



Connect:Direct® OS/400

User's Guide

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User's Guide

Version 3.5



sterling commerce

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Version 3.5

First Edition

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Preface

This *Connect:Direct OS/400 User's Guide* provides instructions on how to use Connect:Direct OS/400. This guide is intended for Connect:Direct OS/400 users.

Read the first two chapters in the book to gain the knowledge required to use Connect:Direct. These chapters introduce you to the basic components and concepts.

This guide assumes knowledge of the OS/400 operating system, including its applications, network, and environment. If you are not familiar with the OS/400 operating system, refer to the OS/400 library of manuals.

Chapter Overview

The organization of the *Connect:Direct OS/400 User's Guide* follows:

- ❖ Chapter 1, *About Connect:Direct OS/400*, provides information about Connect:Direct OS/400.
- ❖ Chapter 2, *Using Control Language*, introduces Connect:Direct OS/400 Control Language commands and describes the basic use of control language and how it is used with Connect:Direct OS/400.
- ❖ Chapter 3, *Sending a File*, provides information about sending a file to a Connect:Direct remote node.
- ❖ Chapter 4, *Receiving a File*, provides information about receiving a file from a Connect:Direct remote node.
- ❖ Chapter 5, *Sending a Spool File*, explains how to send a spool file from the OS/400 node to a remote node.
- ❖ Chapter 6, *Running a Remote Task*, explains how to run a task at a remote node.
- ❖ Chapter 7, *Submitting a Job on a Remote Node*, explains how to submit a job on a remote node.
- ❖ Chapter 8, *Submitting a Connect:Direct Process on a Remote Node*, explains how to submit a Connect:Direct Process on a remote node.
- ❖ Chapter 9, *Controlling Processes*, describes how to submit Connect:Direct Processes for asynchronous execution and how to schedule, control, and monitor active and queued Processes.
- ❖ Chapter 10, *Using Connect:Direct Statistics*, provides information about Connect:Direct OS/400 statistics and describes how to print and view statistics information.
- ❖ Chapter 11, *Compressing Files*, explains how to compress a file before sending it to a remote node.
- ❖ Chapter 12, *Decompressing Files*, explains how to decompress a file received at the OS/400 node from a remote node.
- ❖ Chapter 13, *Displaying Connect:Direct Message Descriptions*, explains how to display the text for Connect:Direct messages.
- ❖ Appendix A, *CL Program Examples*, provides member names of sample Control Language programs.

Connect:Direct OS/400 Documentation

The following manuals make up the Connect:Direct OS/400 library:

- ❖ *Connect:Direct OS/400 Release Notes* is a document shipped with Connect:Direct OS/400 that lists system requirements, ESD instructions, and last-minute product information. This document is provided in hard copy only.
- ❖ *Connect:Direct OS/400 Installation and Administration Guide* provides information for system administrators about installing and maintaining Connect:Direct OS/400.
- ❖ *Upgrading Connect:Direct OS/400* provides information and instructions on migrating from an earlier version of Connect:Direct OS/400 to Connect:Direct OS/400, version 3.5.
- ❖ *Connect:Direct OS/400 Version 3.5 Maintenance* provides a complete list of issues resolved for Connect:Direct OS/400 version 3.5.
- ❖ *Connect:Direct OS/400 User's Guide* explains how to use Connect:Direct OS/400.
- ❖ *Connect:Direct Compatibility and Connectivity Chart* provides definitions for several supported Connect:Direct platforms and the mapping of the definitions that must match between two communicating platforms.
- ❖ Connect:Direct Process documentation provides you with the information needed to write a Connect:Direct Process. This documentation consists of two books:
 - ◆ *Connect:Direct Process Concepts and Examples Guide* provides an overview of Connect:Direct, describes the general structure and syntax rules for the Process language, and includes numerous examples.
 - ◆ *Connect:Direct Process Statements Guide* describes the Process statements for various platforms including Connect:Direct OS/400.

If you install Connect:Direct Secure+ Option, the following documentation is also included:

- ❖ *Connect:Direct Secure+ Option OS/400 Implementation Guide* explains how to install and use the Connect:Direct Secure+ Option Option.
- ❖ *Connect:Direct Secure+ Option OS/400 Release Notes*, which is shipped with Connect:Direct OS/400, describes hardware and software requirements, known restrictions, and last-minute product information.

Getting Support for Sterling Commerce Products

Sterling Commerce provides intuitive technical products and superior Help and documentation to enable you to work independently. However, if you have a technical question regarding a Sterling Commerce product, use the Sterling Commerce Customer Support Web site.

The Sterling Commerce Customer Support Web site at www.sterlingcommerce.com is the doorway to Web support, information, and tools. This Web site contains several informative links, including a solutions database, an issue tracking system, fix information, documentation, workshop information, contact information, sunset and retirement schedules, and ordering information. Refer to the Customer Support Reference Guide for specific information on getting support for Sterling Commerce products.

About Connect:Direct OS/400

Connect:Direct OS/400 is an enterprise solution for secure, automated file delivery between business applications. Its session management and extended recover features help assure data delivery in support of 24 hours a day, 7 days a week business operations. It links technologies, moves all types of information, and manages high-performance transfers by providing easy-to-use automation, checkpoint/restart, and error recovery. Connect:Direct offers choices in communication protocols, hardware platforms, and operating systems. It provides the flexibility to move information from mainframes to midrange systems to desktop and LAN-based workstations.

Interfacing with Connect:Direct OS/400

When you install Connect:Direct OS/400, you create Control Language (CL) commands that enable you to use Connect:Direct. These CL commands enable you to send or receive data from other nodes running Connect:Direct. You can also use the CL commands to administer Connect:Direct. For example, you can use a CL command to display Connect:Direct message descriptions.

Issuing Connect:Direct CL Commands

Issue Connect:Direct CL commands interactively from the command line or use them in a CL program. Results of CL commands that interact with a remote node are recorded in three places:

- ❖ Connect:Direct log
- ❖ User message queue of the local OS/400 node
- ❖ Statistics facility of the local and remote Connect:Direct node

Chapter 2, *Using Control Language*, provides information about CL commands, CL programming, and Connect:Direct CL commands.

Understanding Connect:Direct OS/400 Components

The Connect:Direct OS/400 has several components that enhance its compatibility with other Connect:Direct platforms and run under the Connect:Direct subsystem:

- ❖ **Process Manager (PMGR)**

The PMGR initializes and manages the Connect:Direct environment. PMGR is always active when Connect:Direct OS/400 is active.
- ❖ **Queue Manager (QMGR)**

The QMGR manages the Connect:Direct Process queue. The QMGR is always active when Connect:Direct OS/400 is active.
- ❖ **Timer (TIMER)**

The TIMER component provides timer services to the session manager, the process queue manager, and other Connect:Direct OS/400 components. The TIMER runs as a separate OS/400 job, submitted and controlled by the Process Manager component. The TIMER is always present when Connect:Direct OS/400 is active.
- ❖ **Statistics Manager (STATMGR)**

Connect:Direct OS/400 logs statistics information for all Processes. Each component of Connect:Direct OS/400 generates statistics data to the STATMGR job. The long-running STATMGR job formats the statistics information and writes it to the statistics file. The Statistics Manager supports CL commands that provide the ability to schedule the creation, archival, and deletion of statistics file members. The STATMGR is always active when Connect:Direct OS/400 is active.
- ❖ **Spool Monitor (SPLMON)**

The Connect:Direct SPLMON is a variable component of Connect:Direct OS/400. CDSPLMON uses Spool Monitor entries to associate output queues with destination Connect:Direct nodes.
- ❖ **TCP Listener (TCPLIST)**

The TCPLIST is a long-running job started and controlled by the Process Manager component. CDTCPPLIST processes incoming TCP/IP connection requests and requests session managers from the PMGR.
- ❖ **Session Manager (SMGR)**

The SMGR component executes the Connect:Direct Processes. The Process Manager starts all session managers except for SMGRs started by the LU6.2 evoke function. Evoked SMGRs request permission to run from the PMGR and continue processing.

Accessing Connect:Direct Through the Main Menu

Connect:Direct OS/400 includes an OS/400 system-style menu that allows you to execute Connect:Direct Command Language commands and related OS/400 CL commands from a menu. This menu consists of two screens.

Issuing CL Commands Through the Main Menu

The first screen allows you to issue basic Connect:Direct commands. The second screen allows you to issue administration Connect:Direct commands. Each screen contains a full-function OS/400 command line and function key descriptions near the bottom of the screen.

To access the Main Menu:

1. Type **STRCDMNU** and press **Enter**. The Connect:Direct OS/400 copyright screen is displayed.
2. Press **Enter**. The **Connect:Direct Main Menu** displays the Connect:Direct OS/400 functions that you can perform from this screen.

```
CMDCD                      Connect:Direct (tm)                      System:  FRAN
Select one of the following:
    1. Send file to remote node                      CDSND
    2. Receive file from remote node                 CDRCV
    3. Send spooled file to remote node              CDSNDSPL
    4. RUNTASK on remote node                        CDRUNTASK
    5. RUNJOB on remote node                          CDRUNJOB
    6. SUBMIT process on remote node                 CDSUBMIT
    7. Submit local process                          CDSUBPROC
    8. Compress file                                 CDCOMP
    9. Decompress file                               CDDECOMP
    10. Display C:D Version and PTF level            CDVER
    11. Display Connect:Direct message description   DSPCDMSGD
    12. Work with Connect:Direct processes          WRKCDPROC
    13. Select Connect:Direct statistics            CDSELSTAT
                                                    More...
Selection or command
===>_____
F3=Exit  F4=Prompt  F9=Retrieve  F12=Cancel
(C) COPYRIGHT 1991, 2002 Sterling Commerce, Inc.
```

Accessing the Administration Menu

Option 20 on the **Connect:Direct Main Menu** provides access to the following Administration Menu.

Note: To use the Connect:Direct administration commands, you must have administrative authority on the system.

```

CDADMIN                Connect:Direct dministration                System:   FRAN

Select one of the following:

Connect:Direct Configuration
  1. Work with Connect:Direct parameters                WRKCDPARM
  2. Work with Connect:Direct Netmap                    WRKCDNTMP
  3. Work with Connect:Direct users                    WRKCDUSR
  4. Work with Spool Monitor entries                    WRKSPLMONE
  5. Create Connect:Direct XTRAN table                  CRTCDXTTBL
  6. Secure+ Admin Utility                              SPADMIN

Connect:Direct Administration
  11. Start Connect:Direct subsystem                    STRCD
  12. End Connect:Direct subsystem                      ENDCD
  13. Work with Connect:Direct status                  WRKCDSTS
  14. Work with Connect:Direct processes                WRKCDPROC

                                                                More...

Selection or command

===> _____

F3=Exit  F4=Prompt  F9=Retrieve  F12=Cancel
(C) COPYRIGHT 1991, 2002 Sterling Commerce, Inc.
    
```

The **Connect:Direct Administration** menu consists of two screens. The second screen is accessed by pressing the page down key.

```

CDADMIN                Connect:Direct (tm) Administration          System:   FRAN

Select one of the following:

Connect:Direct Statistics.
  21. Select Connect:Direct statistics                  CDSELSTAT
  22. Archive Connect:Direct stat member                CDARCSTATM
  23. Create Connect:Direct stat member                 CDCRTSTATM
  24. Delete Connect:Direct stat member                 CDDLTSTATM
  25. Restore Connect:Direct stat member                CDRSTSTATM
  26. Display Connect:Direct stat information            CDDSPSTATI

Communications
  31. Vary communications device                        VRYCFG
  32. Configure TCP/IP                                 CFGTCP
  33. Start TCP/IP                                     STRTCP
  34. Work with TCP/IP status                          WRKTCPSTS

                                                                Bottom

Selection or command

===> _____

F3=Exit  F4=Prompt  F9=Retrieve  F12=Cancel
    
```

Using Control Language

Connect:Direct OS/400 uses Connect:Direct CL commands to perform Connect:Direct functions. This chapter provides the following information to help you use CL commands and programming:

- ❖ Understand the CL command format
- ❖ Reviewing Connect:Direct CL command functions
- ❖ Entering CL commands
- ❖ Monitoring CL program messages
- ❖ Using CL Programming and Connect:Direct CL commands
- ❖ Command prompting for the Connect:Direct CL commands

Refer to Appendix A, *CL Program Examples*, for member names of sample CL programs.

