in the NOS/VE System Usage manual for a description of file positioning prior to use.

The default is file $OUTPUT.

Remarks

- The following items of information are displayed:
  - I/O station name
  - Control facility name
  - Default job destination
  - Destination unavailable action
  - File acknowledgement requested (yes/no)
  - Number of files queued for this I/O station
  - PM message action (printer/display/discard)
  - Required operator console name
  - I/O station use (public/private)
  - Count of devices
  - List of devices showing device type, device status, and file transfer status for each printer

Examples Although the following examples are shown from within the OPES utility, you see the same results from within the DISS utility.

The following example displays the status of an I/O station named IOSTATION_30009F0013.

```
ops/display_station_status
Station_Name                        : IOSTATION_30009F0013
  Control_Facility_Name             : STATION_CONTROLLER_1
  Destination_Unavailable_Action    : stop input device
  Default_Job_Destination           : NVE
  File_Acknowledgement              : no
  Number_Of_Files_Queued            : 8
  PM_Message_Action                 : print
  Required_Console_Device           : $CONSOLE_30009F_7000000000
  Station_Usage                     : PRIVATE
  Count_Of_Devices                  : 2

  Device_Name               Type     Device_Status  File_Status
  ------------------------------------------------------------
  CR1                       reader   active         idle
  PRINT2                    printer  stopped        suspended

ops/
```

POSITION_FILE OPES Subcommand

Purpose Stops a file that is currently printing, repositions the file to a specific line or page, and restarts the file transfer from the new position.

Format

POSITION_FILE or
POSF
DEVICE_NAME=name
LOCATION=list 1..2 of any
UNITS=keyword
DIRECTION=keyword
STARTING_POSITION=keyword
PREVIEW=integer
STATUS=status variable

Parameters

DEVICE_NAME (DN)

Specifies the name of the output device that is currently receiving the file that you want to reposition. This parameter is required.

LOCATION (L)

Specifies the number of units the file is to be moved.

You can enter an integer (0...65,535) to specify the number of lines or pages to be moved forward or backward from the starting position (see the UNITS, DIRECTION, and STARTING_POSITION parameters).

Using a list of strings indicates positioning to a line containing the desired strings. A single string indicates positioning to a line containing that string. Two strings indicates positioning to a line containing the first string followed in the same line with the second string.

The default is 1.

UNITS (U)

Specifies whether to use lines or pages when repositioning a file. Options are:

Keyword Value	Description
LINE (L)	The file moves the number of lines specified in the LOCATION parameter forward or backward from the starting position.
PAGE (P)	The file moves the number of pages specified in the LOCATION parameter forward or backward from the starting position.

The PAGE option also implies positioning to the beginning of a page. For example, a LOCATION of 0 together with a UNITS option of PAGE and a STARTING_POSITION of LAST_LINE_PRINTED specifies starting at the top of the page that was last being printed.

The default is PAGE.

DIRECTION (D)

Specifies whether to move forward or backward from the starting position when repositioning a file. Options are:

Keyword Value	Description
FORWARD (F)	The file moves forward from the starting position.
BACKWARD (B)	The file moves backward from the starting position.

The default is BACKWARD.

STARTING_POSITION (SP)

Specifies the starting position for file positioning. Options are:

Keyword Value	Description
BEGINNING (B)	File positioning starts at the beginning of the file.
END (E)	File positioning starts at an imaginary line or page following the end of the file.
LAST_LINE_PRINTED (LLP)	File positioning starts at the last line that was printed.

The default is LAST_LINE_PRINTED.

PREVIEW (P)

Specifies number of lines displayed at the I/O station terminal (starting at selected new position).

When a file transfer is suspended using the POSITION_FILE subcommand and the PREVIEW option is specified, the file transfer must be restarted after the preview data has been displayed at your terminal. If the PREVIEW option is not specified, the file transfer restarts automatically at the selected new position. The file transfer is restarted with the START_BATCH_DEVICE command.

The default is that the file transfer resumes without displaying file data.

temarks

- If you enter a LOCATION parameter integer that specifies a position outside the range of the file, the file is positioned at the beginning or end of the file. The system does not consider this to be an error condition. For example, POSITION_FILE 50 PAGES BACK when printing page 48 positions the file at the beginning of the file.

- The POSITION_FILE subcommand is primarily intended for use with printers. For other output devices, and for all transparent mode files, only SP=BEGINNING or SP=END have defined meanings and other file positioning specifications are ignored.

Examples The following equivalent subcommands all position printer PR2 to the top of the page preceding the page that was last being printed.

```
ops/posf dn=pr2
ops/posf dn=pr2 l=1
ops/posf dn=pr2 l=1 u=page
ops/posf dn=pr2 l=1 u=page d=back
ops/posf dn=pr2 l=1 u=page d=back sp=llp
ops/
```

The following example positions the file backward 10 lines from the last line printed.

```
ops/posf dn=pr2 l=10 u=lines
ops/
```

The following example positions the file forward 50 pages.

```
ops/posf dn=pr2 l=50 u=pages d=forward
ops/
```

The following example rewinds the file.

```
ops/posf dn=pr2 sp=beginning
ops/
```

The following equivalent subcommands position the file to the top of the final page.

```
ops/posf dn=pr2 sp=end
ops/posf dn=pr2 l=1 u=page d=back sp=end
ops/
```

The following example causes the remainder of the file to be skipped.

```
ops/posf dn=pr2 sp=end l=0
ops/
```

The following example positions the file to the last line of the file.

```
ops/posf dn=pr2 sp=end u=line
ops/
```

The following example enables you to preview the last four lines of data at your I/O station terminal.

```
ops/position_file dn=pr2 u=line sp=llp p=4
Device    : PR2 at URI
  FGHIJKLMNOPQRSTUVWXYZ012345678 LINE 10
  EFGHIJKLMNOPQRSTUVWXYZ01234567 LINE 11
  DEFGHIJKLMNOPQRSTUVWXYZ0123456 LINE 12
  CDEFGHIJKLMNOPQRSTUVWXYZ012345 LINE 13
ops/
```

QUIT
OPES Subcommand
DISS Subcommand

Purpose Ends operator control of an I/O station and terminates the current execution of the Operate Station Utility or the Display Station Utility.

Format **QUIT** or
QUI
STATUS=status variable

Parameters None.

Examples The following example shows how to end an Operate Station Utility session.

```
ops/quit
/
```

The following example shows how to end a Display Station Utility session.

```
diss/quit
/
```

SELECT_FILE OPES Subcommand

Purpose Selects the next file for an output device. This subcommand overrides the normal file selection process and causes the specified output file to be assigned to the specified output device as soon as the device is available.

Format

SELECT_FILE or
SELF
NAME=name
DEVICE_NAME=name
STATUS=status variable

Parameters

NAME (N)

Specifies the name of the file that you want to select for transfer. Either the system-supplied or user-supplied name can be specified. This parameter is required.

DEVICE_NAME (DN)

Name of the output device to which you want the selected file transferred.

The default is that the file is moved to the head of the priority chain but the normal selection rules are used to determine which, if any, of the station's output devices match the attributes of the file.

Remarks The SELECT_FILE command can also select a file in a hold state to print again.

Examples The following example assigns output file $0830_0053_aaa_5231 to printer PR2.

```
ops/select_file n=$0830_0053_aaa_5231 dn=pr2
ops/
```

START_BATCH_DEVICE OPES Subcommand

Purpose Puts a device back in service or resumes any suspended file transfer to or from a device.

Format

START_BATCH_DEVICE or
STABD or
START
DEVICE_NAME=name
STATUS=status variable

Parameters

DEVICE_NAME (DN)

Specifies the name of the device that you want to start. This parameter is required.

Examples The following example puts printer PR2 back in service.

```
ops/start_batch_device dn=pr2
ops/
```

STOP_BATCH _DEVICE OPES Subcommand

Purpose Removes a device from service until it is restarted with a START_BATCH _DEVICE subcommand. Depending on the FILE _DISPOSITION parameter, this subcommand may take effect immediately or at the end of the current file transfer.

Format

STOP_BATCH _DEVICE or
STOBD or
STOP
DEVICE _NAME=name
FILE _DISPOSITION=keyword
STATUS=status variable

Parameters

DEVICE _NAME (DN)

Specifies the name of the device that you want to stop. This parameter is required.

FILE _DISPOSITION (FD)

Disposition of the output file (if any) that was being transferred. If no file was being transferred, this parameter is ignored. Options are:

Keyword Value	Description
REQUEUE (R)	The file is to be requeued with its initial priority values (any additional priority accrued via the aging increment is lost).
DROP (D)	The file is to be discarded.
HOLD (H)	The file is to be requeued until it is selected for transfer by a SELECT_ FILE subcommand.

Keyword Value	Description
FINISH (F)	The current file transfer is completed before the device is stopped, but the device's status immediately changes to stopped.
SUSPEND (S)	The current file transfer is suspended. The file remains assigned to the device and the file transfer resumes when the device is restarted by a START_BATCH_DEVICE subcommand.

The default is SUSPEND.

Remarks

- The REQUEUE, DROP, and HOLD options on the FILE_DISPOSITION parameter terminate the current file transfer and the FINISH option allows the current file transfer to continue to completion. In either case, the device is available for selection when it is restarted.
- For input devices, REQUEUE, DROP, and HOLD all cause the transfer to be terminated, the partially transmitted file is discarded, and the input device is repositioned to the next end of file and stops.

Examples

The following example removes printer PR2 from service at the end of the current file transfer. The printer's status immediately changes to stopped.

```
ops/stop_batch_device dn=pr2 fd=finish
ops/
```

SUPPRESS_CARRIAGE_CONTROL OPES Subcommand

Purpose Suppresses the interpretation of carriage control characters in a file being transferred to a printer and causes the remainder of the file to be single spaced.

Format

SUPPRESS_CARRIAGE_CONTROL or
SUPCC
DEVICE_NAME=name
STATUS=status variable

Parameters

DEVICE_NAME (DN)

Specifies the name of the device for which you want to suppress the interpretation of carriage control characters. If the named device is not a printer, this subcommand has no effect. This parameter is required.

Remarks

- This subcommand affects only one file transfer. The device reverts to interpreting carriage control characters when the next file transfer begins.
- While carriage control interpretation is suppressed, the carriage control character at the beginning of each line is included with the line being printed.

Examples The following example suppresses the interpretation of carriage control characters in a file being transferred to printer PR2.

```
ops/suppress_carriage_control dn=pr2
ops/
```

TERMINATE_QUEUED_OUTPUT OPES Subcommand

Purpose Deletes the specified files from the I/O station output queue. The files no longer exist in any output queue after this subcommand successfully executes.

Format

TERMINATE_QUEUED_OUTPUT or
TERQO
NAME=name
STATUS=status variable

Parameters

NAME (N)

Specifies the name of the queued files you want to delete. The name can be either the system-supplied name or the user-supplied name. This parameter is required.

Remarks None.

Examples The following example deletes an output file.

```
ops/terminate_queued_output n=ten
ops/
```

TERMINATE_TRANSFER OPES Subcommand

Purpose Terminates the transfer of a file to or from a device. This subcommand also allows you to requeue an output file for transfer.

Format

TERMINATE_TRANSFER or
TERT
DEVICE_NAME=name
FILE_DISPOSITION=keyword
STATUS=status variable

Parameters

DEVICE_NAME (DN)

Specifies the name of the device for which you want to terminate the file transfer. This parameter is required.

FILE_DISPOSITION (FD)

Disposition of the output file that was being transferred. Options are:

Keyword Value	Description
REQUEUE	The file is to be requeued with its initial priority values.
DROP	The file is to be discarded.
HOLD	The file is to be requeued until it is selected for transfer by a SELECT_FILE subcommand.

The default is DROP.

Remarks An input file is always dropped if its transfer is terminated by this subcommand.

Examples The following example terminates an output file being transferred to printer PR2 and requeues the file.

```
ops/terminate_transfer dn=pr2 fd=requeue
ops/
```

Controlling a Printer with Keyboard Commands

If an asynchronous printer is configured as having a keyboard, then a limited set of commands can be entered from this keyboard to control operation of that device. The commands are:

Command	Description
DROP	Terminates the current file transfer for the device. The file is discarded.
START	Places a device back in service and resumes any suspended file transfer for the device.
STOP	Removes the device from service until it is restarted with a START command. Any current file transfer is suspended. The file remains assigned to the device and the file transfer resumes when the device is restarted with a START command.

These commands can be used with devices associated with either NOS or NOS/VE. On NOS/VE, these keyboard commands can be used interchangeably with the OPES commands STOP_BATCH_DEVICE and START_BATCH_DEVICE. On NOS, these commands operate independently and cannot be used interchangeably with the PSU operator commands STOP and CONTINU.

The following rules apply for the entry of the DROP, START, and STOP commands from a printer keyboard:

1. The command must be followed by a carriage return.
2. Blanks preceding or following the command are ignored.
3. LINE_FEED, END_OF_TEXT, NULL, and DEL control codes are ignored.
4. The CANCEL_LINE control code followed by a carriage return may be entered to cancel the input.
5. The BACKSPACE control code may be used to delete the previous character.

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Batch Operation Tasks for NOS and NOS/VE 4

This chapter compares batch operation tasks for the NOS Remote Batch Facility (RBF) and NOS/VE Operate Station Utility (OPES). This section assumes you are somewhat familiar with batch operation for NOS RBF and need to familiarize yourself with batch operation for NOS/VE OPES.

The following RBF and OPES batch operation commands are described in this section:

- Batch device control commands, which control the status of peripheral devices.
- File control commands, which control files being transmitted to or from batch devices, and files residing in queues.
- General purpose commands, which obtain status information and disconnect remote batch operations.

For a full description of RBF commands, refer to the Remote Batch Facility Version 1 Reference Manual. For a full description of the NOS/VE OPES commands, refer to chapter 3 of this manual.

Common Parameters

Throughout this section, the RBF host computer queues are designated by the following:

ALL Jobs and files in all queues

EX Execution queues

IN Input queue

PR Printer output queue

PT Plotter output queue

PU Card punch output queue

The collective name for the PR, PT, and PU queues is the output queue.

Input and output devices are designated by the following parameter values:

ALL All devices relevent to a command

CPn Card punch

CRn Card reader

LPn Line printer

PLn Plotter

The value n identifies the device ordinal assigned to the specified device.

Batch Device Control Commands

Batch device control commands control the status of peripheral devices.

For the Remote Batch Facility (RBF), commands include:

GO

STOP

For the Operate Station Utility (OPES), commands include:

START_BATCH_DEVICE

STOP_BATCH_DEVICE

STARTING A BATCH DEVICE For NOS (RBF):

Purpose Puts a batch device back in service; the device can then send or receive data.

Format

GO or
G
CPn or LP1 or CRn or ALL or PLn or LPn

Examples

```
READY go, lp2
```

STARTING A BATCH DEVICE For NOS/VE (OPES):

Purpose Puts a batch device back in service; the device can then send or receive data.

Format

START_BATCH_DEVICE or
STABD or
START
DEVICE_NAME=name

Examples

```
ops/stabd dn=pr2
```

STOPPING A BATCH DEVICE For NOS (RBF):

Purpose Removes a batch device from service; the device cannot send or receive data.