Understanding the CL Command Format

Connect:Direct CL commands have the following general OS/400 CL command format:

- ❖ Each command can have required and optional parameters and subparameters that provide additional information needed to run the command.
- ❖ Subparameters are always positional.
- ❖ Each parameter provides a specific type of information or instruction.
- ❖ Each command is followed by one or more keywords and parameter pairs in the following format:

```
COMMAND keyword(parameter) keyword(parameter) ...
```

The following example shows a sample Connect:Direct CL command:

```
CDRCV  SNODE(DALLAS.OS390) SNODENVIRN(OS390)
       FDSN(DALLAS.ACCT.DATA)
       TDSN('ACCOUNT/DATA')
       TOSYSOPTS('TYPE(FILE)')
```

Reviewing Connect:Direct CL Command Functions

The following table lists the Connect:Direct OS/400 command names and their functions.

| Command | Function |
|-------------|--|
| †CDARCSTATM | Compress and delete a statistics file member other than the active one. |
| CDCOMP | Compress a file on the OS/400 node before sending it to a remote node. |
| †CDCRTSTATM | Create a new statistics file member and log statistics to that new member. |
| CDDECOMP | Decompress files received from another node and archived on the OS/400 node as compressed files. |
| CDDEVACTG | Turns VARY on and off on devices used by Connect:Direct. |
| CDDLARCST | Deletes members from the archive statistics database file. |
| †CDDLSTATM | Delete a specified statistics file member other than the active one. |
| CDDSPSTATI | Display information about where statistics are being logged. |
| CDRCV | Receive data from a remote node. |
| CDRSTSTATM | Decompress selected statistics file members to a user-designated file. |
| CDESELSTAT | Select statistics records and retrieve information about the active statistics file. |
| CDRUNJOB | Submit a job in batch mode on a remote node. |
| CDRUNTASK | Execute a Connect:Direct Run Task function on a remote node. |
| CDSND | Send data to a remote node. |
| CDSNDSPL | Send a spooled file to a remote node. |
| CDSUBMIT | Submit a Process to a remote node to initiate Connect:Direct work on the remote node. |
| CDSUBPROC | Submit Connect:Direct Processes to the process queue for asynchronous execution. |
| †CDVER | Display the currently installed Connect:Direct version and Connect:Direct PTF level. |
| †CNVNTMPF | Convert Connect:Direct network map file. |
| †CNVUSRF | Convert Connect:Direct user file. |
| †CRTCDOBJ | Create Connect:Direct objects. |
| †CRTCDXTTBL | Create and update the translation table. |
| DSPCDMSGD | Display the text for the specified message ID. |
| †ENDCD | End a Connect:Direct OS/400 node and components. |
| HLDCDPROC | Identifies Processes to place in the Hold queue. |
| RLSCDPROC | Releases identified Processes from the Hold queue. |
| STRCDTCPL | Starts the Connect:Direct TCP listener. |
| UNINSTALLM | Uninstalls the latest Connect:Direct maintenance installation. |
| UPDATECD | Installs Connect:Direct maintenance. |

† Administrative commands

‡ Connect:Direct Secure+ Option OS/400 commands

| Command | Function |
|-------------|---|
| †WRKCDPARM | View and change Connect:Direct initialization parameter values. |
| †‡SPADMIN | Secure+ Option Administrative utility to provide security enhancements. |
| †STRCD | Start Connect:Direct OS/400. |
| STRCDMNU | Start Connect:Direct Menu. |
| †WRKCDNTMP | Select remote node records and display attributes. This screen provides the options of copy or change to attributes of the remote node records. |
| WRKCDPROC | Monitor and control active and queued Processes. |
| †WRKCDSTS | View and control Connect:Direct job status. |
| †WRKCDUSR | Browse existing user records and invoke other user maintenance commands. |
| †WRKSPLMONE | View, change, or delete destination configuration file entries of the Spool Support for Connect:Direct OS/400. |

† Administrative commands
 ‡ Connect:Direct Secure+ Option OS/400 commands

Entering CL Commands

You can type CL commands on an OS/400 node using any of the following methods:

Embedding CL Commands

You can embed CL commands in an application (user-written CL program), which allows you to combine functions supplied by Connect:Direct OS/400 with OS/400 CL commands within a user-written application.

Entering CL Commands in Free Format

You can type CL commands in a free format, which allows you to type a command and its parameters as a string of characters on a command line. This method is useful when typing familiar commands.

Command Prompting

Command prompting guides you through typing commands and parameters.

Note: Connect:Direct OS/400 commands are case sensitive if the information passed to the remote node is enclosed in single quotation marks.

Monitoring CL Program Messages

After issuing Connect:Direct OS/400 commands such as, CDSND, CDRCV, CDRUNTASK, and CDRUNJOB, use the MONMSG command to monitor the following categories of error messages using a CL program:

| Message Category | Message ID | Severity | Other |
|---------------------|-----------------------------------|----------|---------|
| Warning | CDE0107 | 10 | *ESCAPE |
| Unrecoverable error | CDE0108 | 30 | *ESCAPE |
| Unexpected error | CDE0000 (for example, CDE0301) | | |

Note: You cannot use MONMSG to monitor CDS0108 (Process execution ended) because it is not sent as an error message; it is an informational message.

To capture the Connect:Direct error message after the MONMSG code, add the following after the MONMSG command:

```
RCVMSG MSGTYPE(*LAST) WAIT(1) RMV(*NO) MSGID(&MSGID)MSGDATA(&MSGDATA) SNDMSG
MSG(&MSGID || ' ' || &MSGDATA) TOUSR(*SYSOPR)
```

&MSGID is the CDE* error message. The first 8 characters of the &MSGDATA are the application error message that you can look up interactively with the following command:

```
DSPCDMSGD <msgid>
```

Note: The &MSGID and &MSGDATA variables must be defined in the CL program. Specify the &MSGID character length as 7 characters and &MSGDATA as 8 characters to capture the error message.

Using CL Programming and Connect:Direct CL Commands

An OS/400 CL program includes Connect:Direct CL commands as source statements. You can synchronize the processing of one or more Connect:Direct operations by including Connect:Direct CL commands in a CL program.

Note: If you are using the Source Edit Utility (SEU) to edit a CL program, the prompt facility can help you type all CL commands, including Connect:Direct CL commands.

Sample CL Program

The following figure shows a sample CL program with multiple CL commands:

```

PGM          PARM(&LIBNAME &FILENAME &MBRNAME)

DCL          VAR(&LIBNAME) TYPE(*CHAR) LEN(10)
DCL          VAR(&FILENAME) TYPE(*CHAR) LEN(10)
DCL          VAR(&MBRNAME) TYPE(*CHAR) LEN(10)
DCL          VAR(&FDSN) TYPE(*CHAR) LEN(32)

/*  BUILD THE FDSN VARIABLE                                     */
      CHGVAR  VAR(&FDSN) VALUE(&LIBNAME *TCAT '/' *CAT +
                                &FILENAME *TCAT '(' *CAT &MBRNAME *TCAT +
                                ')')

/*  SEND THE FILE MEMBER  */
      CDSND   SNODE('CDSERVER.V4100') +
              SNODENVIRN(WINDOWS) FDSN(&FDSN) +
              TDSN('Send_Test.TXT') +
              FMSYSOPTS('TYPE(MBR)') +
              TOSYSOPTS('DATATYPE(TEXT)')
      MONMSG  MSGID(CDE0000) EXEC(GOTO CMDLBL(ERROR))

      GOTO END

ERROR:      SNDMSG  MSG('The process erred') TOUSR(*SYSOPR)

END:        ENDPGM

```

Command Prompting for the Connect:Direct CL Commands

Connect:Direct CL commands follow the format of the native OS/400 CL commands, which provide an extensive help facility describing their purpose, parameters, values, and any dependencies.

In addition, you can use the prompt/help feature to select and type commands and appropriate parameters. Prompt/help is offered at the command level and at the parameter level. Both levels allow you to use **F4** for prompting and **F1** for help. You can access screen level help by moving the cursor off an entry or field and pressing **F1**.

Accessing Command Level Help

Complete the following steps to access the Help text:

1. For help with commands, type the command on the command line and press **F1**. Help text for the command displays and describes the function of the command with a description of each parameter and possible values.
2. After viewing help information, press **F3** to exit the help function or press **F12** to cancel and return to the command line.

Prompting for a Command

Complete the following steps to prompt for a command:

1. Type the command on the command line and press **F4** to display an entry screen for the command. This screen lists valid parameters and provides a brief description of each parameter.
2. Press **F11** to display the keyword names.
3. Complete the command by filling in the parameter values on the screen.
4. After typing in all applicable parameters, press **Enter** to execute the command.

Accessing Parameter Level Help

Complete the following steps to access help with parameters:

1. Place the cursor by the parameter for which you want further description.
2. Press **F1** to display a description of the parameter and valid values.
3. After viewing help information, press **F3** to exit the help function or press **F12** to cancel and return to the command line.

Using Parameter Level Prompt

Complete the following steps to prompt for a parameter:

1. Place the cursor by the parameter for which you want to prompt.
2. Press **F4** for a list of valid values for the parameter. At this screen, type in the appropriate value for the parameter.
3. Press **Enter** to set the parameter and return to the original screen. You can also press **F3** or **F12** to exit the help function.

If a parameter is required to run the command successfully, the field is highlighted. Prompt does not provide the default value. A greater than (>) symbol indicates that the parameter field contains a user-supplied value.

Sending a File

Sending a file on Connect:Direct OS/400 requires the Connect:Direct Send (CDSND) command. Understanding the Connect:Direct OS/400 file systems, the CDSND command parameters, block mode transfer, and the CDSND screens enables you to use this command more effectively. This chapter provides the following information to help you use this command:

- ❖ Using the file systems
- ❖ Using the CDSND command
- ❖ Using block mode transfer
- ❖ Using the CDSND screens

Using the File Systems

Connect:Direct OS/400 supports two types of file systems to perform file transfers: native file and integrated file. The native file system and the integrated file system can both be used to send files to and receive files from any supported file system.

Native File System

The native file system used in previous releases of Connect:Direct OS/400 remains functional. This file system accepts the file name in the following formats:

library-name/file-name

specifies the library and file name to be copied.

library-name/file-name(member-name)

specifies the library, file, and member name of the member to be copied. You cannot use the EXCLUDE and SELECT parameters if you specify a member name.

Note: *LIBL, *CURLIB and QTEMP are not valid library names for a Connect:Direct Process.

Integrated File System

As part of OS/400, the integrated file system provides an integrated structure over all data stored in the iSeries system. This file system supports stream input/output and storage management like personal computers and UNIX operating systems.

Integrated File System Types

The Connect:Direct OS/400 integrated file system provides application and data compatibility with other platforms. The integrated file system consists of five file system types:

- ❖ /QLANSrv is a LAN server file system
- ❖ /QDLS is a document library file system
- ❖ /QSYS.LIB is the iSeries DB2 file system
- ❖ /QOpenSys is a UNIX-style file system
- ❖ All others are part of the root file system

Specifying a Path Name

The integrated file system recognizes the objects by the path specification. You must specify the fully qualified path name to transfer a file. Connect:Direct OS/400 identifies a path that starts with a slash (/) or a backslash (\) as a request for the integrated file system.

The integrated file system does not support file field description. You cannot specify the SNDFFD(*YES) under this file system. Similarly, you cannot specify SELECT or EXCLUDE with the integrated file system.

To use this system, you must specify the fully qualified path name in one of the following formats:

/QSYS.LIB/library-name.LIB/file-name.FILE/member-name.MBR

specifies the library, file name, and member name to be copied using the integrated file system.

/directory/file-name/QLANSrv/file-name/QDLS/folder-name/QOpenSys/file-name

specifies the directory, folder, and file names to be copied using the integrated file system.

Directories like /QOpenSys and /root are case-sensitive. The /QSYS.LIB notation is case-sensitive only if you enclose the name in single quotation marks.

Using the CDSND Command

Use the CDSND command to send a file to a remote node. This command sends files to any file systems supported by the OS/400 V3R1M0 or later. You can also specify a user-exit command (either **EXITCMD** or **FAILCMD**) to be executed after the completion of a copy process in either FROMSYSOP or TOSYSOP. Using EXITCMD, you can specify a command to be executed only if the copy process is successful. You can also specify a command to be executed only if the copy process is not successful by using the FAILCMD command. The EXITCMD and FAILCMD commands must be executed on an OS/400 using Connect:Direct release 3.3.00 and above. The FAILCMD and EXITCMD are executable iSeries commands as well as Connect:Direct as long as the size of the command does not exceed 127 bytes.

CDSND Command Example

The command shown in the following figure is an example of the CDSND command.

```
CDSND  PNAME(CDSEND)  SNODE(DALLAS.OS3901)
      SNODENVIRN(OS390)
      FDSN('DALLIB/ACCTDATA')
      TDSN(DALLAS.ACCTDATA)
      FMSYSOPTS('TYPE(FILE)')
```


CDSND Command Format

The following table shows the parameters for the CDSND command. Required parameters are in bold.

| Command | Parameters |
|---------|---|
| CDSND | SNODE(remote-node-name) |
| | SNODENVIRN(remote-environment-name) |
| | FDSN('from data-set-name') |
| | TDSN('to data-set-name') |
| | FMSYSOPTS(' PRECMPR(*YES *NO) EXITCMD(valid OS/400 command) FAILCMD(valid OS/400 command) SNDDFD(*YES *NO) TEXTFILE(*YES *NO) TYPE(FILE MBR OBJ) XTRAN(table-name)[XTRANLSO(so-code)]XTRANPAD(pc) XTRANLSI(si-code)]XTRANLDATA(MIXED DBCS) CODEPAGE(nnnnn,nnnnn)] ') |
| | TOSYSOPTS(' DECMPR(*YES *NO) EXITCMD(valid OS/400 command) FAILCMD(valid OS/400 command) TYPE(FILE MBR OBJ SPLF) CODEPAGE(nnnnn,nnnnn) ') |
| | BLKSIZE(n)*CALC) |
| | CKPTINV(n) |
| | CLASS(n) |
| | COMPRESS(*NO *YES *EXT X\xx C\cc\) |
| | CRC(*INITPARMS *NETMAP *OFF *ON) |
| | ECTUNING(ecclevel,ecwsize,ecmlevel) |
| | EXCLUDE(generic member-name (start-range stop-range)'list') |
| | FDISP(current, normal end, abnormal end) |
| | NOTIFY(userid) |
| | PNAME(process-name) |
| | PNODEID(id, pswd, newpswd) |
| | REPLACE(*YES *NO) |
| | RMTWORK(*NO *YES) |
| | SACCT(accounting-data) |
| | †SECOPTIONS(* *) |
| | SELECT(member,new-name,R NR,'list') |

† Connect:Direct Secure+ Option parameter.

| Command | Parameters |
|---------|--|
| | SNODEID(id, pswd, newpswd) |
| | TBUFND(n) |
| | TDBPARMS(dbid, dbsubid) |
| | TDCB(modeldcb, blksize, den, dsorg, keylen, limct, lrecl, optcd, recfm, rkp, trtch) |
| | TDISP(current, normal end, abnormal end) |
| | TIOEXIT(program-name) |
| | TIOPARM(parameter-names) |
| | TLABEL(seqno,labeltype,pswdread,inout,retpd expdt) |
| | TLINK(vmuserid,pwd,accmode,cpu) |
| | TMSVGP(data-definition name) |
| | TPROTCT(*YES *NO) |
| | TRACEOPT Trace Instructions: (L,S,F,C,X,K,D,H,V,W,P *NONE *ALL *EXT *COMMON *INITPARMS *CURRENT Command Trace Options: L,S,F,C,X,K,D,H,V,P *ALL *EXT *COMMON *NONE) |
| | TSPACE(avgbk, type, primary, secondary, pdsblk, rise, contig, round) |
| | TSQL('sql-statement' 'DSN=data-set-name') |
| | TTYTYPE(entry-name) |
| | TUNIT(file-address) |
| | TVOL(private, volcount, ser) |
| | TVOLREF(data-set-volume) |
| | TVSAMCAT(dsn,vmid,pwd,accmode,cpu) |

† Connect:Direct Secure+ Option parameter.

Note: The CLASS parameter is not used for Connect:Direct OS/400.

Required Parameters

Unless otherwise noted, these required parameters apply to all remote node environments.

SNODE(remote-node-name)

specifies a 1–16 character alphanumeric name for the receiving node (remote node). The node name must be defined in the network map.

Note: The name parameter is case sensitive.

SNODENVIRN(remote-environment-name)

specifies the 1–10 character alphanumeric name for the receiving node environment: OS400, OS390, MVS, MSP, OPENVMS, TANDEM, UNIX, VM, VOS, VSE, Windows, or Windows_NT.

FDSN('from data-set-name')

specifies the file to be sent to the remote node. File names are verified based on the OS/400 standard file name conventions. The entire data set name must be in single quotes. If you are using the Connect:Direct OS/400 **F4** prompting feature, the system supplies the single quotes if you do not type them with the data set name on the command line.

Note: The values of *LIBL, *CURLIB, and QTEMP cannot be used when sending to or from an iSeries system using Connect:Direct OS/400. A specific library name must be used for copying from or to a data set on the iSeries.

Connect:Direct OS/400 supports two file systems: native file system and integrated file system. Refer to the *Using the File Systems* on page 3-1 for detailed information about the file systems.

TDSN('to data-set-name')

specifies the receiving file name on the remote node.

Note: Do not use member names longer than eight characters when sending to OS/390, VSE or MSP nodes. The results are unpredictable.
For TDSN, the values of *LIBL,*CURLIB, QTEMP cannot be used when sending to or from an iSeries system using Connect:Direct OS/400. A specific library name must be used for copying from or to a data set on the iSeries.

TDSN specifies the destination file name. File names are verified based on the OS/400 standard file name conventions. The entire DSN must be in single quotes. When you are using the Connect:Direct OS/400 **F4** prompting feature, the system supplies the single quotes if you do not type them with the file name on the command line.

Connect:Direct OS/400 supports both the native file system and the integrated file system. The file system description begins on page 3-1. Refer to the FDSN parameter format on page 3-5 for TDSN format information.

Note: If the TDSN requires a password, you can specify the password in the TDSN after the data set name. A slash (/) must follow the data set name and precede the password. This password is used at data set allocation. If it is not correct, the system issues a Write to Operator Request (WTOR) which requests the password when Connect:Direct opens the data set.

The following table summarizes the data set name requirements for Connect:Direct platforms.

| SNODENVIRN | TDSN | Format | Special Considerations |
|--------------------------|---|--------|--|
| OS/400 | Native File System 'library-name/file-name' 'library-name/file-name (member-name)' | | Enclose in single quotation marks. |
| | Integrated File System '/QSYS.LIB/library-name.LIB /file-name.FILE /member-name.MBR' or '/directory/file-name /QLANSrv/file-name /QDLS/folder-name /QOpenSys/file-name' | | You cannot specify the *SNDFFD, *SELECT, and *EXCLUDE parameters with the integrated file system. |
| | Spool File Support spooled-file-name | | Do not use member names longer than eight characters when sending to OS/390, VSE, and MSP. The results are unpredictable. |
| OS/390, VSE, MSP, MVS | Standard OS/390 DSN naming conventions. | | Single quotes allow special characters. Do not use member names longer than eight characters. The results are unpredictable. |
| VM | Fully qualified file-name | | |
| Tandem | \system.\$volume.subvolume.filename | | |
| Windows | drive:\directory\subdirectory\filename or \\servername\sharepointname\subdirectory\fil ename | | |
| UNIX | /directory/subdirectory/filename | | |
| OpenVMS | node::device:[directory]filename.type;version | | When you are copying a file, the file specification must be enclosed in single quotation marks if it uses spaces or other special characters not recognized by the other node. |
| Stratus VOS | Fully qualified path and file name | | Enclose the file name in double quotation marks when you use a reserved word (statement name or keyword) for the file name. |

FMSYSOPTS('

PRECMPR(*YES | *NO) EXITCMD(valid OS/400 command) FAILCMD(valid OS/400 command)
SNDFFD(*YES | *NO) TEXTFILE(*YES | *NO) TYPE(FILE | MBR | OBJ)
XTRAN(table-name) CODEPAGE(nnnnn,nnnn)[XTRANLSO(so-code) | XTRANLSI(si-code |
XTRANLDATA(MIXED | DBCS)|XTRANPAD(pc)'] specifies sending system operations. If you
omit this parameter, Connect:Direct OS/400 assumes 'TYPE(FILE)'. The maximum number of
characters for FMSYSOPTS is 2K.

Note: All FMSYSOPTS keyword values must be enclosed in parentheses. The entire
FMSYSOPTS string must be enclosed in single quotes, for example,
FMSYSOPTS('TYPE(FILE) SNDFFD(*YES)').

PRECMPR(*YES|*NO) specifies that the file being sent has previously been compressed using the CDCOMP command. This option PRECMPR(*YES) cannot be specified if a secured copy function is being performed using Secure+ Option. To send a file that has been compressed, you must specify the PRECMPR(*YES) parameter with the CDSND command. For information about how to compress files, refer to Chapter 11, *Compressing Files*.

Note: Ensure that the output file contains no members before you execute CDCOMP.

EXITCMD(valid OS/400 command) specifies a command to be executed only if the copy process is successful.

FAILCMD(valid OS/400 command) specifies a command to be executed only if the copy process is not successful.

SNDFFD(*YES|*NO) specifies whether the sending node transfers file field descriptions.

Use the following formula to determine whether a file is sent with the file field descriptions. If the bytes required value is greater than 12K, you cannot transfer the file field descriptions.

| |
|--|
| $12 \times \text{number of keys} + (45 \times \text{number of fields}) + \text{SYSOPTS} = \text{bytes required}$ |
|--|

Note: You cannot use this parameter with the integrated file system.

TEXTFILE(*YES|*NO) specifies that the file being sent is a text file. This keyword is for the OS/400 only.

TYPE(FILE|MBR|OBJ) specifies the type of data to be sent. You *must* define the type of data to be copied as one of the following:

FILE specifies that the file being copied is a physical database file.

MBR specifies that the object being copied is a member of a physical database file.

OBJ specifies that the data to be copied is in save file format.

XTRAN(table-name) specifies the translation table to use. The named table object must exist in a library that is in the library list of the session manager job. If the library name is not in the list, the CDSND command fails.

If the XTRAN keyword is present, then the following related optional keywords can also be used:

XTRANLSO (so-code) specifies extended translation local shift-out code. This keyword specifies the hexadecimal code to use for the local (OS/400 side) shift-out (SO) character and overrides the default value of 0E. You can specify any two valid hexadecimal digits.

XTRANLSI (si-code) specifies extended translation local shift-in code. This keyword specifies the hexadecimal code to use for the local (OS/400 side) shift-in (SI) character and overrides the default value of 0F. You can specify any two valid hexadecimal digits.

XTRANLDATA (MIXED|DBCS) specifies extended translation local data format. This keyword specifies the format of the data on the local (OS/400 side) of the COPY.

MIXED indicates that the data can contain both double-byte character set (DBCS) and single-byte character set (SBCS) characters and that SO/SI characters are used. MIXED is the default.

XTRANPAD(pc) specifies that padding characters are in use. When DBCS data is translated from EBCDIC to ASCII, PAD specifies that the SHIFT-OUT and SHIFT-IN characters are replaced by a pad character to allow the displacement of fields within a record to remain unchanged during translation.

When DBCS data is translated from ASCII to EBCDIC, PAD specifies that the input ASCII DBCS file is in a padded format. The character immediately preceding a DBCS character or string is overlaid by the SHIFT-OUT character. The character immediately following a DBCS character or string is overlaid with the SHIFT-IN character. This allows the displacement of fields within a record to remain unchanged during translation.

pc is the pad character to be used during EBCDIC to ASCII translation. **pc** is ignored for ASCII to EBCDIC translations.

If XTRANPAD is not used, the SI/SO characters are stripped from the file when transferring from EBCDIC to ASCII, and added to the records when sending from ASCII to EBCDIC.

DBCS indicates that the data is pure DBCS characters and that no SO/SI characters are used.

The following rules apply to the use of the XTRAN keyword:

- ❖ You must specify the XTRAN keyword to use extended translation; all other keywords are optional.
- ❖ The default for local shift-out is the IBM standard x0E.
- ❖ The default for local shift-in is the IBM standard x0F.
- ❖ The default local data format is MIXED with SO/SI in use. XTRAN is *not* allowed with PRECMR(*YES) or DECMR(*NO)
- ❖ If you send a file to an ASCII platform using extended translation, you *must* specify in the TOSYSOPTS that the data type is binary. Refer to the *Connect:Direct Process Statements Guide* for platform-specific SYSOPTS parameters.

CODEPAGE(nnnnn,nnnn) converts data from one code page to another. The supported conversions are identified on the IBM Web site in the V5R1 Information Center, DB2 Universal Database for iSeries SQL Reference, Appendix E. CODEPAGE() on Connect:Direct OS/400 relates to CODEPAGE() developed for the OS/390 system, UNIX, and Windows.

nnnn identifies the IBM CCSID codepage number to convert from and the IBM CCSID code page number to convert to. If the FROM code page or TO code page is locale, the code page for the locale where CONNECT:Direct is executing is used. For example, if fmsysopts(codepage(locale,1208)), then the FROM code page is the code page for the locale and the TO code page is UTF-8.

TOSYSOPTS(*DECMR(*YES|*NO) TYPE(FILE|MBR|OBJ|SPLF) EXITCMD(valid OS/400 Command) FAILCMD(valid OS/400 Command))

specifies system operation parameters at the receiving node. The maximum number of characters permitted for TOSYSOPTS is 256. The format of CODEPAGE is based on the remote operating system default values for CDSND.

For additional information about valid platform-specific SYSOPTS parameters, see the appropriate COPY statement chapter of the *Connect:Direct Process Statements Guide*.

EXITCMD(valid OS/400 command) specifies a command to be executed only if the copy process is successful.