Format

STOP or
S
CPn or LP1 or CRn or ALL or PLn or LPn

Examples

```
READY stop, lp2
```

STOPPING A BATCH DEVICE For NOS/VE (OPES):

Purpose Suspends the current file transfer.

Format

STOP_BATCH_DEVICE or
STOBD or
STOP
DEVICE_NAME=name
FILE_DISPOSITION=suspend

Examples

```
ops/stobd dn=pr2 fd=suspend
```

STOPPING A BATCH DEVICE AT THE END OF A FILE
For NOS (RBF):

Purpose Removes a batch device from service at the end of a file.

Format

STOP or
S
CPn or LP1 or CRn or ALL or PLn or LPn

Examples

```
READY stop, lp2, end
```

STOPPING A BATCH DEVICE AT THE END OF A FILE
For NOS/VE (OPES):

Purpose Removes a batch device from service at the end of a file.

Format

STOP_BATCH_DEVICE or
STOBD or
STOP
DEVICE_NAME=name
FILE_DISPOSITION=finish

Examples

```
ops/stobd dn=pr2 fd=finish
```

File Control Commands

File control commands control files being transmitted to or from batch devices.

For the Remote Batch Facility (RBF), commands include:

ABORT
RESTORE
RETURN
REWIND
SET
SKIP
SUPPRESS

For the Operate Station Utility (OPES), commands include:

CHANGE_BATCH_DEVICE_ATTRIBUTES
POSITION_FILE
SUPPRESS_CARRIAGE_CONTROL
TERMINATE_TRANSFER
SELECT_FILE
TERMINATE_QUEUED_OUTPUT

CHANGING BANNER HIGHLIGHT FIELDS For NOS (RBF):

Purpose N/A

CHANGING BANNER HIGHLIGHT FIELDS For NOS/VE (OPES):

Purpose Specifies which banner fields are given prominence for files output on a batch device.

Format

CHANGE_BATCH_DEVICE_ATTRIBUTES or
CHABDA
DEVICE_NAME=name
BANNER_HIGHLIGHT_FIELD=comment_banner or routing_banner or site_banner or user_file_name or user_name

Examples

```
ops/chabda dn=pr2 bhf=user_name
```

CHANGING BLOCK SIZE OF A PRINTER For NOS (RBF):

Purpose Changes the transmission block size of an output device.

Format

SET
CPn or LP1 or PLn or LPn
BLK=integer

Examples

```
READY set, lp2, blk=800
```

CHANGING BLOCK SIZE OF A PRINTER For NOS/VE (OPES):

Purpose Changes the transmission block size of an output device.

Format

CHANGE_BATCH_DEVICE_ATTRIBUTES or
CHABDA
DEVICE_NAME=name
TRANSMISSION_BLOCK_SIZE=integer

Examples

```
ops/chabda dn=pr2 tbs=800
```

CHANGING CARRIAGE CONTROL SUPPORT For NOS (RBF):

Purpose N/A

CHANGING CARRIAGE CONTROL SUPPORT For NOS/VE (OPES):

Purpose Specifies the type of carriage control action that the device supports.

Format **CHANGE_BATCH_DEVICE_ATTRIBUTES** or **CHABDA**
DEVICE_NAME=name
CARRIAGE_CONTROL_SUPPORT=pre_print or post_print or both

Examples

```
ops/chabda dn=pr2 ccs=post_print
```

CHANGING FORMS CODE FOR A PRINTER For NOS (RBF):

Purpose Changes the forms code for an output device.

Format

SET
CPn or LP1 or PLn or LPn
FC=string

Examples

```
READY set, lp2, fc=aa
```

CHANGING FORMS CODE FOR A PRINTER For NOS/VE (OPES):

Purpose Changes the forms code for an output device.

Format

CHANGE_BATCH_DEVICE_ATTRIBUTES or
CHABDA
DEVICE_NAME=name
FORMS_CODE_n=string

Examples

```
ops/chabda dn=pr2 fc1='aa'
```

CHANGING FORMS SIZE OF A PRINTER For NOS (RBF):

Purpose N/A

CHANGING FORMS SIZE OF A PRINTER For NOS/VE (OPES):

Purpose Specifies the number of output lines that constitute a page for this device.

Format **CHANGE_BATCH_DEVICE_ATTRIBUTES** or **CHABDA**
DEVICE_NAME=name
FORMS_SIZE=string

Examples

```
ops/chabda dn=pr2 fs='11.0'
```

CHANGING MAXIMUM FILE SIZE For NOS (RBF):

Purpose N/A

CHANGING MAXIMUM FILE SIZE For NOS/VE (OPES):

Purpose Specifies the maximum size, in bytes, of output files to be routed to this device.

Format

CHANGE_BATCH_DEVICE_ATTRIBUTES or
CHABDA
DEVICE_NAME=name
MAXIMUM_FILE_SIZE=integer

Examples

```
ops/chabda dn=pr2 mfs=33333
```

CHANGING PAGE WIDTH OF AN OUTPUT DEVICE For NOS (RBF):

Purpose Changes the length of a output line for a device.

Format

SET
CPn or LP1 or PLn or LPn
WID=integer

Examples

```
READY set, lp2, wid=80
```

CHANGING PAGE WIDTH OF AN OUTPUT DEVICE For NOS/VE (OPES):

Purpose Changes the length of an output line for a device.

Format

CHANGE_BATCH_DEVICE_ATTRIBUTES or
CHABDA
DEVICE_NAME=name
PAGE_WIDTH=integer

Examples

```
ops/chabda dn=pr2 pw=80
```

CHANGING PRINTER TRAIN OR PLOTTER TYPE For NOS (RBF):

Purpose Changes the printer train or plotter type.

Format

SET
CPn or LP1 or PLn or LPn
TR=B6 or A6 or A9 or T6 or T8

Examples

```
READY set, lp2, tr=a9
```

CHANGING PRINTER TRAIN OR PLOTTER TYPE For NOS/VE (OPES):

Purpose Changes the printer train or plotter type.

Format

CHANGE_BATCH_DEVICE_ATTRIBUTES or
CHABDA
DEVICE_NAME=name
EXTERNAL_CHARACTERISTICS_n=string

Examples

```
ops/chabda dn=pr2 ec1='a9'
```

CHANGING REPEAT COUNT OF PRINTER FILES For NOS (RBF):

Purpose Changes the repeat count for a file at an output device.

Format **SET**
CPn or LP1 or PLn or LPn
REP=integer

Examples
```
READY set, lp2, rep=5
```

CHANGING REPEAT COUNT OF PRINTER FILES For NOS/VE (OPES):

Purpose N/A

POSITIONING A FILE TO THE END OF FILE For NOS (RBF):

Purpose Repositions the current file to the end-of-information.

Format

SKIP or
SKP
CPn or LP1 or PLn or LPn
END

Examples

```
READY skip, lp2, end
```

POSITIONING A FILE TO THE END OF FILE For NOS/VE (OPES):

Purpose Repositions the current file to the end-of-information.

Format

POSITION_FILE or
POSF
DEVICE_NAME=name
STARTING_POSITION=end
DIRECTION=forward

Examples

```
ops/posf dn=pr2 sp=end d=forward
```

POSITIONING BACKWARD IN A FILE For NOS (RBF):

Purpose Repositions the current file on an output device backwards a given number of file sectors (in multiples of 8).

Format

SKIP or
SKP
CPn or LP1 or PLn or LPn
- (minus) integer

Examples

```
READY skip, lp2, -5
```

POSITIONING BACKWARD IN A FILE For NOS/VE (OPES):

Purpose Repositions the current file on an output device backwards a given number of lines or pages, or until a line containing a string is located.

Format

POSITION_FILE or
POSF
DEVICE_NAME=name
LOCATION=integer or string
UNITS=lines or pages
DIRECTION=backward
STARTING_POSITION=last_line_printed

Examples

```
ops/posf dn=pr2 l=10 u=pages d=backward ..
ops../sp=last_line_printed
```

POSITIONING FILE TO THE BEGINNING OF A DAYFILE or JOB_LOG For NOS (RBF):

Purpose Repositions the current file to the beginning of the dayfile.

Format

SKIP or
SKP
CPn or LP1 or PLn or LPn
DFL

Examples

```
READY skip, lp2, dfl
```

POSITIONING FILE TO THE BEGINNING OF A DAYFILE or JOB_LOG For NOS/VE (OPES):

Purpose Reposition the current file to the beginning of the job_log by positioning forward in a file until a string unique to the job_log is found.

Format

POSITION_FILE or
POSF
DEVICE_NAME=name
DIRECTION=forward
LOCATION=string
UNITS=lines

Examples

```
ops/posf dn=PR2 u=lines ..
ops../d=forward location='.CI.LOGIN'
```

POSITIONING FORWARD IN A FILE For NOS (RBF):

Purpose Repositions the current file on an output device forward a given value (number of file sectors in multiples of 8).

Format

SKIP or
SKP
CPn or LP1 or PLn or LPn
integer

Examples

```
READY skip, lp2, +5
```

POSITIONING FORWARD IN A FILE For NOS/VE (OPES):

Purpose Repositions the current file on an output device forward a given number of lines or pages, or until a line containing a string is located.

Format

POSITION_FILE or
POSF
DEVICE_NAME=name
LOCATION=integer or string
UNITS=lines or pages
DIRECTION=forward
STARTING_POSITION=last_line_printed

Examples

```
ops/posf dn=pr2 l=10 u=pages d=forward ..
ops../sp=last_line_printed
```

POSITIONING TO THE BEGINNING OF FILES For NOS (RBF):

Purpose Rewinds the file currently on an output device.

Format

REWIND or
REW
CPn or LP1 or ALL or PLn or LPn

Examples

```
READY rewind, lp2
```

POSITIONING TO THE BEGINNING OF FILES For NOS/VE (OPES):

Purpose Rewinds the file currently on an output device.

Format

POSITION_FILE or
POSF
DEVICE_NAME=name
STARTING_POSITION=beginning

Examples

```
ops/posf dn=pr2 sp=beginning
```

REQUEUEING A FILE For NOS (RBF):

Purpose Terminates the transfer of a file to or from a device and requeues the file for transfer at a later time with a specified priority.

Format

RETURN or
RET
CPn or LP1 or ALL or PLn or LPn
PRI=octal integer

Examples

```
READY return, lp2, pri=57
```

REQUEUEING A FILE For NOS/VE (OPES):

Purpose Terminates the transfer of a file to or from a device and requeues the file for transfer at a later time with the orginal priority.

Format

TERMINATE_TRANSFER or
TERT
DEVICE_NAME=name
FILE_DISPOSITION=requeue

Examples

```
/tert dn=pr2 fd=requeue
```

RESTORING BANNER PRINTING For NOS (RBF):

Purpose Restores banner page printing.

Format

RESTORE or
RES
LP1 or LPn
BAN

Examples

```
READY restore, lp2, ban
```

RESTORING BANNER PRINTING For NOS/VE (OPES):

Purpose Restores banner page printing.

Format

CHANGE_BATCH_DEVICE_ATTRIBUTES or
CHABDA
DEVICE_NAME=name
BANNER_PAGE_COUNT=integer

Examples

```
ops/chabda dn=pr2 bpc=2
```

RESTORING CARRIAGE CONTROL For NOS (RBF):

Purpose Restores printer format control.

Format **RESTORE** or
RES
LP1 or LPn
FMT

Examples
```
READY restore, lp2, fmt
```

RESTORING CARRIAGE CONTROL For NOS/VE (OPES):

Purpose N/A

RESTORING FILE ACKNOWLEDGEMENT For NOS (RBF):

Purpose Restores file acknowledgement.

Format

RESTORE or
RES
CRn or LP1 or LPn or CPn or PLn
ACK

Examples

```
READY restore, lp2, ack
```

RESTORING FILE ACKNOWLEDGEMENT For NOS/VE (OPES):

Purpose Restores file acknowledgement.

Format

CHANGE_BATCH_DEVICE_ATTRIBUTES or
CHABDA
DEVICE_NAME=name
FILE_ACKNOWLEDGEMENT=yes

Examples

```
ops/chabda dn=pr2 fa=yes
```

SUPPRESSING BANNER PRINTING For NOS (RBF):

Purpose Suppresses printing of the banner.

Format

SUPPRESS or
SUP
LPn or LP1
BAN

Examples

```
READY suppress, lp2, ban
```

SUPPRESSING BANNER PRINTING For NOS/VE (OPES):

Purpose Suppresses printing of the banner.

Format

CHANGE_BATCH_DEVICE_ATTRIBUTES or
CHABDA
DEVICE_NAME=name
BANNER_PAGE_COUNT=0

Examples

```
ops/chabda dn=pr2 bpc=0
```

SUPPRESSING CARRIAGE CONTROL For NOS (RBF):

Purpose Suppresses carriage control.

Format

SUPPRESS or
SUP
LPn or LP1
FMT

Examples

```
READY suppress, lp2, fmt
```

SUPPRESSING CARRIAGE CONTROL For NOS/VE (OPES):

Purpose Suppresses carriage control.

Format

SUPPRESS_CARRIAGE_CONTROL or
SUPCC
DEVICE_NAME=name

Examples

```
ops/supcc dn=pr2
```

SUPPRESSING FILE ACKNOWLEDGEMENT For NOS (RBF):

Purpose Suppresses file acknowledgement.

Format

SUPPRESS or
SUP
CRn or LP1 or LPn or CPn or PLn
ACK

Examples

```
READY suppress, lp2, ack
```

SUPPRESSING FILE ACKNOWLEDGEMENT For NOS/VE (OPES):

Purpose Suppresses file acknowledgement.

Format

CHANGE_BATCH_DEVICE_ATTRIBUTES or
CHABDA
DEVICE_NAME=name
FILE_ACKNOWLEDGEMENT=no

Examples

```
ops/chabda dn=pr2 fa=no
```

TERMINATING A FILE TRANSFER For NOS (RBF):

Purpose Terminates the transfer of a file and purges it from the system.

Format

ABORT or
ABT
CPn or LP1 or CRn or PLn or LPn

Examples

```
READY abort, lp2
```

TERMINATING A FILE TRANSFER For NOS/VE (OPES):

Purpose Terminates the transfer of a file and purges it from the system.

Format

TERMINATE_TRANSFER or
TERT
DEVICE_NAME=name
FILE_DISPOSITION=drop

Examples

```
ops/tert dn=pr2 fd=drop
```

File control commands also control files residing in queues.

For the Remote Batch Facility (RBF), commands include:

CANCEL
CHANGE
DIVERT
PURGE

For the Operate Station Utility (OPES), the only commands are SELECT_FILE and TERMINATE_QUEUED_OUTPUT. The remaining OPES tasks can be done by using the following NOS/VE commands:

CHANGE_OUTPUT_ATTRIBUTES
TERMINATE_JOB
TERMINATE_OUTPUT

No equivalent OPES commands exist for the RBF commands DIVERT and CANCEL.

NOTE

The TERMINATE_OUTPUT command only flags the output file. The output file is actually terminated when the file is requeued by an I/O station operator or the printer goes down.

CANCELLING DIVERT COMMANDS For NOS (RBF):

Purpose Cancels one or more extended DIVERT commands.

Format

CANCEL or
CAN
PR or PU or PT or ALL

Examples

```
READY cancel, pr
```

CANCELLING DIVERT COMMANDS For NOS/VE (OPES):

Purpose N/A

CHANGING JOB PRIORITY For NOS (RBF):

Purpose Changes the priority of jobs in the input, output, or execution queues.

Format

CHANGE or
CHG
JOB=job sequence name
PR or PU or PT or ALL
PRI=octal integer

Examples

```
READY change, job=aaus, pr, pri=57
```

CHANGING JOB PRIORITY For NOS/VE (OPES):

Purpose Repositions a job in the output queue to the head of the list of files.

Format

SELECT_FILE or
SELF
NAME=name
DEVICE_NAME=name
STATUS=status_variable

Examples

```
ops/self n=$0830_0053_aaa_5231 dn=pr2
ops/
```

CHANGING JOB SERVICE CLASS For NOS (RBF):

Purpose Changes the service class of the input or execution queues.

Format

CHANGE or
CHG
JOB=job sequence name
PR or PU or PT or ALL
SC=string

Examples

```
READY change, job=aaus, pr, sc=bc
```

CHANGING JOB SERVICE CLASS For NOS/VE (OPES):

Purpose N/A

CHANGING REPEAT COUNT For NOS (RBF):

Purpose Changes the repeat count of the file while it is in the output queue.

Format

CHANGE or
CHG
JOB=job sequence name
PR or PU or PT or ALL
REP=integer

Examples

```
READY change, job=aaus, pr, rep=30
```

CHANGING REPEAT COUNT (NOS/VE Command) For NOS/VE (OPES):

Purpose Changes the repeat count of the file if it is not already being printed.

Format

CHANGE_OUTPUT_ATTRIBUTES or
CHAOA
NAME=list of name
COPIES=integer

Examples

```
/chaoa n=myfile c=3
```

Remarks Operating an I/O station does not give permission to change the output attributes of another user. You can change only your own output attributes.

DIVERTING FILES
For NOS (RBF):

Purpose Reroutes files that are destined for the I/O station to an alternate destination.

Format

DIVERT or
DIV
JOB=job sequence name
PR or PU or PT or ALL or IN or EX
[FAM=family name, USR=user name] or HST
EXT

Examples

```
READY divert, job=aaua, pr, fam=nve, usr=name, ext
```

DIVERTING FILES (NOS/VE Command)
For NOS/VE (OPES):

Purpose Reroutes files that are destined for the I/O station to an alternate destination (if file is not already initiated).

Format

CHANGE_OUTPUT_ATTRIBUTES or
CHAOA
NAME=list of name
STATION=name or keyword
DESTINATION_USAGE=public or private

Examples

```
/chaoa n=my_file s=uri_printer du=public
```

Remarks Operating an I/O station does not give permission to change the output attributes of another user. You can change only your own output attributes.

PURGING JOBS OR FILES FROM SYSTEM QUEUES
For NOS (RBF):

Purpose Purges jobs or files from system queues.

Format

PURGE or
PUR
JOB=job sequence name
PR or PU or PT or ALL or IN or EX

Examples

```
READY purge, job=aaus, all
```

PURGING JOBS OR FILES FROM SYSTEM QUEUES (NOS/VE Command)
For NOS/VE (OPES):

Purpose Purges jobs or files from system queues.

Format

TERMINATE_JOB or
TERJ
JOB_NAME=list of name
STATE=keyword

or

Format

TERMINATE_OUTPUT or
TERO
NAME=list of name

or

Format

TERMINATE_QUEUED_OUTPUT or
TERQO
NAME=list of name
STATUS=status variable

Examples

```
/terj jn=job1 s=waiting
                or
/tero n=output1
                or
/terqo n=output1
```

Remarks You can terminate only your own input or output.

SELECTING A FILE For NOS (RBF):

Purpose Overrides the normal file selection process and causes the specified file to be assigned to the specified device as soon as the device is available.

Format

CHANGE or
CHG
JOB=job sequence name
PR or PU or PT or ALL
PRI=octal integer

Examples

```
READY change, job=aabc, pr, pri=57
```

SELECTING A FILE For NOS/VE (OPES):

Purpose Overrides the normal file selection process and causes the specified file to be assigned to the specified device as soon as the device is available.

Format

SELECT_FILE or
SELF
NAME=name
DEVICE_NAME=name

Examples

```
ops/self n=aabc dn=pr2
```

General Purpose Commands

General purpose commands obtain status information and disconnect remote batch operations.

For the Remote Batch Facility (RBF), commands include:

DISPLAY
LOGOUT

For the Operate Station Utility (OPES), commands include:

DISPLAY_BATCH_DEVICE_STATUS
DISPLAY_STATION_QUEUE_ENTRY
DISPLAY_STATION_QUEUE_STATUS
DISPLAY_STATION_STATUS
QUIT

DISCONNECTING FROM AN I/O STATION SESSION For NOS (RBF):

Purpose Disconnects an I/O station session.

Format LOGOUT or
LOGOFF or
END

Examples
```
READY logout
You may enter CDCNET commands.
```

DISCONNECTING FROM AN I/O STATION SESSION For NOS/VE (OPES):

Purpose Disconnects an I/O station session.

Format QUIT or
QUI

Examples
```
ops/quit
/logout
You may enter CDCNET commands.
```

DISPLAYING BATCH DEVICE STATUS For NOS (RBF):

Purpose Displays status information for all remote batch devices.

Format

DISPLAY or
DIS
DEV
RFR

Examples

```
READY display, dev, rfr
```

DISPLAYING BATCH DEVICE STATUS For NOS/VE (OPES):

Purpose Displays status information for all the station's batch devices.

Format

DISPLAY_BATCH_DEVICE_STATUS or
DISBDS
DEVICE_NAME=all
DISPLAY_OPTION=all
OUTPUT=file

Examples

```
ops/disbds dn=all do=all o=$output
```

DISPLAYING INPUT AND EXECUTION QUEUES For NOS (RBF):

Purpose Displays status information for jobs and files in the input and execution queues.

Format

DISPLAY or
DIS
IN or **EX**
RFR

Examples

```
READY display, in, rfr
```

DISPLAYING INPUT AND EXECUTION QUEUES (NOS/VE Command) For NOS/VE (OPES):

Purpose Displays status information for jobs and files in the input and execution queues.

Format

DISPLAY_JOB_STATUS or
DISJS
JOB_NAME=all
OUTPUT=file

Examples

```
/disjs jn=all output=$output
```

Remarks DISJS displays status information for only your jobs and files.

DISPLAYING FILE STATUS For NOS/VE (RBF):

Purpose N/A

DISPLAYING FILE STATUS For NOS/VE (OPES):

Purpose Display status information for the files specified.

Format **DISPLAY_STATION_QUEUE_ENTRY** or **DISSQE**
NAME=system or user job name
DISPLAY_OPTIONS=all or brief
OUTPUT=file

Examples
```
ops/dissqe n=top_ten do=brief o=$output
```

DISPLAYING JOB STATUS For NOS (RBF):

Purpose Display status information for the job or file specified.

Format

DISPLAY or
DIS
JOB=job sequence name
RFR

Examples

```
READY display, job=aaus, rfr
```

DISPLAYING JOB STATUS (NOS/VE Command) For NOS/VE (OPES):

Purpose Display status information for the job specified.

Format

DISPLAY_JOB_STATUS or
DISJS
JOB_NAME=all
OUTPUT=file

Examples

```
/disjs jn=all output=$output
```

DISPLAYING OUTPUT QUEUE STATUS For NOS (RBF):

Purpose Displays status information for printers, card punches, or plotters.

Format

DISPLAY or
DIS
PR or PU or PT
RFR

Examples

```
READY display, pr, rfr
```

DISPLAYING OUTPUT QUEUE STATUS For NOS/VE (OPES):

Purpose Displays status information for printers, card punches, or plotters.

Format

DISPLAY_STATION_QUEUE_STATUS or
DISSQS
DISPLAY_OPTION=all
OUTPUT=file

Examples

```
ops/dissqs do=all o=$output
```

DISPLAYING STATION STATUS For NOS (RBF):

Purpose N/A

DISPLAYING STATION STATUS For NOS/VE (OPES):

Purpose Displays the status of the I/O station you are operating.

Format **DISPLAY_STATION_STATUS** or
DISSS
OUTPUT=file

Examples

```
ops/disss o=$output
```

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Batch Terminal and Printer Support 5

CDCNET provides batch data transfer services for the following terminals and devices:

- Asynchronous printers (CDC 533, CDC 536, CDC 537, and Apple LaserWriter)
- URI Printers (CDC 585 and 587, and Xerox 4050)
- HASP
- Mode 4
- 3270 BSC

This chapter describes supported features of batch terminals and printers, file formats, and other information specific to these printers.

Asynchronous Printers

The following asynchronous printers connect to CDCNET through asynchronous or X.25 communication lines:

- CDC 533
- CDC 536
- CDC 537
- Apple LaserWriter and compatible PostScript laser printers

Asynchronous printers are supported on NOS by the Printer Support Utility (PSU), which is described in the NOS 2 Operations Handbook.

Asynchronous printers are supported on NOS/VE by the Operate Station Utility (OPES), which is described in chapter 3.

Control Data defines printer model attributes for the printers specified above.

Other printer terminal models may be defined by your site administrator and network operator with the DEFINE_PRINTER_MODEL_ATTRIBUTES and CHANGE_PRINTER_MODEL_ATTRIBUTES commands.

You use the CHANGE_BATCH_DEVICE_ATTRIBUTES (CHABDA) command to change the device attributes of your printer (refer to chapter 3 for more information).

The ASYNC and X.25 ASYNC TIPs do not utilize the CDC 536 and CDC 537 compressed data formatting functions, such as:

- Repeat character
- Relative horizontal positioning
- Relative vertical positioning
- Set horizontal tabulation

Batch TIPs automatically enable X-ON/X-OFF flow control for printer devices.

PostScript Printers

PostScript printers, such as the Apple LaserWriter printer, can be connected to CDCNET as asynchronous batch output devices. The Asynchronous or X.25 ASYNC TIP handles the transfer of transparent files formatted for printing on a PostScript device and can also prepare ordinary text output files for printing on a PostScript printer using CDCNET batch device attributes.

CDCNET supports the following:

- On NOS/VE, ordinary text files and PostScript formatted files can be selected and printed on the LaserWriter printer or any other compatible PostScript printer. On NOS, only text files can be printed on the LaserWriter or any other compatible PostScript printer.

- On NOS/VE, files can be formatted for either portrait or landscape orientation based on the PAGE_WIDTH file attribute. On NOS, all files are formatted for one orientation or the other based on the device page_width.

CDCNET performs PostScript formatting by means of file-prefix procedures, file suffix, single space, no space, and form feed sequences as the file is being text-processed for sending to the printer. Files already in PostScript format should be transferred as transparent files.

To print a file on a LaserWriter printer, indicate an I/O station name/alias, device name/alias, or external characteristic corresponding to the desired printer. If the file is already in PostScript format, specify DATA_MODE=TRANSPARENT on the PRINT_FILE command.

A PostScript printer, such as the Apple LaserWriter printer, is identified with a TERMINAL_MODEL parameter value of POSTSCRIPT.

Both CDC-defined terminal model POSTSCRIPT and site-defined terminal models beginning with POSTSCRIPT_ have special internal attributes set that cause special code substitution in text files, micro substitution in the file prefix procedure for those terminal models, automatic adjustment of forms_size, and restrictions or defaults for the device vertical_print_density.

When defining a TERMINAL_MODEL starting with POSTSCRIPT_, similar values may need to be specified in the DEFINE_PRINTER_MODEL_ATTRIBUTES command.

Terminal Model Attributes Values

Table 5-1 lists the terminal model attribute values for the CDC 533 or CDC 536 printer.

Table 5-1. Terminal Model Attribute Values (TM=CDC_533V_536V)

Attribute	CDC_533V_536V Value	Description
AUTO_PAGE_EJECT_CHANNEL	2	Printer skips to next Top-of-Form channel when channel 2 is reached while printing output lines.
BOTTOM_OF_FORM_CHANNEL	7	Printer skips to channel 7 when 2 or B format effector is reached while printing output lines.
CHANNEL_1_SEQUENCE	(ESC,50(16),22(16),31(16), ESC,5C(16))	
CHANNEL_2_SEQUENCE	(ESC,50(16),22(16),32(16), ESC,5C(16))	
CHANNEL_3_SEQUENCE	(ESC,50(16),22(16),33(16), ESC,5C(16))	

(Continued)

Table 5-1. Terminal Model Attribute Values (TM=CDC_533V_536V) *(Continued)*

Attribute	CDC_533V_536V Value	Description
CHANNEL_4_ SEQUENCE	(ESC,50(16),22(16),34(16), ESC,5C(16))	
CHANNEL_5_ SEQUENCE	(ESC,50(16),22(16),35(16), ESC,5C(16))	
CHANNEL_6_ SEQUENCE	(ESC,50(16),22(16),36(16), ESC,5C(16))	
CHANNEL_7_ SEQUENCE	(ESC,50(16),22(16),37(16), ESC,5C(16))	
CHANNEL_8_ SEQUENCE	(ESC,50(16),22(16),38(16), ESC,5C(16))	
CHANNEL_9_ SEQUENCE	(ESC,50(16),22(16),39(16), ESC,5C(16))	
CHANNEL_10_ SEQUENCE	(ESC,50(16),22(16),31(16), 30(16),ESC,5C(16))	
CHANNEL_11_ SEQUENCE	(ESC,50(16),22(16),31(16), 31(16),ESC,5C(16))	
CHANNEL_12_ SEQUENCE	(ESC,50(16),22(16),31(16), 32(16),ESC,5C(16))	

(Continued)

Table 5-1. Terminal Model Attribute Values (TM=CDC_533V_536V) *(Continued)*

Attribute	CDC_533V_536V Value	Description
FILE_SUFFIX_SEQUENCE	CR,LF	Carriage return, line feed
FOLD_LINE	FALSE	The TIP does not insert carriage return, line feed sequences.
FORM_FEED_DELAY	0	No delay.
FORM_FEED_SEQUENCE	CR,FF	Carriage return, form feed.
MAXIMUM_VFU_LENGTH	176	176 lines supported in a VFU load image.
NO_SPACE_SEQUENCE	CR	Carriage return.
SINGLE_SPACE_DELAY	0	No delay.
SINGLE_SPACE_SEQUENCE	CR,LF	Carriage return, line feed.
VFU_TOP_FORM	TRUE	Printer must be at Top-of-Form when the VFU is loaded.

Table 5-2 lists the terminal model attribute values for the CDC_537V printer.