FAILCMD(valid OS/400 command) specifies a command to be executed only if the copy process is not successful.

DECMR(*YES|*NO) specifies whether the receiving Connect:Direct node is to decompress the received file. This parameter is valid only when the receiving system is a Connect:Direct OS/400 node. The EXITCMD and FAILCMD are valid here if the receiving node is OS/400 3.3.00 or higher.

This option **DECMPR(*NO)** cannot be specified if a secured copy function is being performed using Secure+ Option.

Note: Ensure that the destination file contains no members before you send a file with **DECMPR(*NO)** specified.

***NO** instructs the receiving system to place the received data in a database file without decompressing it.

CODEPAGE(nnnnn,nnnnn) converts data from one code page to another. The supported conversions are identified on the IBM Web site in the V5R1 Information Center, DB2 Universal Database for iSeries SQL Reference, Appendix E. **CODEPAGE()** on Connect:Direct OS/400 relates to **CODEPAGE()** developed for the OS/390 system, UNIX, and Windows.

nnnnn identifies the IBM CCSID code page number to convert from and the IBM CCSID code page number to convert to. If the FROM code page or TO code page is locale, the code page for the locale where **CONNECT:Direct** is executing is used. For example, if **tosysopt(codepage(1208,locale))**, then the FROM codepage is UTF-8 code page and the TO code page is the local code page.

TYPE(FILE|MBR|OBJ|SPLF) specifies the type of data to be sent. Define the type of data to be sent as one of the following:

FILE specifies that the file being copied is a physical database file.

MBR specifies that the object being copied is a member of a physical database file.

OBJ specifies that the data to be copied is in save file format.

SPLF specifies that the data to be copied is an OS/400 spooled output file.

For each type of file, you can specify certain additional **TOSYSOPTS** parameters.

If the receiving node is a **Connect:Direct OS/400** node, the following **TOSYSOPTS** parameters are valid for **TYPE(FILE)** and **TYPE(MBR)** files:

RCDLEN(record-length) specifies the data length for each record in the file.

FILETYPE(*SRC)*DATA) specifies the type of file to be created.

TEXT('text description') specifies a text description to be associated with this member (and file, if created). This description cannot exceed 50 characters and must be enclosed in single quotes.

EXPDATE(expiration-date) specifies the date after which the new or replaced member cannot be used. If **EXPDATE** is not specified, then the file does not have an expiration date.

MAXMBRS(number)*NOMAX) specifies the maximum number of members a physical file can contain.

SIZE(#-of-recs|incr-value #-of-incrs)*NOMAX) is used when a new file is created for the file received.

AUT(*CHANGE)*ALL)*USE)*EXCLUDE) specifies the authority to be given to a user who does not have specific authority to the file or member, is not on the authorization list, and whose user group does not have specific authority to the file or member.

IGCDTA(*YES)*NO) specifies that DBCS support is installed on the destination OS/400 node and the file being sent contains DBCS data.

The following TOSYSOPTS parameters are valid for **TYPE(OBJ)** files:

MAXRCDS(number|*NOMAX) specifies the maximum number of records the save file (which was created to hold the data received) can reach.

ASP(auxiliary-storage-pool) specifies the auxiliary storage pool from which the system allocates storage for the save file.

TEXT('text description') specifies a text description to be associated with this object. This description cannot exceed 50 characters and must be enclosed in single quotes.

AUT(*EXCLUDE|*CHANGE|*ALL|*USE) specifies the authority to give to a user who does not have specific authority to the object, is not on the authorization list, and whose user group does not have specific authority to the object.

The following TOSYSOPTS parameters are valid for **TYPE(SPLF)** files:

DEV(*JOB|*SYSVAL|device-name) specifies the name of the printer device description.

DEVTYPE(*IPDS|*SCS)|*USERASCII specifies the type of data stream created for a printer file from the data received.

PAGESIZE(page-length page-width) specifies the length and width of the page used by the printer. This parameter overrides the FORMTYPE parameter.

LPI(3|4|6|7.5|8|9) specifies the line space setting (lines per inch) on the printer.

CPI(5|10|12|13.3|15|16.7|18|20) specifies the printer character density, in characters per inch, for the printer.

OVRFLW(overflow-line-number) specifies the line number on the page where overflow to a new page begins. The value specified must not exceed the form length specified for PAGESIZE.

FOLD(*NO|*YES) specifies whether entire records are printed when the record length exceeds the form width.

RPLUNPRT(*YES 'replacement-character'|*NO) specifies whether unprintable characters are replaced with printable characters when printed. It also specifies the replacement character.

ALIGN(*NO|*YES) specifies whether the page must be aligned in the printer before printing is started.

CTLCHAR(*NONE|*FCFC) specifies whether the data contains printer control characters.

CHLVAL(*NORMAL| (channel#1 line#1) ... (channel#12 line#12)) specifies the list of channel numbers with their assigned line numbers. Note that CTLCHAR(*FCFC) must be specified as a SYSOPTS parameter for this to be a valid parameter.

FORMFEED(*DEV|*CONT|*CUT|*AUTOCUT) specifies the form feed attachments used by the printer (4214, 5219, and 5553 printers only).

PRTQLTY(*STD|*DRAFT|*DEV|*NLQ) specifies the quality of print produced.

DRAWER(1|2|3|*E1) specifies the source drawer to be used when automatic cut-sheet feed mode is used. FORMFEED(*AUTOCUT) must be specified as a SYSOPTS parameter for this to be a valid parameter.

FONT(*CPI|*DEV|font-identifier) specifies the font identifier to be used for the spooled output file.

CHRID(*DEV|*SYSVAL| graphic-character-set code-page) specifies the character identifier to be used for the spooled output file. This parameter allows you to print data with different character identifier coding.

PAGRTT(*DEV|*COR|0|90|180|270) specifies the degree of rotation (clockwise from the edge of the paper first loaded into the printer) of text on each page printed. **0|90|180|270** indicates the specific angle of rotation.

PRTTXT('print-text') specifies a line of text to be printed at the bottom of each page printed. Up to 30 characters enclosed in single quotes is specified.

JUSTIFY(0|50|100) controls the print positions of the characters on the page (in the spooled file) so the right margin is regular.

DUPLEX(*NO|*YES|*TUMBLE) specifies whether the spooled output file is printed on one or both sides of the paper.

SPOOL(*YES|*NO) specifies whether the data is sent to a spooled file prior to printing.

OUTQ(*JOB|*DEV|library-name/output-queue-name) specifies the output queue for the spooled output file created. This parameter is valid only when **SPOOL(*YES)**.

FORMTYPE(form-type) specifies the type of form to use in the printer when the spooled file is printed. A form-type identifier is user-defined and is no longer than 10 characters. The **PAGESIZE** parameter overrides this parameter.

COPIES(number-of-copies) specifies the number of copies to be printed. Valid values range from 1–255. This parameter is valid only when **SPOOL(*YES)**.

MAXRCDS(maximum-records) specifies the maximum number of records that is placed in the spooled file. Valid values range from 1–500000. This parameter is valid only when **SPOOL(*YES)**.

FILESEP(number-of-file-separators) specifies the number of blank separator pages to be placed between each copy of the file printed.

HOLD(*YES|*NO) specifies whether the file is to be held on the output queue until released by the user. This parameter is valid only if **SPOOL(*YES)**.

SAVE(*YES|*NO) specifies whether the spooled output file is to be saved on the output queue once printed. This parameter is valid only if **SPOOL(*YES)**.

OUTPTY(*JOB|output-priority) specifies the scheduling priority of the file on the output queue. This parameter is valid only if **SPOOL(*YES)**.

USRDTA(user-data) allows up to 10 characters of data to identify the spooled output file. This parameter is valid only if **SPOOL(*YES)**.

Refer to the *Connect:Direct Process Statements Guide* for general information on SMS support and **TOSYSOPTS** parameters for other platforms.

Optional Parameters

The following parameters, listed alphabetically, are optional. Unless otherwise noted, the parameters apply to all remote node environments.

BLKSIZE(n|*CALC)

specifies the blocksize value for the source file. This value must be a multiple of the file record size.

n specifies the block size of the file. This value must be a multiple of the record size. The valid range is 1–32720

***CALC** indicates that the blocksize is calculated.

CKPTINV(n)

specifies the number of bytes, from 0–2 gigabytes, to send before taking a checkpoint. The format is *nnnnnnn*, *nnnnnnK*, or *nnnnnnM*, where **K** specifies thousands of bytes and **M** specifies millions of bytes. A value of **0** specifies no checkpoint/restart. Connect:Direct OS/400 uses the value you specify, rounded up to the nearest record boundary, to determine when to take a checkpoint.

A checkpoint interval specified here overrides the system-wide default value in the initialization parameters file.

Checkpointing cannot occur in the following cases, even if you specify a checkpoint interval:

- ❖ The file being sent is compressed during the send operation by the local node using the extended compression feature, and decompression is deferred on the receiving node. That is, the TOSYSOPTS parameter has DECMPR(*NO).
- ❖ A precompressed file is sent and decompressed by the receiving node during the send operation. That is, the FMSYSOPTS has PRECMPR(*YES) and TOSYSOPTS has DECMPR(*YES).
- ❖ A file is sent to a single OS/390 partitioned data set member.

If you request checkpointing when you are transferring multiple members of a file, checkpoints are taken only at member boundaries regardless of the interval specified in the initialization parameters or in the CDSND or CDRCV command.

CLASS(n)

determines the node-to-node session on which an operation can execute. The CLASS is a number in the range of 1–255. If you do not specify the CLASS parameter, it defaults to the number of maximum sessions defined in the mode description for the communications environment.

Note: The CLASS parameter is not used by Connect:Direct OS/400.

COMPRESS (*NO|*YES|*EXT|X\xx|C\cc)

specifies that the data is to be compressed, which reduces the amount of data transmitted as the file is copied from one node to another. The file is automatically decompressed at the destination.

Note: Compression is CPU-intensive, and its effectiveness depends on the data and line speed. Only use it if it benefits the installation.

You should specify the primary compression character for text data or single-character repetitive data. Extended compression generally offers improved compression for all types of data.

***NO** specifies no compression.

***YES** enables compression. If ***YES** is specified, the default primary compression character is PRIMEchar=X\40\ (hex 40=" ").

If you specify ***YES**, Connect:Direct compresses the data transmitted based on the following rules:

- ❖ Repetitive occurrences (ranging from 2–63) of the primary compression character are compressed to one byte.
- ❖ Repetitive occurrences (ranging from 3–63) of any other character are compressed to two bytes.

***EXT** specifies that extended compression is used to search for repetitive strings of characters in data and compress them to codes that are transmitted and converted back to the original string during decompression. Use this parameter when the line transmission speeds are limited, the CPU is available, and the data is repetitive.

X\xx enables compression, where *xx* is the hexadecimal representation of the value to be used for the primary compression character.

C*cc*\ enables compression, where *cc* is the character representation of the value to be used for the primary compression character.

CRC(*INITPARMS|*NETMAP|*OFF|*ON)

Determines whether node and Process statement overrides for Cyclic Redundancy Check (CRC) are allowed. If this value is set to *OFF, setting overrides for CRC checking will be ignored. The default value is *INITPARMS.

***INITPARMS** specifies that the CRC setting is determined by the value for the initialization parameter TCP.CRC.

***NETMAP** specifies that the CRC setting is determined by the value for the NETMAP parameter, Cyclic Redundancy Check. The value for the initialization parameter TCP.CRC must be set to *ON and the value for the initialization parameter TCP.CRC.OVERRIDE must be set to *YES.

***OFF** specifies that CRC is disabled.

***ON** specifies that CRC is enabled.

ECTUNING(eccllevel,ecwsize,ecmlevel)

ECCLEVEL specifies the extended compression level, which affects how much CPU the extended compression routines use. Higher compression levels use more CPU but achieve greater compression. The valid values for this subparameter are 1–9, inclusive. The default value is *INITPARMS.

ECWSIZE specifies the extended compression window size, which is specifically for the history buffer that is filled from the user's input buffer (both compressing and decompressing). The window specifies the amount of storage designated to maintain data previously read.

This data can be scanned for string matches. The extended compression window size affects how much virtual memory the extended compression routines use. Higher window size values use more memory but achieve greater compression. The valid values for this subparameter are 8–15, inclusive. The default value is *INITPARMS.

ECMLEVEL specifies the extended compression memory level parameter, which determines how much memory should be allocated for other internal data structures like the hash table and the previous table (pointers to previous strings starting with the same 3 characters). The extended memory level affects how much memory the extended compression routines use. Higher memory levels use more virtual memory but achieve greater compression. The valid values for this subparameter are 1–9, inclusive. The default value is *INITPARMS.