Table 5-2. Terminal Model Attribute Values (TM = CDC_537V)

Attribute	CDC_537V[1] Value	Description
AUTO_PAGE_EJECT_CHANNEL	2	Printer skips to next Top-of-Form channel when channel 2 is reached while printing output lines.
BOTTOM_OF_FORM_CHANNEL	7	Printer skips to channel 7 when a 2 or B format effector is reached while printing output lines.
CHANNEL_1_SEQUENCE	(1F(16),01(16))	
CHANNEL_2_SEQUENCE	(1F(16),02(16))	
CHANNEL_3_SEQUENCE	(1F(16),03(16))	
CHANNEL_4_SEQUENCE	(1F(16),04(16))	
CHANNEL_5_SEQUENCE	(1F(16),05(16))	
CHANNEL_6_SEQUENCE	(1F(16),06(16))	
CHANNEL_7_SEQUENCE	(1F(16),07(16))	
CHANNEL_8_SEQUENCE	(1F(16),08(16))	

(Continued)

Table 5-2. Terminal Model Attribute Values (TM = CDC_537V) *(Continued)*

Attribute	CDC_537V[1] Value	Description
CHANNEL_9_ SEQUENCE	(1F(16),09(16))	
CHANNEL_10_ SEQUENCE	(1F(16),0A(16))	
CHANNEL_11_ SEQUENCE	(1F(16),0B(16))	
CHANNEL_12_ SEQUENCE	(1F(16),0C(16))	
FILE_SUFFIX_ SEQUENCE	CR,LF	Carriage return,line feed
FOLD_LINE	TRUE	The TIP inserts carriage return, line feed sequences to split lines that exceed PAGE_WIDTH.
FORM_FEED_ DELAY	0	No delay.
FORM_FEED_ SEQUENCE	CR,FF	Carriage return, form feed.
MAXIMUM_ VFU_LENGTH	192	192 lines supported in a VFU load image.
NO_SPACE_ SEQUENCE	CR	Carriage return.
SINGLE_ SPACE_DELAY	0	No delay.
SINGLE_ SPACE_ SEQUENCE	CR,LF	Carriage return, line feed.
VFU_TOP_ FORM	TRUE	Printer must be at Top-of-Form when the VFU is loaded.

1. This is the default for the ASYNC TIP and X.25 ASYNC TIP.

Table 5-3 lists the terminal model attribute values for an asynchronous printer without VFU.

Table 5-3. Terminal Model Attribute Values (TM = ASYNC_PRINTER_WITHOUT_VFU)

Attribute	ASYNC_PRINTER_WITHOUT_VFU	Description
FOLD_LINE	FALSE	The TIP does not insert carriage return, line feed sequences.
FILE_SUFFIX_SEQUENCE	CR,LF	Carriage return, line feed.
FORM_FEED_DELAY	0	No delay.
FORM_FEED_SEQUENCE	CR,FF	Carriage return, form feed.
NO_SPACE_SEQUENCE	CR	Carriage return.
SINGLE_SPACE_DELAY	0	No delay.
SINGLE_SPACE_SEQUENCE	CR,LF	Carriage return, line feed.

Table 5-4 lists the terminal model attribute values for the CDC-defined TERMINAL_MODEL specification POSTSCRIPT.

Table 5-4. Terminal Model Attribute Values (TM=POSTSCRIPT)

Attribute	POSTSCRIPT Value	Description
FILE_PREFIX_ PROCEDURE	START_POSTSCRIPT_ FILE	Load procedure containing data to be output to the printer at the start of each file.
FILE_SUFFIX_ SEQUENCE	(')','F','S','S','(',04(16))	Sequence of octets sent to the printer at the end of each file.
FOLD_LINE	FALSE	The TIP does not insert carriage return, line feed sequences to split lines which exceed PAGE_WIDTH.
FORM_FEED_ DELAY	0	No delay.
FORM_FEED_ SEQUENCE	(')','F','F','S','(')	Sequence of octets sent to the printer when a 1 or A format effector is reached while printing output lines.
INITIALIZATION-_PROCEDURE	POSTSCRIPT_ERROR_ HANDLER	Load procedure containing data to be sent to the printer device when it becomes active.

(Continued)

Table 5-4. Terminal Model Attribute Values (TM = POSTSCRIPT) *(Continued)*

Attribute	POSTSCRIPT Value	Description
NO_SPACE_ SEQUENCE	(')','N','S','S',(')	Sequence of octets sent to the printer when a + format effector is reached while printing output lines.
SINGLE_ SPACE_ SEQUENCE	(')','S','S','S',(')	Sequence of octets sent to the printer when a space, 0, or - format effector is reached while printing output lines.
SINGLE_ SPACE_DELAY	0	No delay.

If the TERMINAL_MODEL name is POSTSCRIPT or begins with the characters POSTSCRIPT_, then CDCNET performs the following substitutions:

- For NOS/VE, the file page width is substituted for every occurrence of the string $PW, and the device forms_size is substituted for every occurrence of the string $FS in a file prefix procedure for the device.
- For NOS, the device page width is substituted for every occurrence of the string $PW, and the device forms size is substituted for every occurrence of the string $FS in a file prefix procedure for the device.

Printer Support

The format effectors (carriage control) supported by the ASYNC and X.25 ASYNC TIPs are shown in table 5-5.

Table 5-5. ASYNC and X.25 TIP Format Effectors

Format Effectors	Action_Before_Print	Action_After_Print
Space	Advance 1 line (single space)	
0	Advance 2 lines (double space)	
+	Advance 0 lines (overprint)	
-	Advance 3 lines (triple space)	
/	Advance 0 lines (overprint)	
1	Advance to Top-of-Form (page_eject)	
2	Advance to Bottom-of-Form channel	
3	Advance to Channel 6	
4	Advance to Channel 5	
5	Advance to Channel 4	
6	Advance to Channel 3	
7	Advance to Channel 2	
8	Advance to Channel 1	
9	Advance to Channel 7	

(Continued)

Table 5-5. ASYNC and X.25 TIP Format Effectors *(Continued)*

Format Effectors	Action_Before_Print	Action_After_Print
A		Advance to Top-of-Form (page_eject)
B	Advance to Bottom-of-Form Channel	
C		Advance to Channel 6
D		Advance to Channel 5
E		Advance to Channel 4
F		Advance to Channel 3
G		Advance to Channel 2
H		Advance to Channel 1
I		Advance to Channel 7
J		Advance to Channel 8
K		Advance to Channel 9
L		Advance to Channel 10
M		Advance to Channel 11
N		Advance to Channel 12

(Continued)

Table 5-5. ASYNC and X.25 TIP Format Effectors *(Continued)*

Format Effectors	Action_Before_Print	Action_After_Print
Q	Deselect auto page_eject	
R	Select auto page_eject	
S	Select 6 lines per inch	
T	Select 8 lines per inch	
U	Advance to Channel 12	
V	Load Vertical Format Unit	
W	Advance to Channel 11	
X	Advance to Channel 8	
Y	Advance to Channel 9	
Z	Advance to Channel 10	
PM	Send printer message	

Batch Transparent Mode Output

Batch Transparent Mode output data is transmitted to the device as received with the following exceptions.

- If the parity type is not NONE, the TIP forces the proper parity bit to be sent with each character.
- If the parity type is NONE, the TIP sends the downline data as eight-bit characters.

For CDC-defined printer model CDC_537V, the TIP strips certain control character codes from the data. These control codes are DC3, CAN, SUB, FS, GS, RS, and US. These codes, if sent to a CDC 537 printer, put the printer into a state requiring operator intervention to clear.

PostScript Data Format

Files that are formatted in PostScript format should be routed as transparent files to a PostScript printer. These files should be structured in the following way:

1. The file should have the NOS/VE file attribute RECORD_TYPE=T.

2. The file should begin with and be terminated by an ASCII end-of-text (EOT) control code (hexadecimal value 04), if the PostScript device is configured to not print banners or trailers. (If banners or trailers are printed, an end-of-text control code is provided in the file suffix sequence sent to a printer configured as TERMINAL_MODEL=POSTSCRIPT.) The end-of-text control codes are necessary to protect the file's data from access or corruption by a subsequent file printed on the same device or to prevent corruption of an earlier file that may not have ended with an EOT. The end-of-text control code can be added to the end of the file by using the DISPLAY_UNPRINTABLE_CHARACTERS option of the NOS/VE EDIT_FILE utility.

   NOTE

   This step may cause blank pages to be printed and is a temporary process that may not be necessary when additional features are added for enhanced PostScript printer support in a future release of CDCNET. This step is not necessary if the device is configured to print banners and trailers.

3. For NOS/VE printers configured as TERMINAL_MODEL=POSTSCRIPT, orientation of nontransparent files on NOS/VE and NOS is determined by page_width as follows:

   A file with a PAGE_WIDTH attribute of 80 or less will be printed in portrait (vertical) orientation.

   If PAGE_WIDTH is greater than 80, the file will be printed in landscape (horizontal) orientation.

   For NOS printers, the device page_width determines the orientation.

Recommended CDC 536 Switch Settings

The CDC 536 has four banks of switches and 52 defined configurable options. The switch settings are shown in table 5-6. The main control panel options are shown in table 5-7. For more information on switch settings, refer to your printer's reference manual.

Table 5-6. Recommended CDC 536 Switch Settings

Switch Number	Switch Setting	Description
Switches on the 1PC1 Board		
1	ON	Online Mode
2	ON	Unused
3	OFF	Unused
4	OFF	Unused
Switch Set SWN1 on the 1PC2 Board		
1	ON	Diagnostic Routine Selection
2	ON	Diagnostic Routine Selection
3	ON	Diagnostic Routine Selection
4	ON	Diagnostic Routine Selection
5	ON	Diagnostic Routine Selection
6	ON	Diagnostic Routine Selection
7	ON	Diagnostic Routine Selection
8	ON	Diagnostic Routine Selection
9	ON	Diagnostic Routine Selection

(Continued)

Table 5-6. Recommended CDC 536 Switch Settings *(Continued)*

Switch Number	Switch Setting	Description
Switch Set SWN2 on the PC2 Board		
.	ON	Channel 2 = Bottom-of-Form
2	ON	Channel 2 = Bottom-of-Form
3	OFF	No Auto Line Feed
Switch Set SWN3 on the PC2 Board		
.	OFF	I/O Vertical Format Unit
2	ON	I/O Vertical Format Unit
3	ON	3 Line Perforation Skip
4	ON	3 Line Perforation Skip
5	ON	136 columns
6	ON	Unused
7	ON	VT Selects Channel 3
8	OFF	Unused

Table 5-7. Main Control Panel Options

Option Number	Setting	Description
01	N/A	Reserved
02	N	Auto New Line On Carriage Return
03	N	Lower to Upper Case Translate
04	Y	Auto New Line On Right Margin
05	N	SO/SI Enable
06	Y	Convert Vertical Tab to Line Feed
07	FF	Invalid Control Code Substitute Character Code
08	FF	Invalid Control Sequence Substitute Character Code
09	FF	Transmission Error Substitute Character Code
10	Y	Substitute on Invalid Control Code
11	Y	Substitute on Invalid Control Sequence
12	Y	Substitute on Transmission Error
13	Y	Sound Bell on Invalid Control Code
14	Y	Sound Bell on Invalid Control Sequence
15	Y	Sound Bell on Transmission Sequence
16	N	Halt on Invalid Control Code
17	N	Halt on Invalid Control Sequence
18	N	Halt on Transmission Error
19	N	Monitor Data Set Ready

(Continued)

Table 5-7. Main Control Panel Options *(Continued)*

Option Number	Setting	Description
20	N	Monitor Received Line Signal Detector
21	N	Drop Data Terminal Ready on Printer Off Line
22	3	Constant RTS Without Wait for CTS
23	N	Reserve Channel Enable (Almost Full=Off)
24	N	Invert Reverse Channel (Almost Full=On)
25	Y	Send X-ON/X-OFF Enable
26	N	Break Enable
27	N	Auto Answer Enable
28	Y	Parity Enable
29	O	Odd/Even Parity
30	N	Synchronous Mode
31	N	Sync Transmit Mode with External Clock
32	N	Pacers Follow Start/Stop
33	96	Select Baud Rate
34	7	Data Byte Bit Length
35	1	Number of Stop Bits
36	10	Set Buffer Almost Full Threshold (X 16 Dec or 10 Hex)
37	10	Set Buffer Almost Empty Threshold (X 16 Dec or 10 Hex)
38	00	Set Carrier Dropout Time Limit (Seconds)
39	00	Set No Activity Timer (Seconds)

(Continued)

Table 5-7. Main Control Panel Options *(Continued)*

Option Number	Setting	Description
40	00	Set Data Terminal Ready Off Timer (Seconds)
41	N/A	Translate on 48 Character Set Print Baud
42	N/A	Translate on 64 Character Set Print Baud
43	N/A	Translate on 96 Character Set Print Baud
44	N/A	Translate on 128 Character Set Print Baud
45	Y	Enable Control Panel Buffer Clear Switch
46	1	Set Number of Sync Characters
47	16	Set Sync Character Code
48	N/A	Reserved
49	N/A	Reserved
50	N/A	Reserved
51	N/A	Reserved
52	N/A	Reserved
53	N	Auto Start
54	N	Immediate Status Response
55	Y	Ignore NUL/DEL Codes Without Echo or SO Conversion.

Recommended CDC 537 Switch Settings

The CDC 537 has seven Dual Inline Package (DIP) switches (located on the 37CP071 control processor and 35IF531 RS232C interface boards), which set various printer options. Tables 5-8 and 5-9 provide the settings for the proper operation of your printer. Refer to your printer's documentation for further information before deviating from the recommended settings.

Table 5-8. Recommended CDC 537 DIP Switch Settings for the RS232C Interface Board

Switch Number	Recommended Setting	Recommended Switch Setting Action
SW1-1	ON	If a line skip command results in a position past Top-of-Form, the skip count will be truncated to place the paper at the top of the form.
SW1-2	OFF	Initial Status is Stop after Power On
SW1-3	OFF	Print Only on Buffer Full Condition
SW1-4	OFF	Do not Convert to Upper Case
SW1-5	OFF	No Double LF
SW1-6	ON	The line is printed when data is terminated by LF, VT, FF, US, or maximum data
SW1-7	OFF	Maximum of 8 Overprints
SW1-8	OFF	No Line-Feed on Carriage Return

(Continued)

Table 5-8. Recommended CDC 537 DIP Switch Settings for the RS232C Interface Board *(Continued)*

Switch Number	Recommended Setting	Recommended Switch Setting Action
SW2-1	OFF	Invalid Characters Printed as Spaces
SW2-2	ON	Invalid Function Code is Ignored
SW2-3	ON	DEL Code is Invalid
SW2-4	ON	Auto-skip to Top-of-Form if a line skip command results in a position between bottom-of-form and top-of-form
SW2-5 SW2-6 SW2-7	OFF OFF OFF	SW2-5, 2-6, and 2-7 form a binary number which describes the number of lines to be skipped when the Bottom-of-Form is reached. SW2-5 is the low-order bit; SW2-7 is the high-order bit. SW2-5, 2-6, 2-7, set (OFF, OFF, OFF), specify skipping 3 lines
SW2-8	OFF	DEL Code is treated as a control code
SW3-1	OFF	Unused
SW3-2	OFF	Unused
SW3-3	OFF	Unused
SW3-4	OFF	Unused
SW3-5	OFF	Unused
SW3-6	OFF	Unused
SW3-7	OFF	Unused
SW3-8	ON	Select US print band

(Continued)

Table 5-8. Recommended CDC 537 DIP Switch Settings for the RS232C Interface Board *(Continued)*

Switch Number	Recommended Setting	Recommended Switch Setting Action
SW4-1	ON	Enable 7 Data Bits
SW4-2	ON	Select 1 Stop Bit
SW4-3	OFF	Tx Parity
SW4-4	OFF	Rx Parity
SW4-5	ON	Even Parity
SW4-6	OFF	Data Buffer = 4K Bytes
SW4-7	OFF	CAN Code is treated as invalid
SW4-8	ON	No Modem - RTS Signal is always Active
SW5-1	OFF	Used with SW5-3,4,5 to Set Line Speed=9600
SW5-2	OFF	Used with SW5-6 to Set Simplex Protocol
SW5-3	OFF	Switches SW5-1,3,4,5 Set Line Speed=9600
SW5-4	ON	
SW5-5	OFF	
SW5-6	OFF	Used with SW5-2 to Set Simplex Protocol
SW5-7	OFF	Internal Clock Selection (Must Be OFF)
SW5-8	OFF	Unused by CDC (Must Be OFF)

(Continued)

Table 5-8. Recommended CDC 537 DIP Switch Settings for the RS232C Interface Board *(Continued)*

Switch Number	Recommended Setting	Recommended Switch Setting Action
SW6-1	OFF	Low frequency (Must Be OFF)
SW6-2	OFF	Select SCA Signal (Must Be OFF)
SW6-3	ON	CTS Disabled
SW6-4	ON	DCD Disabled
SW6-5	ON	DSR Disabled
SW6-6	OFF	Select DTR Only (No BUSY)
SW6-7	OFF	Rx clock internal (Must Be OFF)
SW6-8	OFF	Tx clock internal (Must Be OFF)

Table 5-9. Recommended CDC 537 DIP Switch Settings for the 37CP071 Control Processor Board

Switch Number	Recommended Setting	Recommended Switch Setting Action
SW1-1	OFF	Detect HD Transistor Check on odd-numbered columns
SW1-2	ON	Detect HD Transistor Check on even-numbered columns
SW1-3	ON	Specifies UP700
SW1-4	OFF	Unused (Must be OFF)
SW1-5	OFF	Printing enabled
SW1-6	ON	136 columns
SW1-7	OFF	11 inch forms default
SW1-8	ON	FCT not read when powered on

URI Printers

The CDC 585 and 587 line printers are supported by CDCNET through the Unit Record Interface (URI). URI is a parallel interface that can receive output from NOS or NOS/VE systems.

The following URI printers are supported by CDCNET through the URI:

- CDC 585 and CDC 587
- Xerox 4050, 8700, 9700 using a SPUR Universal System Adaptor

Only text files may be sent to URI printers.

Terminal Model Attribute Values

Attributes set as a result of the TERMINAL_MODEL specification for the CDC 585 line printer are shown in table 5-10.

Table 5-10. CDC 585 Printer Attributes (TM=CDC_585V)

Attribute	CDC_585V Value	Description
AUTO_PAGE_EJECT_CHANNEL	8	Printer skips to next Top-of-Form channel when channel 8 is reached while printing output lines.
BOTOM_OF_FORM_CHANNEL	12	Printer skips to channel 12 when a 2 or B format effector is reached while printing output lines.
FOLD_LINE	TRUE	The TIP inserts carriage return, line feed sequences to split lines that exceed the PAGE_WIDTH.
VFU_TOP_FORM	TRUE	Printer must be at Top-of-Form when VFU is loaded.
MAXIMUM_VFU_LENGTH	127	127 lines supported in a VFU load image.

Attributes set as a result of the TERMINAL_MODEL specification XEROX_SPUR are shown in table 5-11.

Table 5-11. Attributes for CDC_Model (TM=XEROX_SPUR)

Attribute	XEROX_SPUR Value
AUTO_PAGE_EJECT_CHANNEL	8
BOTTOM_OF_FORM_CHANNEL	12
FOLD_LINE	FALSE
MAXIMUM_VFU_LENGTH	0

Special processing is done for terminal_model XEROX_SPUR which involves automatic adjustment of the device forms_size value. For further information about this special processing, refer to the CHANGE_BATCH_DEVICE_ATTRIBUTES command in chapter 3.

Printer Support

The URI format effectors (carriage control) supported by the URI are listed in table 5-12.

Table 5-12. URI Carriage Control Formats

Format Effector	Action_Before_Print	Action_After_Print
	Advance 1 line (single space)	
0	Advance 2 lines (double space)	
+	Advance 0 lines (overprint)	
-	Advance 3 lines (triple space)	
/	Advance 0 lines (overprint)	
1	Advance to Top-of-Form (page-eject)	
2	Advance to Bottom-of-Form channel	
3	Advance to Channel 6	
4	Advance to Channel 5	
5	Advance to Channel 4	
6	Advance to Channel 3	
7	Advance to Channel 2	
8	Advance to Channel 1	
9	Advance to Channel 7	

(Continued)

Table 5-12. URI Carriage Control Formats *(Continued)*

Format Effector	Action_Before_Print	Action_After_Print
A		Advance to Top-of-Form (page-eject)
B	Advance to Bottom-of-Form channel	
C		Advance to Channel 6
D		Advance to Channel 5
E		Advance to Channel 4
F		Advance to Channel 3
G		Advance to Channel 2
H		Advance to Channel 1
I		Advance to Channel 7
J		Advance to Channel 8
K		Advance to Channel 9
L		Advance to Channel 10
M		Advance to Channel 11
N		Advance to Channel 12

(Continued)

Table 5-12. URI Carriage Control Formats *(Continued)*

Format Effector	Action_Before_Print	Action_After_Print
Q	Deselect auto page-eject	
R	Select auto page-eject	
S	Select 6 lines per inch	
T	Select 8 lines per inch	
U	Advance to Channel 12	
V	Load Vertical Forms Unit	
W	Advance to Channel 11	
X	Advance to Channel 8	
Y	Advance to Channel 9	
Z	Advance to Channel 10	
PM	Send printer message	

All other format effectors are treated as a Undefined_FE's.

Recommended CDC 585 Switch Settings

The recommended CDC 585 printer switch settings are indicated in table 5-13. Refer to your printer's documentation for further information before deviating from the recommended settings.

Table 5-13. Recommended CDC 585 Switch Settings

Switch Number	Recommended Setting	Recommended Switch Setting Action
SW1-1 SW1-2	ON ON	Used with SW1-2 to Select Channel 8 as the Bottom-of-Form Channel
SW1-3 SW1-4 SW1-5	OFF OFF OFF	SW1-3, 1-4, and 1-5 form a binary number which describes the number of lines to be skipped when the Bottom-of-Form is reached. SW1-3 is the low-order bit; SW1-5 is the high-order bit. SW1-3, 1-4, 1-5, set to OFF, OFF, OFF, specify skipping 0 lines. Enabled by SW3-2
SW1-6	OFF	No Line-Feed on Carriage Return
SW1-7	OFF	Retain Ready Status on Parity Error
SW1-8	OFF	Report VFU Ready Status (Must be OFF)
SW2-1	OFF	Retain Ready Status on Error Conditions
SW2-2	OFF	Strobe Signal not Delayed
SW2-3	ON	Disable Dual Interface Function
SW2-4	OFF	Unused (Must Be OFF)
SW2-5	OFF	Unused (Must Be OFF)
SW2-6	OFF	Unused (Must Be OFF)
SW2-7	OFF	Execute Control Codes
SW2-8	ON	Select DPC Standard Interface

(Continued,

Table 5-13. Recommended CDC 585 Switch Settings *(Continued)*

Switch Number	Recommended Setting	Recommended Switch Setting Action
SW3-1	OFF	Stop on End of Form Detection
SW3-2	ON	Disable Skipover Function Defined by SW1-3,4,5
SW3-3	ON	Enable VFU Skipover
SW3-4	OFF	Data Line 5 is VFU Control Bit
SW3-5	OFF	Control Bit False Indicates Channel Command
SW3-6	ON	Step-Count Truncate Enabled - If a line skip command results in a position past Top-of-Form, the skip count will be truncated to place the paper at the top of the form.
SW3-7 SW3-8	ON ON	Used with SW3-8 to Select DAVFU with 8 Data Bits Plus PI
SW4-1	ON	Select Data 1 - 7 Signals High True
SW4-2	ON	Select Data 8 Signal High True
SW4-3	ON	Select Data P Signal High True
SW4-4	OFF	Select PI Signal High True
SW4-5	OFF	Select Strobe Signal High True
SW4-6	ON	Select Buffer Clear Signal Low True
SW4-7	ON	Select Printer Status Signals High True
SW4-8	ON	Select Ready Status Signal High True

(Continued)

Table 5-13. Recommended CDC 585 Switch Settings *(Continued)*

Switch Number	Recommended Setting	Recommended Switch Setting Action
SW5-1	OFF	Select Interface Control 326 nanosecond Clock (Must Be OFF)
SW5-2	OFF	Enable eighth Data Bit (Communications Protocol - Must Be OFF)
SW5-3	ON	Select eighth Data Bit not for PI (Communications Protocol - Must Be ON)
SW5-4	OFF	Unused (Must Be OFF)
SW5-5	ON	Selects Parity Check on eight bits
SW5-6	OFF	Select Odd Parity (Enabled by SW5-7)
SW5-7	OFF	Enable Parity Check
SW5-8	OFF	Unused (Must Be OFF)

Recommended CDC 587 Switch Settings

The recommended CDC 587 printer switch settings are indicated in table 5-14. Refer to your printer's documentation for further information before deviating from the recommended settings.

NOTE

You must use the printer's long-line driver port with a URI LIM.

Table 5-14. Recommended CDC 587 Switch Settings

Switch Number	Switch Setting	Description
Switch SW201 on PC1 in power supply		
1	ON	The initial power ready signal is supplied by the internal circuit.
2	ON	The initial power ready signal is supplied by the internal circuit.
3	ON	The initial power ready signal is supplied by the internal circuit.
4	ON	Power alarm signal is supplied by the internal circuit.
5	ON	Disconnect DISABLE SW-NO from PCI Unit.
6	ON	Disconnect DISABLE SW-NC from PCI Unit.
7	ON	Disconnect DISABLE SW-C from PCI Unit.

(Continued)

Table 5-14. Recommended CDC 587 Switch Settings *(Continued)*

Switch Number	Switch Setting	Description
Switch CPSWI on CE608 board		
1	OFF	Microprocessor is running.
2	OFF	Spare to be used for future standard option requirement.
3	OFF	Spare to be used for future standard option requirement.
4	OFF	FORM LENGTH is set for 11 inches.
5	OFF	Enables HD TR CHECK for the odd columns.
6	OFF	Enables HD TR CHECK for the even columns.
7	OFF	Enables P-ROM SUM CHECK.
8	OFF	Enables P-ROM/RAM PARITY CHECK.

(Continued)

Table 5-14. Recommended CDC 587 Switch Settings *(Continued)*

Switch Number	Switch Setting	Description
Switch CPSW2 on CE608 board		
1	ON	136 Hammers are installed.
2	ON	136 columns are available for Interface Operation.
3	OFF	Spare to be used for future standard option requirement.
4	OFF	Spare to be used for future standard option requirement.
5	OFF	Spare to be used for future standard option requirement.
6	OFF	Spare to be used for future standard option requirement.
7	OFF	Spare to be used for future standard option requirement.
8	ON/OFF	ON selects U.S. pound (#) character. OFF selects English pound character.

(Continued)

Table 5-14. Recommended CDC 587 Switch Settings *(Continued)*

Switch Number	Switch Setting	Description
Switch SW1 on 1F131 board		
1	ON	DPC interface is enabled.
2	OFF	Spare to be used for future standard option requirement.
3	ON	START CODE/STOP CODE=6E/6F for DPC IF.
4	OFF	Slew/Skip ID bit=2^4 (D5).
5	OFF	ID bit 2^4 (2^6)=0 means "skip to CH m".
6	ON	Bit 6 ON and bit 7 OFF.
7	OFF	Indicates VFU ready is available.
8	OFF	Spare to be used for future standard option requirement.

(Continued)

Table 5-14. Recommended CDC 587 Switch Settings *(Continued)*

Switch Number	Switch Setting	Description
Switch SW2 on 1F131 board		
1	OFF	INVALID print character code is spaced.
2	ON	INVALID Function code is spaced.
3	OFF	CR, LF, FF are regarded as VALID F.C.
4	OFF	Spare to be used for future standard option requirement.
5	OFF	CR means "PRINT only" Function.
6	OFF	Spare to be used for future standard option requirement.
7	OFF	Spare to be used for future standard option requirement.
8	OFF	Spare to be used for future standard option requirement.

(Continued)

Table 5-14. Recommended CDC 587 Switch Settings *(Continued)*

Switch Number	Switch Setting	Description
Switch SW3 on 1F131 board		
1	OFF	LF indicates "SINGLE SPACE" Function.
2	ON	Bits 2 and 3 ON select BOF channel 8. This function is enabled even in FLS mode.
3	ON	
4	OFF	Bits 4, 5, and 6 indicate position where BOF channel is loaded. All three bits OFF indicate 0 lines from BOF channel to the next TOF. In case of DPC, BOF channel is specified by BOF CHANNEL SELECTION switches.
5	OFF	
6	OFF	
7	ON	When BOF channel is detected in the FCB for the line-advance command, an advance moves until the next CHI is detected.
8	ON	When CHI code is detected in the FCB for the line-advance command, an advance is truncated at the CHI position.

(Continued)

Table 5-14. Recommended CDC 587 Switch Settings *(Continued)*

Switch Number	Switch Setting	Description
Switch SW4 on 1F131 board		
1	OFF	A line-advance command is decoded up to 15 lines.
2	OFF	LP continues to print until TOF is reached after PAPER OUT.
3	OFF	LP remains in the ONLINE state even if TRANS PARITY ERROR occurs.
4	OFF	LP remains in the ON LINE state, even if FCB LOAD CHECK occurs.
5	OFF	LP remains in the READY state, even if FCB DATA CHECK occurs, however ON LINE goes to inactive.
6	OFF	Spare to be used for future standard option requirement.
7	OFF	The 1403 compatibility function is disabled.
8	ON	DPC LONG interface is enabled.

(Continued)

Table 5-14. Recommended CDC 587 Switch Settings *(Continued)*

Switch Number	Switch Setting	Description
Switch SW5 on 1F131 board		
1	OFF	DATA and DATA P are recognized as High true signals.
2	OFF	ONLINE is High true.
3	OFF	BUSY is High true signal.
4	OFF	PI is recognized as High true signal.
5	ON	STROBE is recognized as High true signal.
6	OFF	BUFCLR is recognized as Low true.
7	OFF	PAPER MOVING, VFU READY, CH9 STATUS, PAPER EMPTY, PARITY ERROR, TOF, BOF become High true.
8	OFF	READY IS High true.

(Continued)

Table 5-14. Recommended CDC 587 Switch Settings *(Continued)*

Switch Number	Switch Setting	Description
Switch SW6 on 1F131 board		
1	ON	80.5 ns CLOCK is used for the interface control clock.
2	OFF	Enables the 8th data bit.
3	OFF	DATA 8 is not used for PI.
4	OFF	DATA STROBE is required conjunction with PI for paper instruction.
5	ON	DEMAND is recognized as High true.
6	OFF	Odd parity check.
7	OFF	The printer will enable to perform a parity check on 8 data lines.
8	OFF	VFU VERIFY is not reported.
Switch SW1 on SD031 board		
1	ON	Normal mode.
2	ON	Normal mode.
3	ON	Table auto-up function is disabled.
4	OFF	Spare to be used for future standard option requirement.

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HASP Terminals

HASP batch stations are designed for remote batch input from card readers and output to line printers, card punches, and plotters. Each station must contain a console device that can be used as a normal interactive device with limited screen and formatting capabilities.