EXCLUDE (generic|member-name|(start-range/stop-range) 'list')

specifies criteria that identifies the file members that are not to be copied. EXCLUDE allows you to make exceptions to members specified generically or by range in the SELECT option.

generic specifies a generic member name. For example, if you specify CD*, all member names beginning with CD are excluded.

member-name specifies an individual member name.

start-range/stop-range specifies first and last names in an alphanumeric range of members. Although member names in a range are treated as generics, they cannot be used with an asterisk (*). A slash (/) separates the first (start-range) and last (stop-range) member names. The two members specified, as well as all members in the range, are excluded.

'list' specifies any combination of the subparameters.

FDISP(current, normal end, abnormal end)

specifies the status of the sending file and what is to be done with the file after notification of successful or unsuccessful transmission.

current specifies the status of the file. Valid values for this subparameter are:

SHR specifies that the member is read simultaneously by another operation. The default is SHR.

OLD specifies that the operation is to be given exclusive control of the file.

normal end specifies the disposition of the file following a normal operation termination, resulting in a zero completion code. Valid dispositions are:

KEEP specifies that the system is to keep the member after the operation ends.

DELETE specifies that the system is to delete the member after the operation ends.

abnormal end specifies the disposition of the file after an abnormal operation termination, resulting in a nonzero completion code. Valid source file dispositions are:

KEEP specifies that the system is to keep the member after the operation terminates abnormally.

DELETE specifies the system is to delete the member after the operation terminates abnormally.

Note: Currently, normal end disposition and abnormal end disposition are not applicable for Connect:Direct OS/400.

NOTIFY(userid)

specifies the user ID on the sending node to receive status messages that are directed to the user's message queue.

PNAME(process-name)

identifies the Process in any messages or statistics. The name is from 1 to 12 characters long. The first character must be alphabetic. The default name is CDSND.

Note: Only Connect:Direct OS/400 and Connect:Direct UNIX support Process names with more than 8 characters.

PNODEID(id, pswd, newpswd)

specifies security user IDs and passwords at the local OS/400 node. Use this parameter only to validate security with a different ID than the one you used to sign on to the system.

id specifies the security ID passed to the security system on the sending node (1–10 alphanumeric characters).

pswd specifies the current security password for the specified ID. The security system on the sending node can use this parameter to validate the current security password (1–10 alphanumeric characters). This is optional unless the user has security set to require a password.

newpswd specifies the new security password. The security system can use this parameter to change the current security password to the new security password (1–10 alphanumeric characters).

Note: Although you can specify a value for newpswd, Connect:Direct OS/400 does not support this parameter.

REPLACE (*YES|*NO)

specifies that the sending file replaces members of the same name at the receiving file or PDS.

RMTWORK(*NO|*YES)

specifies whether a remote process can run on the session after Connect:Direct OS/400 has completed its Process on the session.

***NO** terminates the session after Connect:Direct OS/400 executes the command function.

***YES** allows a remote process to run on the session after Connect:Direct OS/400 completes its Process.

SACCT(accounting-data)

specifies the accounting data for the receiving node. The maximum length of the accounting data is 256 characters. If special characters are part of the accounting data, the string must be enclosed in single quotation marks.

SECOPTIONS(* *)

Encryption and Digital Signature values.

Encryption specifies if data encryption is to be performed and what algorithm to use.

Digital Signature specifies if a digital signature is created while a file is being transmitted.

Note: The SECOPTIONS parameter is valid only if the Connect:Direct Secure+ Option is installed. For information about these parameters, refer to the *Connect:Direct Secure+ Option Implementation Guide*.

SELECT(member, new-name, R/NR, 'list')

specifies selection criteria by which file members are to be copied. Use this parameter when you specify TYPE(FILE) in the FMSYSOPTS parameter.

Note: *FIRST is not a valid subparameter.

The SELECT parameter consists of three positional subparameters separated by commas.

member specifies the member(s) to be copied. You can also specify a list of individual member names or generic member names separated by spaces. However, you cannot use the new-name and replace-member (R) subparameters when specifying a list. Member selections are:

* represents a global generic. A global generic indicates that all members of the file are to be included.

generic specifies a generic member name. For example, if you specify CD*, all member names beginning with CD are selected for copying.

member-name specifies an individual member name.

start-range/stop-range specifies first and last names in an alphanumeric range of members. Although member names in a range are treated as generics, you cannot use them with an asterisk (*). A slash (/) separates the first (start-range) and last (stop-range) member names. The two members specified, as well as all members in the range, are copied.

new-name specifies a new name for a member. The new-name subparameter cannot be used if you use a generic or range to select the members to be copied or if you specify a list of member names.

R/NR specifies whether a copied member replaces an existing member of the same name in the receiving file. When used with a generic or a range, this subparameter applies to all members selected.

Note: When using a generic and specifying NR or R, the second positional subparameter (new-name) must be null, for example, **generic*,NR**.

R specifies that a member replaces an existing member of the same name in the receiving file. When used with the new-name subparameter, **R** applies to the specified new-name and not the original member name.

NR specifies that a member does not replace an existing member of the same name in the receiving file. **NR** overrides the **REPLACE** parameter.

'list' specifies any combination of the subparameters.

SNODEID (id, pswd, newpswd)

specifies security user IDs and passwords at the remote node. If nothing is specified for this parameter, the user profile of the user who submits the command is sent to the remote node with a blank password.

id specifies the security ID passed to the security system on the receiving node (1–64 alphanumeric characters).

pswd specifies the current security password. The security system on the **SNODE** can use this parameter to validate the current security password (1–64 alphanumeric characters). This is optional unless you have security set to require a password.

newpswd specifies the new security password and is used by the security system to change the current security password to the new security password (1–64 alphanumeric characters).

Note: newpswd is not supported if the remote node is an OS/400 node.
Parameter values are case sensitive.

TBUFND(n)

specifies the number of I/O buffers VSAM uses for transmitting data between virtual and auxiliary storage. Valid values range from 1–510. The default is **2**. Increasing this number generally improves the I/O performance on the file but requires more memory.

TDBPARMS (dbid, dbsubid)

indicates that the Connect:Direct SQL SERVER is to process the I/O request against the database identified by the subparameters of this keyword and defined by the **SQL=** parameter. The **DBPARMS** parameter is used with the optional Connect:Direct for SQL feature. This parameter is valid for OS/390 nodes only. Only DB2 is supported.

To determine the values to code to access a given DB2 table or set of DB2 tables, consult your database administrator.

dbid specifies the DB2 database ID of one to four bytes.

dbsubid specifies the DB2 database sub-ID of one to four bytes.

TDCB (modeldcb, blksize, den, dsorg, keylen, linct, lrecl, optcd, recfm, rkp, trtch)

overrides attributes of the source file. For existing source and destination files, DCB attributes are determined from the operating system unless specified. For a new destination file, use the DCB attributes of the source file to allocate the destination file unless you provide DCB information in the operation.

modeldcb specifies a model data set control block (DSCB).

blksize specifies the length in bytes of the block. The minimum length is 18 bytes, and the maximum length is 32,760 bytes.

den specifies the magnetic tape mode setting. The following table shows the values for the DEN parameter for 7- and 9-track tapes. When coded together, the DEN and TRTCH values are used to select a tape device for allocation by the remote node.

| DEN | 7-Track Tape | 9-Track Tape |
|-----|--------------|--------------|
| 1 | 556 bpi | -- |
| 2 | 800 bpi | 800 bpi |
| 3 | -- | 1600 bpi |
| 4 | -- | 6250 bpi |

dsorg specifies the file organization. Valid file organizations are BDAM, ISAM, PO, PS, and VSAM.

keylen specifies the length of the keys used in a file. Maximum length is 255 bytes.

limct specifies the blocks or tracks searched to find a free block or available space.

lrecl specifies the record length in bytes.

optcd specifies optional processing associated with this file. This specification only applies to this file and is not automatically applied to the other files involved in the RECEIVE operation. Valid options are:

W performs write validity checks on direct access storage devices.

Q performs ASCII-to-EBCDIC conversion for input files and EBCDIC-to-ASCII conversion for output files. **Q** is the default and only used for AL-labeled tape files.

Z performs reduced error recovery for tape files.

recfm specifies the format of the records in the file. You can specify any valid record format, such as:

F specifies fixed format.

FA specifies fixed format with ASA printer control.

FB specifies fixed block format.

FBA specifies fixed block format with ANSI carriage control.

FM specifies fixed format with machine code control character.

U specifies undefined format.

V specifies variable format.

VB specifies variable block format.

VBA specifies variable block format with ASA printer control.

VBM specifies variable block format with machine code control character.

VS specifies variable spanned format.

VBS specifies variable block spanned format.

For FDR volumes, you must specify RECFM=U.

rkp specifies the position of the first byte of the record key within each logical record. The beginning byte of a record is addressed as **0**.

trtch specifies the magnetic tape mode setting. When coded together, the TRTCH and DEN values select a tape device for allocation by Connect:Direct for OS/390. Valid options are:

C specifies data conversion, odd parity, and no translation.

E specifies no data conversion, even parity, and no translation.

T specifies no data conversion, odd parity, and BCD or EBCDIC translation.

ET specifies no data conversion, even parity, and BCD or EBCDIC translation.

COMP is a feature for 3480X tape drives only. It enables Improved Data Recording Capability (IDRC), which compresses the data. This subparameter overrides the system-wide IDRC setting for no compression. If you are specifying COMP, you must also include a UNIT= parameter that specifies either 3480X or a systems programmer-defined name equivalent to a 3480X tape drive.

NOCOMP overrides the system-wide IDRC setting for compression. It applies to 3480X tape drives only.

TDISP (current, normal end, abnormal end)

specifies the status of the file on the receiving node.

current specifies the status of the file before the operation executes. Valid choices for this subparameter are:

NEW indicates that the current Connect:Direct operation creates the destination file or member.

OLD indicates that the destination member already exists. The operation has exclusive control of the member. If the destination member does not exist, the operation fails.

MOD indicates that the operation modifies the member by adding data to the end of the member or, if none exists, allocates a new member. The file is also created if it does not exist.

RPL indicates that the destination file or member is replaced. The file is created if it does not exist.

SHR indicates that another operation can read the file simultaneously. The file is created if it does not exist on OS/400.

Note: Normal end disposition and abnormal end disposition are not applicable when sending to Connect:Direct OS/400.

For information on subparameters for other Connect:Direct platforms, refer to the *Connect:Direct Process Statements Guide*.

TIOEXIT(program-name)

specifies the name of the user-written program to be given control for I/O-related requests for the associated data.

TIOPARM(parameter-names)

specifies a parameter or list of parameters to be passed to the specified exit. The TIOPARM syntax is dependent on the parameter list required by the program specified in TIOEXIT.

TLABEL(seqno, labeltype, pswdread, inout, retpd, expdt)

specifies label information for the tape.

seqno specifies the relative file position on the tape.

labeltype is designated as:

SL specifies IBM standard label.

AL specifies American National Standard label.

BLP specifies bypass label processing.

LTM specifies bypass leading tape marks.

NL specifies no label.

pswdread specifies that a password must be supplied by the operator or user before the file is accessed.

inout specifies that a BSAM data set opened for INOUT or a BDAM data set opened for UPDAT is to be read only.

retpd specifies the retention period for the data set in days, where *nnnn* is one to four digits.

expdt specifies the expiration date for the data set, where *yyddd* or *yyyyddd* is a valid Julian date.

TLINK(vmuserid pwd accmode cuu)

specifies the disk where the CMS file is located. This parameter allows the user to access the CMS file. This parameter is for a VM remote node.

vmuserid specifies the owner ID for the CMS minidisk where the file is located. The valid length ranges from 1–8 characters.

pwd specifies the appropriate password for the CMS minidisk where the file is located. The maximum length is 256 characters. The default password is ALL.

accmode specifies the link access mode.

When used with the FROM parameter, the access modes are **W** (primary read/write access), **M** (primary multiple access), **R** (primary read only), **RR** (primary and remote read only access), **WR** (primary read/write access; alternate read only access), **MR** (primary multiple access; alternate read only access), and **MW** (primary multiple access; alternate read/write only access).

When used with the TO parameter, the access modes are **W**, **M**, and **MW**.

cuu specifies the virtual address of the disk where the CMS file is located. Any three-digit number is valid.

TMSVGP(data-definition-name)

specifies the receiving file mass storage volume group that resides on a mass storage system (MSS) device. This must be a valid DD (data definition) name.

TPROTCT(*YES*NO)

specifies whether an IBM RACF profile is created for a new file on a remote VM system.