Each HASP station can support:

- Up to seven card readers
- Up to seven line printers
- A combined total of seven card punches and/or plotters
- One console device (required)

The following features of the HASP protocol are supported by the HASP terminal interface program (TIP):

- HASP EBCDIC terminals; ASCII terminals are not supported.
- Both transparent and non-transparent bisynchronous block formats. If the terminal transmits in bisynchronous transparent mode, the TIP outputs bisynchronous transparent mode; if the terminal transmits in non-transparent mode, the TIP transmits in non-transparent mode.
- Compressed data formats on batch devices only.
- Multileaved data accepted from a HASP station. However, multileaved data is not transmitted to a HASP station. If output is being sent to multiple devices on a HASP station, it is sent alternately to the different devices.
- Printers that handle only post-print carriage control and also printers that handle both pre-print and post-print carriage control.
- Line speeds from 1200 bps to 64K bps.

Signon Block

After connecting to CDCNET, the first block input from the HASP interactive stream is the SIGNON block. If the first two characters of the SIGNON block are not /*, the data is treated as keyboard input. If the SIGNON block begins with the characters /*, it is discarded.

Terminal Model Attribute Values

Attributes set as a result of the TERMINAL_MODEL specificiation of CDC_CYBER18 are shown in table 5-15.

Table 5-15. HASP Printer Attributes (TM=CDC_CYBER18)

Attribute	CDC_CYBER18 Value
TERMINAL_MODEL	CDC_CYBER_18
BOTTOM_OF_FORM_CHANNEL	12

Printer Support

The format effectors (carriage control) that are supported by HASP are shown in table 5-16.

Table 5-16. HASP Format Effectors

Format Effector	Action_Before_Print	Action_After_Print
Space	Space 1	
)	Space 2	
	Space 3	
+	No space	
	No space	
l	Page eject	
2	Skip to Channel 12	
3	Skip to Channel 6	
4	Skip to Channel 5	
5	Skip to Channel 4	
6	Skip to Channel 3	
7	Skip to Channel 2	
8	Skip to Channel 11	
9	Skip to Channel 7	

(Continued)

Table 5-16. HASP Format Effectors *(Continued)*

Format Effector	Action_Before_Print	Action_After_Print
A		Page Eject
B		Skip to Channel 12
C		Skip to Channel 6
D		Skip to Channel 5
E		Skip to Channel 4
F		Skip to Channel 3
G		Skip to Channel 2
H		Skip to Channel 1
I		Skip to Channel 7
J		Skip to Channel 8
K		Skip to Channel 9
L		Skip to Channel 10
M		Skip to Channel 11
Q through T	Unsupported_FE's	
V	Unsupported_FE's	
X	Skip to Channel 8	
Y	Skip to Channel 9	
Z	Skip to Channel 10	
PM	Send printer message	

All other format effectors are treated as a Undefined_FE's.

Card Reader Support

The following describes HASP card reader support.

Batch Command Card Processing

If the first four characters of a card are the characters /*BC, the remainder of the card is expected to be a ROUTE_JOB command.

Translation Option Card Processing

Transparent input can be specified on a separate card that contains the characters /*TR in the first four columns.

The 026/029 code translation option can be specified on a separate card that contains either of the following in columns 1 through 4:

- /*26
- /*29

Job Card Processing

If the first card of a file does not contain a /* card, it is processed as a JOB card by examining columns 79 and 80 for the characters 26, 29, or TR. If the characters 26 are present, the code translation for the file is set to 026. If the characters 29 are present, the code translation for the file is changed to 029. If the characters TR are present, the rest of the input in the card hopper is processed as transparent data.

EOR Card Processing

The last two columns of all EOR records are checked to determine if code translation is the 026 or 029 code set or if no translation is required.

End-of-record is recognized by a card containing either:

- /*EOR
- 7/8/9 multipunch

EOI Card Processing

End-of-information is indicated by either:

- A card record containing /*EOI
- An EOT (end-of-transmission) block received from the terminal (caused by the card reader becoming empty and the EOT indicator being set).

Non-Transparent Data Format

Input coming from the card reader should be in the form of files separated by one of the end-of-information (EOI) designations:

- A card record containing /*EOI
- An EOT (end-of-transmission) block received from the terminal (caused by the card reader becoming empty and the EOT indicator being set).

All /*EOR records (end-of-record), /*EOI records, and 7/8/9 records that are in the input stream in front of or between files are discarded.

The data read from the cards is translated by CDCNET from the EBCDIC code set to either the ASCII 026 or ASCII 029 code set. You determine the code set translation by setting the EXTERNAL_CHARACTERISTIC (EC) parameter on the CHANGE_BATCH_DEVICE_ATTRIBUTES command (NOS/VE) to either of the following strings:

- 026
- 029

The EXTERNAL_CHARACTERISTIC parameter determines the default code translation for the card reader; it can be changed for individual files but reverts back to the default value when EOI is encountered.

Appendix C contains tables showing how CDCNET translates from EBCDIC to ASCII and from ASCII to EBCDIC.

Transparent Input Data

Transparent input data is converted from the HASP data block format without code translation. No editing of /*EOR, 7/8/9, or /*EOI cards takes place for transparent data. Input continues until an EOT indication is received from the terminal. After receipt of the EOT indication, the card reader stream reverts to the non-transparent data mode.

You can designate HASP card reader data as transparent data by including the characters TR in the last two columns of an EOR record or job card or, by placing /*TR in the first four columns of a separate record. After the TR is detected, the rest of the input in the file stopper is processed as transparent data.

The HASP workstation should be in bisynchronous transparent mode for proper operation with transparent data. Transparent data received from a bisynchronous non-transparent work station can cause a line failure if the data contains bisynchronous control characters.

Card Punch and Plotter Support (NOS)

Files can be sent to devices designated as either a card punch or a plotter. Only transparent files can be sent to a plotter. Either transparent or non-transparent files can be sent to a card punch.

The terminal should be in bisynchronous transparent transmission mode for transparent output files to work correctly.

Mode 4 Terminals

All Mode 4A/C terminals must have a console device that can be used as a normal interactive device. Mode 4A terminals can also provide remote batch input from card readers and output to line printers, while Mode 4C terminals can provide output to line printers.

Each Mode 4A terminal can support the following:

- One console device (required)
- One card reader
- One line printer

Each Mode 4C terminal can support the following:

- One console device (required)
- Up to 14 additional devices, either line printers or consoles

The following features of the Mode 4 protocol are supported by the Mode 4 terminal interface program (TIP):

- Synchronous line speeds from 1200 to 64K bps.
- Batch Terminal Protocol for card reader (Mode 4A only) and printer devices.
- Blank compression (Mode 4A only) and trailing blank truncation to printer devices.
- Interleaved card reader and printer data for Mode 4A terminals.

For 4A terminals, either the console can be active or the batch devices can be active, but not both at the same time. The console becomes active when:

- The terminal first becomes active
- The batch interrupt key on the terminal is pressed
- Both batch devices are idle

The Mode 4 TIP assumes the batch devices are active when:

- A /*STAB message is received from the console.
- No input or output is received from or to the console for 20 seconds and the printer is active and not in a suspended state. Active means that a file transfer has been started to the printer. (Suspended state means that the printer stopped because a printer message was sent to the console or the operator entered an OPES or RBF stop command. After either of these conditions occur, the operator must be enter an OPES or RBF start command to restart the batch devices.

The Mode 4C terminal can have multiple consoles and printer devices active at the same time.

Once started, batch devices are active whenever a file becomes available to print.

Terminal Model Attribute Values

Mode 4A and 4C impact printers are identified as TERMINAL_MODEL=M4IMP. Attributes set as a result of the TERMINAL_MODEL specification M4IMP are shown in table 5-17.

Table 5-17. Mode 4A/C Impact Printer Attributes (TM=M4IMP)

Attribute	M4IMP Value
TERMINAL_MODEL	M4IMP
AUTO_PAGE_EJECT_CHANNEL	0[1]
FOLD_LINE	ON

1. Use Mode 4 page eject forms control.

Mode 4C non-impact printers are identified as TERMINAL_MODEL=M4NIMP. Attributes set as a result of the TERMINAL_MODEL specification M4NIMP are shown in table 5-18.

Table 5-18. Mode 4C Non-Impact Printer Attributes (TM=M4NIMP)

Attribute	M4NIMP Value
TERMINAL_MODEL	M4NIMP
AUTO_PAGE_EJECT_CHANNEL	6[1]
FOLD_LINE	OFF

1. Number of single spaces between pages.

For non-impact printers, the TIP uses the value of the AUTO_PAGE_EJECT_CHANNEL parameter to determine the number of single spaces to output when a page eject format effector is encountered. If the value is zero, the normal Mode 4 page eject sequence for impact printers is used.

The AUTO_PAGE_EJECT_CHANNEL parameter also determines the action taken when a bottom-of-form format effector is encountered. A value greater than 2 causes the TIP to space the specified number of lines at page boundaries. A value less than or equal to 2 causes the TIP to issue a page eject on page boundaries.

Printer Support

The Mode 4 TIP supports:

- Mode 4A and 4C impact printers
- Mode 4C non-impact printers

Data sent to Mode 4 printers is formatted into records based on the unit separator (US) end-of-record character and the page width defined for the device.

The first character of each record must be a format effector. Format effectors are converted to printer carriage control characters. The format effectors supported by Mode 4 are shown in table 5-19.

Table 5-19. Mode 4 Format Effectors

Format Effector	Action_Before_Print
Space	Space 1
0	Space 2
-	Space 3
1	See Note 1
2	See Note 2
PM	Send printer message
All other defined FE's	Undefined_FE's
All other undefined FE's	Unsupported_FE's

Note 1: Page eject or skip n lines, depending on the value of auto_page_eject_channel.

Note 2: Skip the number of lines remaining on the page - 2 if auto_page_eject_channel is less than or equal to 2. Otherwise, unsupported.

Records longer than the defined page width are folded. Blanks at the end of each output record are truncated.

Card Reader Support

The operator must always start the card reader by entering the /*STAB command unless the printer is already started. While the printer is printing, the card reader is automatically polled to determine if cards have been placed in the reader.

EOR Card Processing

The Mode 4 TIP recognizes an EOR (end-of-record) card as either:

- /*EOR in columns 1 through 5 of a card record
- 7/8/9 multiple punch in column 1

An EOR card terminates the current upline block. The next two characters on the card following the EOR characters (either columns 6 and 7 or columns 2 and 3) are converted to octal record level numbers.

EOI Card Processing

Input received from the card reader is assumed to be in the form of files separated by an end-of-information (EOI) indicator. An EOI indicator can be either:

- /*EOI in columns 1 through 5 of a card record
- 6/7/8/9 multiple punch in column 1

Data Format

All blank, 7/8/9, 6/7/8/9, /*EOR, and /*EOI records that are in the input stream in front of or between files are discarded.

Card reader data is translated from External BCD for BCD terminals and is not translated for ASCII terminals.

Trailing blanks at the end of each card record are deleted. A unit separator character is inserted at the end of each card record.

Translation Option Processing

The Mode 4A terminal has a way you can select proper input translation of cards punched with either 026 or 029 codes. This is the only method you can use to switch from one card reading translation to another. Some non-Mode 4A card readers and remote batch stations allow a card that switches between 026 and 029 translations as part of the card deck input. These cards, however, have no effect when read in from a Mode 4A terminal card reader.

3270 BSC Terminals

3270 BSC stations are designed for interactive use with the option of a printer which can be used for batch operations.

3270 BSC batch stations support:

- 3270 EBCDIC terminals; ASCII terminals are not supported
- Non-transparent BSC protocol
- Line speeds up to 9600 bps

The 3270 systems supported include models 3271, 3272, 3274, 3275, 3276, and 3277 series. Up to 32 3270 systems are supported per BSC line and each 3270 system can be configured with up to 32 devices (interactive terminals and printers). A 3270 station may be configured with print devices only. The printers must support the 3270 NEW_LINE (NL), FORM_FEED (FF), CARRIAGE_RETURN (CR), and END_OF_MESSAGE (EM) print control functions to work properly with CDCNET.

Terminal Model Attribute Values

The pre-print format effectors (carriage control) that are supported for 3270 BSC are shown in table 5-20.

Table 5-20. 3270 BSC Format Effectors

Format Effector	Action_Before_Print
Space	Skip one line
0	Skip two lines
+	Position to start of current line
-	Skip three lines
*	Position to the Top-of-Form
1	Position to the Top-of-Form Page_ Eject_Sequence 0C(16)
Q, R, S & T	Discard the line
PM	Send printer message

All other format effectors are treated as a space.

Printer Support

Printers for the 3270 include all models that can be attached to the system, except some models in the 3284 printer series.

As batch services are provided through NOS RBF, a console must be logged into RBF to control the print devices. The console for a print device should be on the same cluster controller as the printers it controls. A 3270 batch station may be configured with print devices only. The printers must support the 3270 NEW_LINE (NL), FORM_FEED (FF), CARRIAGE_RETURN (CR), and END_OF_MESSAGE (EM) print control functions to work properly with CDCNET.

Pre-print carriage control is supported only. Post-print carriage controls produce one space lines. Vertical forms control is not supported.

Batch Device Status

Batch devices may be unable to receive output for any of the following reasons:

1. The device has been configured with a VFU Load Procedure, File Prefix Procedure, or Initialization Procedure which is not loadable and cannot be changed except by the network operator. This applies only to NOS/VE.

   In this case, the device is reported as down due to an unloadable required load procedure, and a message giving the reason is sent to the I/O station operator. Any file transfer requests to the device are rejected. This situation can be cleared by entering an operator command to restart the device. A new copy of the procedure is loaded and the device becomes active.

2. CDCNET detects a condition, such as out of paper, which, when cleared, permits the file transfer to continue. This applies only to NOS/VE.

   The device status is unchanged, but a message specifying the condition is sent to the I/O station. The file transfer in progress may be suspended. When the condition is cleared, the file transfer continues.

3. The device is stopped by the DI configuration procedure, an operator stop command, a file repositioning command with preview, or a PM message.

   In this case, the device is reported as stopped, but no message is sent to the I/O station. The current file transfer may be suspended. The device is restarted by an operator start command.

Structuring Decks

You can initiate a NOS/VE batch job on a NOS/VE standalone system, a NOS dual-state system, or a NOS/BE dual-state system.

For information about submitting batch jobs on a standalone system, see the NOS/VE System Usage manual.

The following job cards are supported for NOS/VE and NOS batch input:

Card	Comments
/*26	Translation is set to 026 ASCII code and the card is discarded (HASP only).
/*29	Translation is set to 029 ASCII code the card is discarded (HASP only).
/*EOI	The point at which data in the file ends.
6/7/8/9 in column 1 (Mode 4 only)	The point at which data in the file ends.
/*EOR or 7/8/9 in column 1	End of record. On NOS, columns 79 and 80 are examined for 026, 029, or TR (transparent). For /*EOR, columns 6 and 7 are examined for level number. For 7/8/9 card, columns 2 and 3 are examined for level number. On NOS/VE, the /*EOR card is ignored, but can be used to switch translation to 026 or 029 in columns 79 and 80.
/*BC ROUTE_JOB	Supported on NOS/VE only. Allows a user to specify a job name, the destination of that job, and where the job's output should be received.