TRACEOPT**Trace Instructions**

(L, S, F, C, X, K, D, H, V, W, P|*NONE|*ALL|*EXT| *COMMON|*INITPARMS|*CURRENT

specifies the trace bits that define functions to be traced by Connect:Direct OS/400. The following are valid options:

- ❖ **L** enables the main line logic trace for all components.
- ❖ **S** enables the Process step logic trace.
- ❖ **F** enables the file handler trace.
- ❖ **C** enables the communications logic trace.
- ❖ **X** enables the XDR trace.
- ❖ **K** enables the KQV logic trace.
- ❖ **D** enables the all-purpose data dump.
- ❖ **H** enables the FMH dump.
- ❖ **V** enables the XDR dump.
- ❖ **W** enables the communications dump.
- ❖ **P** enables the CIPC dump.
- ❖ ***NONE** turns off all traces.
- ❖ ***ALL** enables all product traces.(L, S, F, C, X, K, D, H, V, W and P)
- ❖ ***EXT** enables all product traces plus two system traces (TRCICF and TRCJOB).
- ❖ ***COMMON** enables the communications traces. (L, S, F, C, and H)
- ❖ ***INITPARMS** indicates the traces specified in the initialization parameters.
- ❖ ***CURRENT** selects the trace bits that the session manager is currently using.

Command Trace OptionsL,S,F,C,X,K,D,H,V,P|*ALL|*EXT|*COMMON| *NONE)

specifies the trace bits that define functions to be traced for this command but not for the Process it runs. The following are valid options:

- ❖ **L** enables the main line logic trace for all components.
- ❖ **S** enables the Process step logic trace.
- ❖ **F** enables the file handler trace.
- ❖ **C** enables the common logic trace.
- ❖ **X** enables the XDR trace.
- ❖ **K** enables the KQV logic trace.
- ❖ **D** enables the all-purpose data dump.
- ❖ **H** enables the FMH dump.
- ❖ **V** enables the XDR dump.
- ❖ **P** enables the CIPC dump.
- ❖ ***ALL** enables all product traces.(L, S, F, C, X, K, D, H, V, and P)
- ❖ ***EXT** enables all product traces plus two other traces. (TRCICF and TRCJOB)
- ❖ ***COMMON** enables the most commonly used traces. (L, S, F, C, and H)
- ❖ ***NONE** turns off all traces.

TSPACE(avgbk, type, primary, secondary, pdsblk, rlse, contig, round)

specifies the amount of storage to be allocated for new files on the destination node.

If you specify SPACE, the DISP of the destination file must be NEW. If you do not specify SPACE and the DISP is NEW, space allocation defaults to the value obtained from the source file (unless a TTYPE has been specified). The default allocation is in blocks and, if supplied with the ROUND option, provides device-independent space allocation.

This parameter is required for all new non-VSAM files unless you have specified a type key that includes a SPACE parameter.

avgbk defines the average blocksize.

type defines the space allocation. Valid options are:

CYL specifies that space is to be allocated by cylinder.

TRK specifies that space is to be allocated by track.

blk specifies that space is to be allocated by the average block length of the data and is the default. The system computes the number of tracks to be allocated. If the subparameter ROUND is also specified, the system allocates the space in cylinders. ROUND is preferred because allocation is performed on cylinders in a device-independent manner. If no space information is coded, allocation is in blocks, due to device dependencies.

primary specifies the primary allocation of storage in number of units.

secondary specifies the secondary allocation of storage in number of units.

pdsblk specifies the number of PDS directory blocks to be created in the file.

rlse specifies that the unused storage allocated to the output file be released. Valid values are *YES and *NO.

contig specifies that the storage for the local allocation must be contiguous. Valid values are *YES and *NO.

round specifies that the storage allocated by average block length is rounded to an integral number of cylinders. Valid values are *YES and *NO.

TSQL ('sql-statement'|'DSN=data-set-name')

defines the SQL statement to be processed against the database identified by the DBPARMS parameter or the DSN containing the SQL statements. The SQL parameter is used with the optional Connect:Direct for OS/390 SQL feature. This parameter is valid for Connect:Direct for OS/390 nodes only.

'**sql-statement**' defines the actual SQL statement to be processed.

'**DSN=data-set-name**' specifies the data set containing the SQL statement(s) to be processed.

TTYPE(entry-name)

specifies the entry name of the type defaults file on the remote node that contains the default file attributes used to allocate the destination file.

TUNIT(file-address)

specifies the unit address, device type, or user-assigned group name where the file resides or will reside. For SAM-to-SAM copies where the destination file is new and the UNIT parameter is not coded, the device type from the source file is used. For VSE nodes, you must specify either this parameter or TVOL.

Specify a unit-count to allow additional units to be allocated if required, or specify **P** to allocate the same number of units as volumes and then parallel mount the volumes.

TVOL(private, volcount, ser)

specifies the volume serial number or numbers containing the file and optional processing associated with the file. If TVOL is not specified, the file must be cataloged. For VSE nodes, you must specify either this parameter or TUNIT.

private specifies allocation of an output file only if the volume is specifically requested and is used for direct access storage devices only. Valid values are *YES and *NO.

volcount specifies the maximum number of volumes required by an output file.

ser identifies by serial number the volumes on which the output file resides or will reside.

TVOLREF(data-set-volume)

allows you to place a data set on the same volume as the referenced data set. It must be cataloged on the system where it is referenced.

TVSAMCAT = (dsn, vmid, pwd, accmode, cuu)

specifies the catalog for the VSAM file to be copied. This parameter is required only if using a catalog other than the master catalog. This parameter is for a VSE or VM remote node.

dsn specifies the filename of the VSAM catalog containing the file to be copied. The maximum length is 44 characters.

vmid specifies the owner ID for the VSAM minidisk where the file is located. The maximum length is eight characters.

pwd specifies the appropriate password for the VSAM minidisk where the file is located. The maximum length is eight characters.

accmode specifies the link access mode. Valid access modes are NULL, **W** (primary read/write access), **M** (primary multiple access), and **MW** (primary multiple access; alternate read/write only access).

cuu specifies the virtual address of the disk where the VSAM file is located. Any three-digit number is valid.

Using Block Mode Transfer

Connect:Direct OS/400 supports block mode transfer for send operations. In this mode, Connect:Direct uses the file block as the data unit. Using the block mode transfer improves performance because the sending and receiving nodes handle fewer data units. This type of transfer reduces instruction path length and decreases execution time. Larger units move between Connect:Direct and the file access routines, requiring fewer calls to the access routines and further improving performance.

Connect:Direct OS/400 simulates block reads and writes. Using logical blocks instead of physical blocks, Connect:Direct OS/400 allows you to modify the blocksize to match the other node in some cases.

Connect:Direct OS/400 supports block mode transfer when the following conditions exist:

- ❖ Remote node supports block mode
- ❖ Source and destination files have like characteristics
- ❖ Files are supported file types

Connect:Direct OS/400 supports block mode transfers for the following OS/400 file types:

- ❖ DB2/400 files (without staged compression)
- ❖ Spool files

- ❖ Save files
- ❖ Stream files (using the integrated file system)

Simulating Blocksizes

The simulated blocksize determines whether a block mode transfer occurs. If the block mode transfer does occur, the simulated blocksize is used for the transfer. The following rules determine what simulated blocksize Connect:Direct OS/400 uses.

As the receiving node, Connect:Direct OS/400 determines the simulated blocksize by these conditions in order of precedence:

- ❖ Destination file blocksize specified on the request
- ❖ Source file blocksize sent by the sending node in the COPY control block

If neither condition exists, Connect:Direct uses the record mode.

As the sending node, Connect:Direct OS/400 determines the simulated blocksize by these conditions in order of precedence:

- ❖ Source file blocksize specified on the request
- ❖ Destination file blocksize specified on the request
- ❖ Calculated value*

*Largest multiple of record size less than some arbitrary value, such as 4096.

Block Mode Transfer Examples

The following block mode transfer examples include both sending and receiving examples.

CDRCV Example—Not Specifying Source File Blocksize

In the first example, the request does not specify the source file blocksize. In this scenario, the following occurs:

- ❖ The Connect:Direct OS/400 node sets the source file simulated blocksize to 3200 by using the destination file value.
- ❖ The receiving Connect:Direct OS/400 sets the destination file simulated blocksize to the value specified on the request.
- ❖ Because the blocksizes match, the block mode copy occurs.

```
C:D 400:   receiving
request:   source blksize=not specified; dest blksize = 3200
srce file:  lrecl=80, (on another C:D 400 3.3 node)
dest file:  NEW
```

CDRCV Example—Specifying Source File Blocksize

In the second example, the following occurs:

- ❖ Connect:Direct OS/400 calculates the simulated blocksize at 3200 because the destination file is new and the source file specifies a blocksize.
- ❖ The receiving node uses the existing destination file blocksize of 3200.

- ❖ A block mode transfer occurs because the block sizes match.

```
C:D 400: receiving
request: source blksize=not specified; dest blksize = not specified;
srce file: lrecl=80, blksize=3200 (on OS390 node)
dest file: NEW
```

CDSND Examples—Simulating Blocksize

In the third example, the following events occur:

- ❖ Connect:Direct OS/400 sets the simulated blocksize at 6400 from the request.
- ❖ The receiving node creates the destination file using source file attributes of blksize=6400.
- ❖ Because the file attributes match, the block mode transfer occurs.

```
C:D 400: sending
request: source blksize=6400; dest blksize = not specified;
srce file: lrecl=80
dest file: NEW (on OS390)
```

CDSND Examples—Setting Actual Blocksize

In the fourth example, the following events occur:

- ❖ The remote node sets the destination file blocksize to 3200, the actual blocksize of the destination file.
- ❖ Connect:Direct OS/400 calculates the simulated blocksize at 3200.
- ❖ The block sizes are identical, so block mode transfer occurs.

```
C:D 400: sending
request: source blksize=not specified; dest blksize = not specified;
srce file: lrecl=80
dest file: existing: lrecl=80, blksize=3200 (on OS390)
```

CDSND and CDRCV Example

In the fifth example, Connect:Direct OS/400 calculates the simulated blocksize at 32720 because the copy is between two Connect:Direct OS/400 nodes.

```
C:D 400 sending and receiving
request: source blksize=not specified; dest blksize=not specified
srce file: lrecl=32720
dest file: new
```

Using the CDSND Screens

Use the **Connect:Direct Send File (CDSND)** screens to send a file to a remote node.

Sending a File to a Remote Node

Complete the following steps to send a file to a remote node.

1. Access the CDSND screens by typing **CDSND** at the command line and pressing **F4** or by choosing the send file option from the Connect:Direct menu.
2. Type in the remote node name at the screen prompt and press **Enter**. The command retrieves the remote node environment and displays fields for required parameters.
3. Type values for required and optional parameters as appropriate and press **Enter**.

Following is a sample of the first screen in the **Connect:Direct Send File (CDSND)** screen flow. The sample shows the keyword display option.

Connect:Direct Send File Screen 1

```

          Connect:Direct Send File (CDSND)

Type choices, press Enter.

Receiving Node Name . . . . . > DALLAS
Receiving Node Environment . . . OS400 AS400, MSP, MVS, OS400...
Sending File Name . . . . . _____

Receiving File Name . . . . . _____

Sending System Operations . . . 'TYPE(FILE)'
_____
_____
_____
_____
_____
_____

Bottom
F3=Exit  F4=Prompt  F5=Refresh  F12=Cancel  F13=How to use this display
F24=More keys
```

The content of this screen and the following screens depends on the receiving node environment.