The following is an example of a HASP input deck for NOS:

```
JOB,CM65000,T20                                          26
      ⋮
/*EOR
source file 1
      ⋮
/*EOR                                                     29
data file 1
      ⋮
/*EOI
```

In this deck, data is entered beginning in column 1.

On the first card, the number 26 appears in columns 79 and 80, indicating that character set 26 is to be used.

The ellipsis indicate control statements which follow the JOB card. An end-of-record (/*EOR) card is placed after the control statements.

The ellipsis after the /*EOR card indicate a sequence of cards containing source file 1. Source file 1 is ended by another EOR card with the number 29 in columns 79 and 80, indicating that character set 29 is to be used in processing the rest of this deck.

A sequence of cards containing a data file for source file 1 is followed by an end-of-information (/*EOI) card.

For more information on structuring job decks for NOS, refer to the NOS 2 Reference Set, Volume 3.

The following is an example of a HASP input deck structure for NOS/VE:

```
/*26
/*BC route_job jn=test
LOGIN username password
source file 1
      ⋮
/*29
source file 2
      ⋮
/*EOI
```

In this deck, data is entered beginning in column 1.

On the first card, /*26 in columns 1 through 4 indicates that character set 26 is to be used.

The second card contains the ROUTE_JOB command. The ROUTE_JOB command is discussed later in this chapter.

The third card contains the LOGIN command, which includes the username and password. For information on the LOGIN command, refer to the NOS/VE System Usage manual.

Following the LOGIN command is a sequence of cards containing a source program.

A /*29 card follows the source program, indicating that character set 29 is to be used with the rest of this deck.

The /*EOI terminates the job deck.

For more information on structuring a job deck on NOS/VE, refer to the NOS/VE System Usage manual.

ROUTE_JOB Command

Purpose Specifies a job for NOS/VE processing. Included is the system on which the job should be executed, and the destination where the output file is to be received.

Format

ROUTE_JOB or
ROUJ
JOB_NAME=name
JOB_DESTINATION=name
JOB_OUTPUT_DESTINATION=name
USER_NAME=name
USER_FAMILY=name

Parameters

JOB_NAME (JN)

Specifies the job name.

JOB_DESTINATION (JD)

Specifies the NOS/VE system where the input job is to be sent and executed.

If this parameter is omitted, the input job is sent to the DEFAULT_JOB_DESTINATION defined for the I/O station. If the DEFAULT_JOB_DESTINATION is unknown, the input job is discarded or the input device is stopped, depending on the keyword specified on the DESTINATION_UNAVAILABLE_ACTION parameter, defined for the I/O station.

JOB_OUTPUT_DESTINATION (JOD)

Specifies a public I/O station, or the control facility of a private I/O station, where the output files resulting from the input job should be received.

If a control facility of a private I/O station is specified, the USER_NAME and USER_FAMILY parameters must be specified to allow the private I/O station that is to receive job output to be uniquely identified.

If JOB_OUTPUT_DESTINATION is omitted, job output is returned to the I/O station or to the user, depending on whether the input device belongs to a public or private I/O station.

USER_NAME (UN)

Name of the user controlling the private I/O station. Output file(s) are automatically routed to the user controlling the private I/O station.

This parameter must be specified with the USER_FAMILY parameter for private I/O stations.

If USER_NAME is omitted, a public I/O station is assumed, for the job output if JOB_OUTPUT_DESTINATION is specified.

USER_FAMILY

Name of the family of the user controlling the private I/O station.

The USER_FAMILY parameter is valid only if specified with the USER_NAME parameter.

If USER_FAMILY is omitted, no default family name is assumed.

Remarks

- The ROUTE_JOB command is valid only for NOS/VE job input. To route NOS job input, refer to the NOS 2 Reference Set, Volume 3.
- The ROUTE_JOB command must be specified in NOS/VE format. For card input, the command must start in column six with the ASCII string '/*BC ', in columns one through five. This format is required for any continuation cards.
- The length of the ROUTE_JOB command cannot exceed 256 characters.
- If an error occurs, the input job will be discarded and an error listing and message sent to the station operator.

Examples

The following command specifies the job name, job destination, and job output destination for a public I/O station.

```
/*BC route_job jn=job1 jd=nosve1 jod=public_io_station
```

Appendixes

Glossary A-1

Error Messages B-1

IASP Translation Tables C-1

Glossary A

A

ASCII

American National Standard Code for Information Interchange. A 7-bit code representing a prescribed set of 128 characters including both upper and lowercase characters.

Asynchronous Printer

A printer connected by an asynchronous line and CDCNET to a host that prints output from the host. Asynchronous printers connected to NOS hosts are supported by the CDCNET interactive interface and the NOS application Printer Support Utility (PSU). Asynchronous printers connected to NOS/VE hosts are supported by the CDCNET batch interface and the NOS/VE Application Status and Control Facility/Batch Transfer Facility (SCF/BTF).

Asynchronous Transmission

Data transmission in which each information character, or byte, is individually synchronized using start and stop bits.

Auto-configured I/O station

An I/O station that is logically configured and ready to use when the lines to which the devices in the I/O station become active and when a station operator connects to batch services.

B

Banner Highlight Field

Indicates to the device interface which of the fields that make up the banner page of an output listing should be printed in large block letters.

Banner Page

The first page of an output listing. The banner page typically contains user identity and file routing information.

Banner Routing Message

Information printed on the banner page of an output listing that indicates where the listing should be delivered to reach the user.

Batch Device

Individual devices in an I/O station controlled by batch services and protocols and used for batch input and/or output. Examples of batch devices include card readers, line printers, card punches and plotters.

Bisynchronous Protocol

Binary synchronous protocol; a byte-oriented communications protocol that supports the OSI data link layer.

Byte

A group of contiguous bits. Unless prefixed (for example, a 6-bit byte), the term implies 8-bit groups. An 8-bit byte is sometimes called an octet. When used for encoding character data, a byte represents a single character.

C

CDCNET

Control Data Distributed Communications Network; the collection of compatible hardware and software products offered by Control Data Corporation to interconnect computer resources into distributed communications networks.

Communication Line

A terminal line that establishes a complete communication circuit between a terminal or workstation and a CDCNET device interface.

Configuration

The process by which various computer-related resources are coordinated to function together. Under CDCNET, various types of configuration activities are performed.

1. Network configuration, whereby hosts, terminals, workstations, and unit record devices are interconnected into a network using CDCNET device interfaces and appropriate communications media.

2. Device interface hardware configurations, whereby decisions are made regarding which logic boards to install in a particular CDCNET device interface.

3. Device interface software configuration, whereby CYBER hosts decide which CDCNET software to downline load into a specific CDCNET device interface.

4. Creation of device interface configuration files, whereby network administrators or communications consultants indentify/describe the specific CDCNET device interfaces that reside in their networks and place this information in host-maintained permanent files.

Control Facility

A NOS/VE service that monitors I/O stations and their batch devices, executes device and file control commands for the I/O station, and controls selection of files for output devices for the I/O station.

D

Dial-Up Line

A communications circuit created by dialing a destination over a common carrier's switched lines.

E

EBCDIC

Refer to Extended Binary Coded Decimal Interchange Code.

Extended Binary Coded Decimal Interchange Code (EBCDIC)

A set of 256 characters, each represented by eight bits.

F

File Acknowledgement Message

A message sent by the control facility to an I/O station console to inform the operator that an input file has been submitted to a host, that an output file is about to be delivered to the I/O station, or that an output file has been completely transmitted to the I/O station.

Format Effector

Any character used to control the positioning of printed or displayed data. Format effectors occur in output data in the first position of a line.

G

Gateway

A software interface between systems with different architectures and protocols.

Gateway Title

The logical title assigned to a gateway during logical configuration.

H

HASP

Refer to Houston Automatic Spooling Program.

HASP Batch Station

A bisynchronous terminal with associated batch devices. HASP batch stations are used for remote batch input from card readers and output to line printers, card punches, and plotters. Each batch station must have a console device that can be used as a normal interactive device with limited screen and formatting capabilities. Each HASP batch station can support the following: up to seven card readers; a combined total of eight batch output devices, (line printers and card punches which can be replaced with plotters), with a maximum of seven devices of the same type; and one console device (required).

Host

Refer to Host System.

Host System

A mainframe computer and its operating system that provides applications and services to the computer network. CDCNET must have at least one host running NOS or dual-state NOS and NOS/VE.

Houston Automatic Spooling Program (HASP)

A job control protocol for transmitting data processing files and jobs between certain models of computers.

I

I/O Station

A logical grouping of batch devices into a single named unit for routing jobs and files to the batch devices and for controlling the devices. Devices belonging to an I/O station may all connect to the same line, to several lines on one device interface, or to lines distributed among several device interfaces.

M

Mode 4

A data communications protocol, consisting of variants 4A, 4B, and 4C. The Mode 4 protocol supports two-way alternate communications (where messages may be sent in one direction or another, but not in both directions simultaneously) on switched or dedicated synchronous lines within a line speed range of 1200 to 19200 bits per second.

The CDCNET Mode 4 terminal interface program supports the 4A and 4C variants of the Mode 4 protocol.

N

Network Operator

A person who monitors CDCNET activity, has the ablility to control CDCNET hardware and software, makes occasional network configuration changes, and performs elementary troubleshooting by sending commands to the network's device interfaces. A network operator may perform these tasks from a host console or a remote terminal.

NOS

Network Operating System; the operating system for CYBER 170 computer systems.

NOS/VE

Network Operating System/Virtual Environment; the virtual operating system for CYBER 180 computer systems.

O

Octet

An 8-bit byte.

OPERATE_STATION

The command used to invoke the Operate Station Utility on NOS/VE.

Operator-Configured I/O Station

An I/O station that is logically configured when an I/O station operator invokes a terminal definition procedure (TDP) to define the I/O station. The station operator must define the I/O station before it can be used, and the devices in the I/O station are not active until the TDP executes. Configuring an operator-configured I/O station is necessary when the devices of an I/O station do not always connect to the same DI port. An example of an operator-configured I/O station is a dial-up HASP batch station.

Operator Console

An interactive terminal in an I/O station that can be used to control the other batch devices in the I/O station. On NOS/VE, the operator console is used for entering Operate Station (OPES) Utility commands to control the devices. On NOS, the operator console is used for entering Remote Batch Facility (RBF) commands to control the devices.

OPES

Operate Station; command that begins the Operate Station Utility and establishes you as the operator of an I/O station.

P

Port

The physical connection to the device interface through which data is transferred to/from the device interface. Each port is numbered and supports a single communication line.

PostScript

An industry standard page description language for describing text, graphic entities, and digitized images for printed pages. It can also be used to control aspects of a printer's behavior. PostScript page descriptions are programs to be run by an interpreter in the printer. PostScript programs are generated by application programs running on a system to which the printer is connected.

Printer Support Utility

The network applications software that supports asynchronous and URI printers on NOS.

Private I/O Station

An I/O station that submits and receives jobs and output files only for the user that is operating it. A station operator must monitor and control the I/O station for it to be active. Contrast with Public I/O Station.

Programming System Report (PSR)

An official report to CDC of a problem with CDC software. A PSR can be sent to CDC either on a form or by using the online SOLVER program.

Protocol

A set of conventions that must be followed to achieve complete communications between the computer-related resources in a network. A protocol can reflect the following:

1. A set of predefined coding sequences, such as the control byte envelopes added to (or removed from) data exchanged with a terminal.

2. A set of data addressing and division methods, such as the block mechanism used between a network application program and Network Access Method.

3. A set of procedures that control communications, such as the supervisory message sequences used between a network application program and Network Access Method.

PSU

Refer to Printer Support Utility.

Public I/O Station

An I/O station shared by many users who may submit jobs through it and receive the output from these jobs at it. The operator who controls a public I/O station does not own the files sent to or read from it. Routing of output files for a public I/O station is controlled through the I/O station's name. A station operator does not have to monitor and control a public I/O station for it to be active. Contrast with Private I/O Station.

R

RBF

Refer to Remote Batch Facility.

Remote Batch Facility (RBF)

The network applications software that supports remote batch processing (remote job entry) on NOS.

S

SCL

Refer to System Command Language.

Service

An entity that is external to CDCNET but is registered within CDCNET as being capable of conducting input and output with a terminal or with another service. Services have names. Terminal users connecting to a host are connecting to a service. An example of a service is the Interactive Facility (IAF) on a host.

Site Administrator

Defines I/O stations and their configurations and batch device attributes.

Station Operator

A person in charge of controlling batch devices in an I/O station by sending commands to the equipment from the station operator console. On NOS/VE, the station operator uses Operate Station (OPES) Utility commands to control the devices. On NOS, the station operator uses the Remote Batch Facility (RBF) commands to control the devices.

System Command Language (SCL)

The NOS/VE command language on which CDCNET network operations, configuration and terminal user commands are based.

T

TDP

Refer to Terminal Definition Procedure.

Terminal Attributes

Values that define a terminal's operating characteristics, such as page length and width, code set, carriage return sequence, and echoplex.

Terminal Definition Procedure (TDP)

An optional configuration file that defines a terminal device connected to a line whenever the line becomes active. A TDP can be used to define a terminal device that differs from the default terminal device type defined by the TIP that controls the line.

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Terminal Interface Program (TIP)

CDCNET software that resides in terminal device interfaces and enable terminals/workstations that employ specific terminal protocols (such as HASP, IBM 2780/3780, and IBM 3270) to communicate in CDCNET networks.

U

User

Anyone who uses CDCNET or its host services. In particular, users access CDCNET via terminals, run jobs on the accessible hosts, and own files stored on those hosts.

X

X.25

The Consultative Committee of International Telephone and Telegraph (CCITT) standard for the interface between Data Terminal Equipment (DTE) and Data Communications Equipment (DCE) in an X.25 packet switching network.

3

3270 Bisynchronous TIP

A terminal interface program that provides support for the IBM 3270 Information Display System. The 3270 TIP allows 3271, 3272, 3274, 3275, 3276, and 3277 control units to connect directly to CDCNET in order to communicate with a CDCNET terminal device interface (TDI) over dedicated or dial-up lines using the centralized multipoint Binary Synchronous Communication protocol. The 3270 TIP supports up to 32 multi-dropped clusters of up to 32 devices on each line.

Error Messages B

This appendix alphabetically lists input/output error messages that NOS/VE sends to the operator console to indicate premature termination of an input job. Each message listing contains two parts:

Message	The message sent by NOS/VE is listed in boldface.
Description	A description follows each message. It explains the status or problem and describes any action you should take.

BATCH COMMAND SYNTAX ERROR

Description: The batch command following /*BC violates NOS/VE syntax.

User Action: Check the command format and reenter the command.

BATCH COMMAND TOO LONG

Description: The batch command following /*BC exceeds 256 characters.

User Action:

Work with your Site Administrator to shorten the command before entering it again.

DEVICE DELETED

Description: The input device was deleted from the configuration because of a line-down condition.

User Action:

OPERATOR DROP

Description: The operator entered a command which terminated the input job transfer.

User Action: This is an informative message. No action is necessary.

RECEIVER ERROR

Description: The receiving process in the destination host violates the batch transfer protocol.

User Action: The host, device interface (DI), or line may have gone down. If this is not the case, ask your site administrator to submit a PSR.