Connect:Direct Send File Screen 2

```

Connect:Direct Send File (CDSND)

Type choices, press Enter.

Receiving System Operations . . 'TYPE(FILE)'
_____
_____
_____
_____
_____

Trace Options:
Trace Instructions . . . . . *CURRENT
Command trace options . . . . *NONE
Process Name . . . . . CDSND      Name
Sending Node User Info.:
User Id . . . . . *CURRENT      Character value, *CURRENT
Password . . . . .                Character value
New Password . . . . .            Character value
User to Notify . . . . . *CURRENT      Name, *CURRENT, *NONE
                                                    More...

F3=Exit  F4=Prompt  F5=Refresh  F12=Cancel  F13=How to use this display
F24=More keys
    
```

Connect:Direct Send File Screen 3

```

Connect:Direct Send File (CDSND)

Type choices, press Enter.

Receiving Node User Info.:
User Id . . . . . _____
_____
Password . . . . . _____
_____
New Password . . . . . _____

Class . . . . . *MODED      1-255, *MODED
Checkpoint Interval . . . . . *INITPARMS 0-9999999, *INITPARMS
Allow remote process . . . . . *NO          Character value, *YES, *NO
Sending File Disposition:
Current Disposition . . . . . SHR          SHR, OLD
Normal End Disposition . . . . .            KEEP, DELETE
Abnormal End Disposition . . . . .            KEEP, DELETE
                                                    More...

F3=Exit  F4=Prompt  F5=Refresh  F12=Cancel  F13=How to use this display
F24=More keys
    
```


Connect:Direct Send File Screen 4

```

Connect:Direct Send File (CDSND)

Type choices, press Enter.

File Members Selection List . . _____
_____
_____

File Members Exclusion List . . _____
_____
_____

Sending block size . . . . . *CALC      Character value, *CALC
Same Member Replaced . . . . . *YES      *YES, *NO
CRC . . . . . *INITPARMS  *INITPARMS, *NETMAP, *ON, *OFF
Secure+ Options:
  Encryption . . . . . *          */Y/N/Algorithm
  Digital Signature . . . . . _        *, N, Y
  Compress Data . . . . . *NO        Character value, *NO, *YES...

More...
F3=Exit  F4=Prompt  F5=Refresh  F12=Cancel  F13=How to use this display
F24=More keys

```

Connect:Direct Send File Screen 5

```

Connect:Direct Send File (CDSND)

Type choices, press Enter.

Extended compression tuning:
  Extended compression level . . *INITPARMS  1-9, *INITPARMS
  Extended compression window . *INITPARMS  8-15, *INITPARMS
  Extended compression memory . *INITPARMS  1-9, *INITPARMS
Receiving File Type Parameter .
Receiving File Disposition:
  Current Disposition . . . . . NEW      NEW, OLD, MOD, RPL, SHR
  Normal End Disposition . . . . . CATLG    CATLG, KEEP
  Abnormal End Disposition . . . . . _____ KEEP, CATLG, DELETE
Receiving Unit:
  Address/Type/Group/Unit-ID . . _____ Character value
  Receiving Unit Count/P . . . . . _____ Character value, P

More...
F3=Exit  F4=Prompt  F5=Refresh  F12=Cancel  F13=How to use this display
F24=More keys

```

Receiving a File

Receiving a file on Connect:Direct OS/400 requires the Connect:Direct Receive (CDRCV) command. Understanding the Connect:Direct OS/400 file systems, the CDRCV command parameters, and the **CDRCV** screens enables you to use this command more effectively. This chapter provides the following information to help you use this command:

- ❖ Using the file systems
- ❖ Using the CDRCV command
- ❖ Using block mode transfer
- ❖ Using **CDRCV** screens

Additional information about the use of command parameters for receiving remote files is available in the *Connect:Direct Process Statements Guide*.

Using the File Systems

Connect:Direct OS/400 supports two types of file systems for the file transfers: native file and integrated file. The native file system and the integrated file system can both be used to send files to and receive files from any supported file systems.

Native File System

The native file system used in previous releases of Connect:Direct OS/400 remains functional. This file system accepts the file name in the following formats:

library-name/file-name
specifies the library and file name to be copied.

library-name/file-name(member-name)
specifies the library, file, and member name of the member to be copied. You cannot use the EXCLUDE and SELECT parameters if you specify a member name.

Integrated File System

As part of the OS/400, the integrated file system provides an integrated structure over all data stored in the iSeries. This file system supports stream input/output and storage management like personal computers and UNIX operating systems.

The Connect:Direct OS/400 integrated file system provides application and data compatibility with other platforms. The integrated file system consists of five file system types:

- ❖ /QLANSrv is a LAN server file system
- ❖ /QDLS is a document library file system
- ❖ /QSYS.LIB is the iSeries DB2 file system
- ❖ /QOpenSys is a UNIX-style file system
- ❖ All others are part of the root file system

Specifying a Path Name

The integrated file system recognizes the objects by the path specification. You must specify the fully qualified path name to transfer a file. Connect:Direct OS/400 identifies a path that starts with a slash (/) or a backslash (\) as a request for the integrated file system.

The integrated file system does not support file field description. You cannot specify the SNDFFD(*YES) under this file system. Similarly, you cannot specify SELECT or EXCLUDE with the integrated file system.

To use this system, you must specify the fully qualified path name in one of the following formats:

/QSYS.LIB/library-name.LIB/file-name.FILE/member-name.MBR
specifies the library, file name, and member name to be copied using the integrated file system.

/directory/file-name/QLANSrv/file-name/QDLS/folder-name/QOpenSys/file-name
specifies the directory, folder, and file names to be copied using the integrated file system.

Directories like /QOpenSys and /root are case-sensitive. The /QSYS.LIB notation is case-sensitive only if you enclose the name in single quotation marks.

Using the CDRCV Command

Use the CDRCV command to receive a file from a remote node. This command receives files from any file systems supported by the OS/400 V3R1M0 or later. You can also specify a user-exit command (either **EXITCMD** or **FAILCMD**) to be executed after the completion of a copy process in either FROMSYSOPTS or TOSYSOPTS. Using EXITCMD, you can specify a command to be executed only if the copy process is successful. You can also specify a command to be executed only if the copy process is not successful by using the FAILCMD command. The EXITCMD and FAILCMD commands must be executed on an OS/400 using Connect:Direct release 3.3.00 and above. The EXITCMD and FAILCMD are executable iSeries commands as well as Connect:Direct as long as the size of the command does not exceed 127 bytes.

CDRCV Command Example

The command shown in the following figure is an example of the CDRCV command.

```
CDRCV      PNAME(CDRCVD) SNODE(DALLAS.OS3901)
          SNODENVIRN(OS390)
          FDSN(DALLAS.REPORT)
          TDSN('DALLIB/REPORT')
          TOSYSOPTS('TYPE(FILE)')
```

CDRCV Command Format

Following are the parameters for the CDRCV command. Required parameters are in bold.

| Command | Parameter |
|----------------------------------|---|
| CDRCV | SNODE(remote-node-name) |
| | SNODENVIRN(remote-environment-name) |
| | FDSN(from remote-data-set-name) |
| | TDSN(to data-set-name) |
| | FMSYSOPTS(' PRECMR(*YES *NO) CODEPAGE(nnnnn,nnnn) EXITCMD(valid OS/400 command) FAILCMD(valid OS/400 command) SNDFFD(*YES *NO) TEXTFILE(*YES *NO) TYPE(FILE MBR OBJ))(Required if sending node is OS/400) |
| | TOSYSOPTS(' DECMR(*YES *NO) CODEPAGE(nnnnn,nnnn) EXITCMD(valid OS/400 command) FAILCMD(valid OS/400 command) TYPE(FILE MBR OBJ SPLF) XTRAN(table-name)[XTRANLSO(so-code) XTRANLSI(si-code)]XTRANLDATA(MIXED DBCS)]) |
| | CKPTINV(n) |
| | CLASS(n) |
| | COMPRESS(*NO *YES *EXT X xx C\cc\) |
| | CRC(*INITPARMS *NETMAP *OFF *ON) |
| | ECTUNING (ecclevel, ecwsize, ecmlevel) |
| | EXCLUDE(generic, member-name, (start-range/stop-range), 'list') |
| | FALIAS(*YES *NO) |
| | FBUFND(n) |
| | FDBPARMS(dbid, dbsubid) |
| | FDCB(modeldcb, blksize, den, dsorg, keylen, linct, lrecl, optcd, recfm, rkp, trtch) |
| | FDISP(current, normal end, abnormal end) |
| | FIOEXIT(program-name) |
| | FIOPARM(parameter-name) |
| | FLABEL(seqno,labeltype,pswdread,inout,retpd expdt) |
| FLINK(vmuserid,pwd,accmode,ccuu) | |
| FMSVGP(data-set-name) | |

| Command | Parameter |
|---------|---|
| | FPDSDIR(*YES *NO) |
| | FSQL(sql-statement DSN=data-set-name) |
| | FTYPE(entry-name) |
| | FUNIT(unit-name) |
| | FVOL(private, volcount, ser) |
| | FVOLREF(data-set-name) |
| | FVSAMCAT(dsn,vmid,pwd,accmode,cuu) |
| | NOTIFY(userid) |
| | PNAME(process-name) |
| | PNODEID(id, pswd, newpswd) |
| | REPLACE(*YES *NO) |
| | RMTWORK(*YES *NO) |
| | SACCT(snode-accounting-data) |
| | SECOPTIONS(* *) |
| | SELECT(member, new-name, R/NR, 'list') |
| | SNODEID(id, pswd, newpswd) |
| | TDISP(current) |
| | TRACEOPT Trace Instructions: (L,S,F,C,X,K,D,H,V,W,P *NONE *ALL *EXT *COMMON *INITPARMS *CURRENT Command Trace Options: L,S,F,C,X,K,D,H,V,W,P *ALL *EXT *COMMON *NONE) |

Note: The CLASS parameter is not used by Connect:Direct OS/400.

Required Parameters

Unless otherwise noted, these required parameters apply to all remote node environments.

SNODE(remote-node-name)

specifies a 1–16 character alphanumeric name for the remote node. The node name must be defined in the network map.

SNODENVIRN(remote-environment-name)

specifies the remote node environment.

FDSN('from remote-data-set-name')

specifies the source file name. File names are verified based on the OS/400 standard file name conventions.

Connect:Direct OS/400 provides two systems for handling the files: Native File System and Integrated File System. Refer to *Using the File Systems* on page 4-1 for detailed information about the file systems. The following table summarizes the data set name requirements for Connect:Direct platforms.

| SNODENVIRN | FDSN Format | Special Considerations |
|------------------|--|---|
| OS/400 | Native File System 'library-name/file-name' 'library-name/file-name (member-name)' | Enclose in single quotation marks. |
| | Integrated File System 'QSYS.LIB/library-name.LIB /file-name.FILE /member-name.MBR' or 'directory/file-name /QLANSrv/file-name /QDLS/folder-name /QOpenSys/file-name' | You cannot specify the *SNDDFD, *SELECT, and *EXCLUDE parameters with the integrated file system. |
| | Spool File Support spooled-file-name | Do not use member names longer than eight characters when sending to OS/390, VSE, and MSP. The results are unpredictable. |
| OS/390, VSE, MSP | Standard OS/390 DSN naming conventions. | Single quotes allow special characters. Do not use member names longer than eight characters. The results are unpredictable. |
| VM | Fully qualified file-name | |
| Tandem | \system.\$volume.subvolume.filename | |
| Windows | drive:\directory\subdirectory\filename or \servername\sharepointname\subdirectory\filename | |
| UNIX | /directory/subdirectory/filename | |
| OpenVMS | node::device:[directory]filename.type;version | When you are copying a file , the file specification must be enclosed in single quotation marks if it uses spaces or other special characters not recognized by the other node. |
| Stratus VOS | Fully qualified path and file name | Enclose the file name in double quotation marks when you use a reserved word (statement name or keyword) for the file name. |

Note: The values of *LIBL, *CURLIB, and QTEMP cannot be used when sending to or from an iSeries system using Connect:Direct OS/400. A specific library name must be used for copying from or to a data set on the iSeries.

TDSN('to data-set-name')

specifies the local file name. File names are verified based on the OS/400 standard file name conventions.

Connect:Direct OS/400 supports two file systems: native and integrated. The file system description begins on page 4-1. The DSN format summaries for OS/400 are presented with the FDSN parameter description on page 4-4.

Note: The values of *LIBL, *CURLIB, and QTEMP cannot be used when sending to or from an iSeries system using Connect:Direct OS/400. A specific library name must be used for copying from or to a data set on the iSeries.

FMSYSOPTS(

PRECMPR(*YES|*NO)
EXITCMD(valid OS/400 command)
FAILCMD(valid OS/400 command)
SNDFFD(*YES|*NO)
TEXTFILE(*YES|*NO)
TYPE(FILE|MBR|OBJ)
CODEPAGE(nnnnn,nnnnn)
 ')

specifies remote system operations. All parameters shown are valid only if the sending node is OS/400. The maximum number of characters for SYSOPTS is 2K. This parameter is required when the remote file is on another Connect:Direct OS/400 node.

For additional information about valid platform-specific SYSOPTS parameters, see the appropriate COPY statement chapter of the *Connect:Direct Process Statements Guide*.

PRECMPR(*YES|*NO) specifies that the source file was previously compressed using the CDCOMP command. To receive a file that has been compressed, you must specify the PRECMPR(*YES) parameter with the CDRCV command. For information on how to compress files, refer to Chapter 11, *Compressing Files*. This is for OS/400 only.

EXITCMD(valid OS/400 command) specifies a command to be executed only if the copy process is successful.

FAILCMD(valid OS/400 command) specifies a command to be executed only if the copy process is not successful.

SNDFFD(*YES|*NO) specifies whether the receiving node transfers file field descriptions. This is for OS/400 only.

Use the following formula to determine whether a file can be sent with the file field descriptions. If the bytes required value is greater than 12K, you cannot transfer the file field descriptions.

| |
|--|
| $(12 \times \text{number of keys}) + (45 \times \text{number of fields}) + \text{SYSOPTS} = \text{bytes required}$ |
|--|

Note: You cannot use this parameter with the integrated file system.

TEXTFILE(*YES|*NO) specifies that the file being sent is a text file.

TYPE(FILE|MBR|OBJ|SPLF) specifies the type of data to be copied. You *must* define the type of data structure to be copied as one of the following:

FILE specifies that the file being copied is a physical database file.

MBR specifies that the member being copied is a member of a physical database file.

OBJ specifies that the data to be copied is in save file format.