ROUJ JOD ERROR

Description: The control facility name specified for the JOB_OUTPUT_DESTINATION parameter on the ROUTE_JOB batch command is not accompanied by both the USER_NAME and the USER_FAMILY parameters.

User Action: Reenter the JOB_OUTPUT_DESTINATION parameter including the USER_NAME and USER_FAMILY parameters.

ROUJ JOUF ERROR

Description: The USER_FAMILY parameter specified on the ROUTE_JOB batch command is not accompanied by the JOB_OUTPUT_DESTINATION parameter.

User Action: Reenter the ROUTE_JOB command and specify the JOB_OUTPUT_DESTINATION parameter with the USER_FAMILY parameter.

ROUJ JOUN ERROR

Description: The USER_NAME parameter specified on the ROUTE_JOB batch command is not accompanied by the JOB_OUTPUT_DESTINATION parameter.

User Action: Reenter the ROUTE_JOB batch command and specify the USER_NAME parameter with the JOB_OUTPUT_DESTINATION parameter.

ROUJ PARAMETER ERROR

Description: A bad parameter is specified on the ROUTE_JOB batch command.

User Action: Check the format of the ROUTE_JOB command and reenter the command.

SENDER ERROR

Description: An unrecoverable internal error in the DI's sending processes (TIP or BTF) has been detected.

User Action: The host, device interface (DI), or line may have gone down. If this is not the case, ask your site administrator to submit a PSR.

UNKNOWN BATCH COMMAND

Description: The batch command following /*BC is not recognized.

User Action: Check the spelling of the command name or abbreviation, and reenter the command.

UNKNOWN DESTINATION

Description: The destination host cannot be located.

User Action: Either correct the name or wait for the host to become available.

HASP Translation Tables C

Table C-1 shows how CDCNET translates ASCII characters to EBCDIC.

Table C-1. HASP TIP Translation Table, ASCII to EBCDIC

Hex. Index		Hexidecimal Characters	ASCII Characters
00H	XLATE	000H,000H,000H,000H	NUL SOH STX ETX
04H	XLATE	000H,000H,000H,02FH	EOT ENQ ACK BEL
08H	XLATE	016H,005H,025H,00BH	BS HT LF VT
0CH	XLATE	00CH,00DH,00EH,00FH	FF CR SO SI
10H	XLATE	000H,011H,012H,013H	DLE DC1 DC2 DC3
14H	XLATE	03CH,000H,000H,000H	DC4 NAK SYN ETB
18H	XLATE	018H,019H,03FH,027H	CAN EM SUB ESC
1CH	XLATE	01CH,01DH,01EH,01FH	FS GS RS US
20H	XLATE	040H,04FH,07FH,07BH	SP ! " #
24H	XLATE	05BH,06CH,050H,07DH	$ % & '
28H	XLATE	04DH,05DH,05CH,04EH	( ) * +
2CH	XLATE	06BH,060H,04BH,061H	, - . /
30H	XLATE	0F0H,0F1H,0F2H,0F3H	0 1 2 3
34H	XLATE	0F4H,0F5H,0F6H,0F7H	4 5 6 7
38H	XLATE	0F8H,0F9H,07AH,05EH	8 9 : ;

(Continued)

Table C-1. HASP TIP Translation Table, ASCII to EBCDIC *(Continued)*

Hex. Index		Hexidecimal Characters	ASCII Characters
3CH	XLATE	04CH,07EH,06EH,06FH	< = > ?
40H	XLATE	07CH,0C1H,0C2H,0C3H	@ A B C
44H	XLATE	0C4H,0C5H,0C6H,0C7H	D E F G
48H	XLATE	0C8H,0C9H,0D1H,0D2H	H I J K
4CH	XLATE	0D3H,0D4H,0D5H,0D6H	L M N O
50H	XLATE	0D7H,0D8H,0D9H,0E2H	P Q R S
54H	XLATE	0E3H,0E4H,0E5H,0E6H	T U V W
58H	XLATE	0E7H,0E8H,0E9H,04AH	X Y Z [
5CH	XLATE	0E0H,05AH,05FH,06DH	\ ] ^ _
60H	XLATE	079H,081H,082H,083H	` a b c
64H	XLATE	084H,085H,086H,087H	d e f g
68H	XLATE	088H,089H,091H,092H	h i j k
6CH	XLATE	093H,094H,095H,096H	l m n o
70H	XLATE	097H,098H,099H,0A2H	p q r s
74H	XLATE	0A3H,0A4H,0A5H,0A6H	t u v w
78H	XLATE	0A7H,0A8H,0A9H,0C0H	x y z {
7CH	XLATE	06AH,0D0H,0A1H,007H	| } ~ DEL

Table C-2 shows how CDCNET translates EBCDIC characters to ASCII (128) characters.

Table C-2. HASP TIP Translation Table, EBCDIC to ASCII (128)

Hex. Index		Hexidecimal Characters	ASCII Characters
00H	XLATE	000H,001H,002H,003H	NUL SOH STX ETX
04H	XLATE	020H,009H,020H,07FH	SP HT SP DEL
08H	XLATE	020H,020H,020H,00BH	SP SP SP VT
0CH	XLATE	00CH,00DH,00EH,00FH	FF CR SO SI
10H	XLATE	010H,011H,012H,013H	DLE DC1 DC2 DC3
14H	XLATE	020H,020H,008H,020H	SP SP BS SP
18H	XLATE	018H,019H,020H,020H	CAN EM SP SP
1CH	XLATE	01CH,01DH,01EH,01FH	IFS IGS IRS IUS
20H	XLATE	020H,020H,020H,020H	SP SP SP SP
24H	XLATE	020H,00AH,017H,01BH	SP LF ETB ESC
28H	XLATE	020H,020H,020H,020H	SP SP SP SP
2CH	XLATE	020H,005H,006H,007H	SP ENQ ACK BEL
30H	XLATE	020H,020H,016H,020H	SP SP SYN SP
34H	XLATE	020H,020H,020H,004H	SP SP SP EOT
38H	XLATE	020H,020H,020H,020H	SP SP SP SP
3CH	XLATE	014H,015H,020H,01AH	DC4 NAK SP SUB
40H	XLATE	020H,020H,020H,020H	SP SP SP SP
44H	XLATE	020H,020H,020H,020H	SP SP SP SP

(Continued)

Table C-2. HASP TIP Translation Table, EBCDIC to ASCII (128) *(Continued)*

Hex. Index		Hexidecimal Characters	ASCII Characters
48H	XLATE	020H,020H,05BH,02EH	SP SP [.
4CH	XLATE	03CH,028H,02BH,021H	< (+ VERT
50H	XLATE	026H,020H,020H,020H	& SP SP SP
54H	XLATE	020H,020H,020H,020H	SP SP SP SP
58H	XLATE	020H,020H,05DH,024H	SP SP ! $
5CH	XLATE	02AH,029H,03BH,05EH	*) ; NOT
60H	XLATE	02DH,02FH,020H,020H	- / SP SP
64H	XLATE	020H,020H,020H,020H	SP SP SP SP
68H	XLATE	020H,020H,07CH,02CH	SP SP | ,
6CH	XLATE	025H,05FH,03EH,03FH	% _ > ?
70H	XLATE	020H,020H,020H,020H	SP SP SP SP
74H	XLATE	020H,020H,020H,020H	SP SP SP SP
78H	XLATE	020H,060H,03AH,023H	SP ` : #
7CH	XLATE	040H,027H,03DH,022H	@ ' = "
80H	XLATE	020H,061H,062H,063H	SP a b c
84H	XLATE	064H,065H,066H,067H	d e f g
88H	XLATE	068H,069H,020H,020H	h i SP SP
8CH	XLATE	020H,020H,020H,020H	SP SP SP SP

(Continued)

Table C-2. HASP TIP Translation Table, EBCDIC to ASCII (128) *(Continued)*

Hex. Index		Hexidecimal Characters	ASCII Characters
90H	XLATE	020H,06AH,06BH,06CH	SP j k l
94H	XLATE	06DH,06EH,06FH,070H	m n o p
98H	XLATE	071H,072H,020H,020H	q r SP SP
9CH	XLATE	020H,020H,020H,020H	SP SP SP SP
A0H	XLATE	020H,07EH,073H,074H	SP = s t
A4H	XLATE	075H,076H,077H,078H	u v w x
A8H	XLATE	079H,07AH,020H,020H	y z SP SP
ACH	XLATE	020H,020H,020H,020H	SP SP SP SP
B0H	XLATE	020H,020H,020H,020H	SP SP SP SP
B4H	XLATE	020H,020H,020H,020H	SP SP SP SP
B8H	XLATE	020H,020H,020H,020H	SP SP SP SP
BCH	XLATE	020H,020H,020H,020H	SP SP SP SP
C0H	XLATE	07BH,041H,042H,043H	{ A B C
C4H	XLATE	044H,045H,046H,047H	D E F G
C8H	XLATE	048H,049H,020H,020H	H I SP SP
CCH	XLATE	020H,020H,020H,020H	SP SP SP SP
D0H	XLATE	07DH,04AH,04BH,04CH	} J K L
D4H	XLATE	04DH,04EH,04FH,050H	M N O P

(Continued)

Table C-2. HASP TIP Translation Table, EBCDIC to ASCII (128) *(Continued)*

Hex. Index		Hexidecimal Characters	ASCII Characters
D8H	XLATE	051H,052H,020H,020H	Q R SP SP
DCH	XLATE	020H,020H,020H,020H	SP SP SP SP
E0H	XLATE	05CH,020H,053H,054H	\ SP S T
E4H	XLATE	055H,056H,057H,058H	U V W X
E8H	XLATE	059H,05AH,020H,020H	Y Z SP SP
ECH	XLATE	020H,020H,020H,020H	SP SP SP SP
F0H	XLATE	030H,031H,032H,033H	0 1 2 3
F4H	XLATE	034H,035H,036H,037H	4 5 6 7
F8H	XLATE	038H,039H,020H,020H	8 9 SP SP
FCH	XLATE	020H,020H,020H,020H	SP SP SP SP

Table C-3 shows how CDCNET translates EBCD26 characters to ASCII.

Table C-3. HASP TIP Translation Table, EBCDIC to ASCII (128)

Hex. Index		Hexidecimal Characters	ASCII Characters
00H	XLATE	000H,001H,002H,003H	NUL SOH STX ETX
04H	XLATE	020H,009H,020H,07FH	SP HT SP DEL
08H	XLATE	020H,020H,020H,00BH	SP SP SP VT
0CH	XLATE	00CH,00DH,00EH,00FH	FF CR SO SI
10H	XLATE	010H,011H,012H,013H	DLE DC1 DC2 DC3
14H	XLATE	020H,020H,008H,020H	SP SP BS SP
18H	XLATE	018H,019H,020H,020H	CAN EM SP SP
1CH	XLATE	01CH,01DH,01EH,01FH	IFS IGS IRS IUS
20H	XLATE	020H,020H,020H,020H	SP SP SP SP
24H	XLATE	020H,00AH,017H,01BH	SP LF ETB ESC
28H	XLATE	020H,020H,020H,020H	SP SP SP SP
2CH	XLATE	020H,005H,006H,007H	SP ENQ ACK BEL
30H	XLATE	020H,020H,016H,020H	SP SP SYN SP
34H	XLATE	020H,020H,020H,004H	SP SP SP EOT
38H	XLATE	020H,020H,020H,020H	SP SP SP SP
3CH	XLATE	014H,015H,020H,01AH	DC4 NAK SP SUB
40H	XLATE	020H,020H,020H,020H	SP SP SP SP
44H	XLATE	020H,020H,020H,020H	SP SP SP SP

(Continued)

Table C-3. HASP TIP Translation Table, EBCDIC to ASCII (128) *(Continued)*

Hex. Index		Hexidecimal Characters	ASCII Characters
48H	XLATE	020H,020H,03CH,02EH	SP SP < .
4CH	XLATE	029H,07CH,07EH,03BH	) \ NOT ;
50H	XLATE	02BH,020H,020H,020H	+ SP SP SP
54H	XLATE	020H,020H,020H,020H	SP SP SP SP
58H	XLATE	020H,020H,021H,024H	SP SP ! $
5CH	XLATE	02AH,027H,03FH,03EH	* '] ^
60H	XLATE	02DH,02FH,020H,020H	- / SP SP
64H	XLATE	020H,020H,020H,020H	SP SP SP SP
68H	XLATE	020H,020H,07CH,02CH	SP SP | ,
6CH	XLATE	028H,05FH,023H,026H	(- # &
70H	XLATE	020H,020H,020H,020H	SP SP SP SP
74H	XLATE	020H,020H,020H,020H	SP SP SP SP
78H	XLATE	020H,060H,026H,03DH	SP ` & =
7CH	XLATE	022H,03AH,025H,05BH	" : % [
80H	XLATE	020H,061H,062H,063H	SP a b c
84H	XLATE	064H,065H,066H,067H	d e f g
88H	XLATE	068H,069H,020H,020H	h i SP SP
8CH	XLATE	020H,020H,020H,020H	SP SP SP SP

(Continued)

Table C-3. HASP TIP Translation Table, EBCDIC to ASCII (128) *(Continued)*

Hex. Index		Hexidecimal Characters	ASCII Characters
90H	XLATE	020H,06AH,06BH,06CH	SP j k l
94H	XLATE	06DH,06EH,06FH,070H	m n o p
98H	XLATE	071H,072H,020H,020H	q r SP SP
9CH	XLATE	020H,020H,020H,020H	SP SP SP SP
A0H	XLATE	020H,07EH,073H,074H	SP = s t
A4H	XLATE	075H,076H,077H,078H	u v w x
A8H	XLATE	079H,07AH,020H,020H	y z SP SP
ACH	XLATE	020H,020H,020H,020H	SP SP SP SP
B0H	XLATE	020H,020H,020H,020H	SP SP SP SP
B4H	XLATE	020H,020H,020H,020H	SP SP SP SP
B8H	XLATE	020H,020H,020H,020H	SP SP SP SP
BCH	XLATE	020H,020H,020H,020H	SP SP SP SP
C0H	XLATE	03CH,041H,042H,043H	! A B C
C4H	XLATE	044H,045H,046H,047H	D E F G
C8H	XLATE	048H,049H,020H,020H	H I SP SP
CCH	XLATE	020H,020H,020H,020H	SP SP SP SP
D0H	XLATE	021H,04AH,04BH,04CH	! J K L
D4H	XLATE	04DH,04EH,04FH,050H	M N O P

(Continued)

Table C-3. HASP TIP Translation Table, EBCDIC to ASCII (128) *(Continued)*

Hex. Index		Hexidecimal Characters	ASCII Characters
D8H	XLATE	051H,052H,020H,020H	Q R SP SP
DCH	XLATE	020H,020H,020H,020H	SP SP SP SP
E0H	XLATE	05DH,020H,053H,054H	] SP S T
E4H	XLATE	055H,056H,057H,058H	U V W X
E8H	XLATE	059H,05AH,020H,020H	Y Z SP SP
ECH	XLATE	020H,020H,020H,020H	SP SP SP SP
F0H	XLATE	030H,031H,032H,033H	0 1 2 3
F4H	XLATE	034H,035H,036H,037H	4 5 6 7
F8H	XLATE	038H,039H,020H,020H	8 9 SP SP
FCH	XLATE	020H,020H,020H,020H	SP SP SP SP

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Comments (continued from other side)

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