SPLF specifies that the data to be copied is in OS/400 spooled output format.

CODEPAGE(nnnnn,nnnnn) converts data from one code page to another. The supported conversions are identified on the IBM Web site in the V5R1 Information Center, DB2 Universal Database for iSeries SQL Reference, Appendix E. CODEPAGE() on Connect:Direct OS/400 relates to CODEPAGE() developed for the OS/390 system, UNIX, and Windows.

nnnnn identifies the IBM CCSID code page number to convert from and the IBM CCSID code page number to convert to. If the FROM code page or TO code page is locale, the code page for the locale where CONNECT:Direct is executing is used. For example, if `fmsysopts(codepage(locale,1208))`, then the FROM code page is the code page for the locale and the TO code page is UTF-8.

TOSYSOPTS(‘

DECMPR(*YES|*NO)

EXITCMD(valid OS/400 command)

FAILCMD(valid OS/400 command)

TYPE(FILE|MBR|OBJ|SPLF)

XTRAN(table-name) [XTRANLSO(so-code)|

XTRANLSI(si-code)|XTRANLDATA(MIXED|DBCS)]’)

specifies system operation parameters at the local node (OS/400). The maximum number of characters permitted for TOSYSOPTS is 2K.

DECMPR(*YES|*NO) specifies whether the local Connect:Direct is to decompress the received file. DECMPR(*NO) instructs the local system to place the received data in a database file without decompressing it.

Note: Ensure that the destination file contains no members before you receive a file with DECMPR(*NO) specified.

EXITCMD(valid OS/400 command) specifies a command to be executed only if the copy process is successful.

FAILCMD(valid OS/400 command) specifies a command to be executed only if the copy process is not successful.

TYPE(FILE|MBR|OBJ|SPLF) specifies the type of data structure to be created. You *must* define the data structure to be created as one of the following:

FILE specifies that the file being created is a physical database file.

MBR specifies that the member being created is a member of a physical database file.

OBJ specifies that the file being created is in save file format.

SPLF specifies that the data is copied to an OS/400 spooled output file.

The default is TYPE(FILE).

For each type, you can specify certain additional TOSYSOPTS parameters.

The following subparameters are valid for **TYPE(FILE)** and **TYPE(MBR)** files:

RCDLEN(record-length) specifies the data length for each record in the file.

FILETYPE(*SRC|*DATA) specifies the type of file to be created. Use this parameter whenever a file is created.

TEXT(‘text description’) specifies a text description to be associated with this member (and file, if created). This description cannot exceed 50 characters and must be enclosed in single quotes.

EXPDATE(expiration-date) specifies the date after which the new or replaced member cannot be used. If EXPDATE is not specified, then the file does not have an expiration date.

MAXMBRS(**number**|***NOMAX**) specifies the maximum number of members a physical file can contain.

SIZE(**#-of-recs**|**incr-value** **#-of-incrs**|***NOMAX**) is used when a new file is created for the file received.

AUT(***CHANGE**|***ALL**|***USE**|***EXCLUDE**) specifies the authority to be given to a user who does not have specific authority to the file or member, is not on the authorization list, and whose user group does not have specific authority to the file or member.

The following parameters are valid for **TYPE(Obj)** files:

MAXRCDS(**number-of-records**|***NOMAX**) specifies the maximum number of records the save file (which was created to hold the data received) can reach.

ASP(**auxiliary-storage-pool**) specifies the auxiliary storage pool from which the system allocates storage for the save file. Valid values range from 1–16. The default is 1.

TEXT(**'text description'**) specifies a text description to be associated with this object. This description cannot exceed 50 characters and must be enclosed in single quotes.

AUT(***EXCLUDE**|***CHANGE**|***ALL**|***USE**) specifies the authority to be given to a user who does not have specific authority to the object, is not on the authorization list, and whose user group does not have specific authority to the object.

CODEPAGE(**nnnnn,nnnnn**) converts data from one code page to another. The supported conversions are identified on the IBM Web site in the V5R1 Information Center, DB2 Universal Database for iSeries SQL Reference, Appendix E. **CODEPAGE()** on Connect:Direct OS/400 relates to **CODEPAGE()** developed for the OS/390 system, UNIX, and Windows.

nnnnn identifies the IBM CCSID codepage number to convert from and the IBM CCSID code page number to convert to. If the FROM code page or TO code page is locale, the code page for the locale where CONNECT:Direct is executing is used. For example, if `tosysopt(codepage(1208,locale))`, then the FROM code page is UTF-8 code page and the TO code page is the local code page.

The following **TOSYSOPTS** parameters are valid for **TYPE(SPLF)** files:

DEV(***JOB**|***SYSVAL**|**device-name**) specifies the name of the printer device description.

DEVTYPE(***IPDS**|***SCS**|***USERASCII**) specifies the type of data stream created for a printer file from the data received.

PAGESIZE(**page-length** **page-width**) specifies the length and width of the page used by the printer. This parameter overrides the **FORMTYPE** parameter.

LPI(**3**|**4**|**6**|**7.5**|**8**|**9**) specifies the line space setting (lines per inch) on the printer.

CPI(**5**|**10**|**12**|**13.3**|**15**|**16.7**|**18**|**20**) specifies the printer character density, in characters per inch, for the printer.

OVRFLW(**overflow-line-number**) specifies the line number on the page at which overflow to a new page begins. The value specified must not exceed the forms length specified for **PAGESIZE**.

FOLD(***NO**|***YES**) specifies whether entire records are printed when the record length exceeds the form width.

RPLUNPRT(***YES** **'replacement-character'**|***NO**) specifies whether unprintable characters are replaced with printable characters when printed. It also specifies the replacement character.

ALIGN(***NO**|***YES**) specifies whether the page must be aligned in the printer before printing is started.

CTLCHAR(***NONE**|***FCFC**) specifies whether the data contains printer control characters.

CHLVAL(*NORMAL| (channel#1 line#1).. . (channel#12 line#12)) specifies the list of channel numbers with their assigned line numbers.

FORMFEED(*DEV|*CONT|*CUT|*AUTOCUT) specifies the form feed attachments that the printer uses (4214, 5219, and 5553 printers only).

PRTQLTY(*STD|*DRAFT|*DEV|*NLQ) specifies the quality of print produced.

DRAWER(1|2|3|*E1) specifies the source drawer to be used when automatic cut-sheet feed mode is used.

FONT(*CPI|*DEV|font-identifier) specifies the font identifier to be used for the spooled output file.

CHRID(*DEV|*SYSVAL| graphic-character-set code-page) specifies the character identifier to use for the spooled output file. *DEV indicates that the CHRID value the device is designed to handle is used.

PAGRTT(*DEV|*COR[0|90|180|270]) specifies the degree of rotation (clockwise from the edge of the paper first loaded into the printer) of text on each page printed.

PRTTXT('print-text') specifies a line of text to be printed at the bottom of each page printed. Up to 30 characters enclosed in single quotes can be specified.

JUSTIFY(0|50|100) controls the print positions of the characters on the page (in the spooled file) so the right margin is regular.

DUPLEX(*NO|*YES|*TUMBLE) specifies whether the spooled output file is printed on one or both sides of the paper.

SPOOL(*YES|*NO) specifies whether the data is sent to a spooled file before printing.

OUTQ(*JOB|*DEV|library-name/output-queue- name) specifies the output queue for the spooled output file created.

FORMTYPE(form-type) specifies the type of form to use in the printer when the spooled file is printed. The PAGESIZE parameter overrides this parameter.

COPIES(number-of-copies) specifies the number of copies to be printed. Valid values range from 1–255.

MAXRCDS(maximum-records) specifies the maximum number of records that can be placed in the spooled file. Valid values range from 1–500000.

FILESEP(number-of-file-separators) specifies the number of blank separator pages to be placed between each copy of the file printed.

HOLD(*YES|*NO) specifies whether the file is to be held on the output queue until released by the user.

SAVE(*YES|*NO) specifies whether the spooled output file is to be saved on the output queue once printed.

OUTPTY(*JOB|output-priority) specifies the scheduling priority of the file on the output queue.

USRDTA(user-data) allows up to 10 characters of data to identify the spooled output file.

XTRAN(table-name) specifies the translation table to use. The named table object must exist in a library that is in the library list of the session manager job. If the library name is not in the list, the CDRCV command fails.

If the XTRAN keyword is present, then the following related optional keywords can also be used:

XTRANLSO (so-code) specifies extended translate local shift-out code. This keyword specifies the hexadecimal code to use for the local (OS/400 side) shift-out character and overrides the default value of 0E. You can specify any two valid hexadecimal digits.

XTRANLSI (si-code) specifies extended translate local shift-in code. This keyword specifies the hexadecimal code to use for the local (OS/400 side) shift-in character and overrides the default value of 0F. You can specify any two valid hexadecimal digits.

XTRANLDATA (MIXED|DBCS) specifies extended translate local data format. This keyword specifies the format of the data on the local (OS/400 side) of the COPY.

MIXED indicates that the data can contain both DBCS and SBCS characters and that SO/SI characters are used.

DBCS indicates that the data is pure DBCS characters and that no SO/SI characters are used.

XTRANPAD(pc) specifies that padding characters are in use. When DBCS data is translated from EBCDIC to ASCII, PAD specifies that the SHIFT-OUT and SHIFT-IN characters are replaced by a pad character to allow the displacement of fields within a record to remain unchanged during translation.

When DBCS data is translated from ASCII to EBCDIC, PAD specifies that the input ASCII DBCS file is in a padded format. The character immediately preceding a DBCS character or string is overlaid by the SHIFT-OUT character. The character immediately following a DBCS character or string is overlaid with the SHIFT-IN character. This allows the displacement of fields within a record to remain unchanged during translation.

pc is the pad character to be used during EBCDIC to ASCII translation. **pc** is ignored for ASCII to EBCDIC translations. If XTRANPAD is not used, the SI/SO characters are stripped from the file when transferring from EBCDIC to ASCII, and added to the records when sending from ASCII to EBCDIC.

The following rules apply to the use of the XTRAN keyword:

- ❖ You must specify the XTRAN keyword to use extended translation all other keywords are optional.
- ❖ The default for local shift-out is the IBM standard x0E.
- ❖ The default for local shift-in is the IBM standard x0F.
- ❖ The default local data format is MIXED with SO/SI in use. XTRAN is *not* allowed with PRECMPR(*YES) or DECMPR(*NO)
- ❖ If you receive a file from an ASCII platform using extended translation, you *must* specify in the FMSYSOPTS that the data type is binary. Refer to the *Connect:Direct Process Statements Guide* for platform-specific SYSOPTS parameters.
- ❖ If you receive DBCS data from an ASCII platform using the XTRAN keyword, ensure that the record length of the file on the OS/400 side of the transfer is large enough to contain the translated record.

The record length of the file on the OS/400 side of the transfer is generally larger than the ASCII equivalent. For additional information, refer to the *Maintaining Extended Translation* chapter of the *Connect:Direct OS/400 Installation and Administration Guide*

Optional Parameters

The following parameters, listed alphabetically, are optional. Unless otherwise noted, the parameters apply to all remote node environments.

CKPTINV(n)

specifies the number of bytes, from 0–2 gigabytes, to receive before taking a checkpoint. The format is *nnnnnnn*, *nnnnnnK*, or *nnnnnnM*, where **K** specifies thousands of bytes and **M** specifies millions of bytes. A value of **0** specifies no checkpoint/restart. Connect:Direct OS/400 uses the value you specify, rounded up to the nearest record boundary, to determine when to take a checkpoint.

Checkpointing does not occur in the following cases, even if you specify a checkpoint interval:

- ❖ The file being received is compressed by the remote node during the receive operation by the local node using the extended compression feature but is not being decompressed on the local node. That is, the TOSYSOPTS has DECMPR(*NO).
- ❖ The file being received was precompressed on the remote node and is being decompressed on the local node during the receive operation. That is, the FMSYSOPTS has PRECMPR(*YES) and TOSYSOPTS has DECMPR(*YES).
- ❖ A single OS/390 partitioned data set member is being received.

A checkpoint interval specified here overrides the system-wide default value.

If you request checkpointing when you are transferring multiple members of a file, checkpoints are taken only at member boundaries regardless of the interval specified in the initialization parameters or in the CDSND or CDRCV command.

CLASS(n)

determines the node-to-node session on which a Connect:Direct operation can execute. The CLASS can be a number from 1–255. If you do not specify the CLASS parameter, it defaults to the number of maximum sessions defined in the mode description for the communications environment.

Note: The CLASS parameter is not used by Connect:Direct OS/400.

COMPRESS(*NO | *YES | *EXT | X\xx\ | C\cc\)

specifies that the data is to be compressed, which reduces the amount of data transmitted as the file is copied from one node to another. The file is automatically decompressed at its destination unless DECOMP(*NO) is specified in TOSYSOPTS.

Note: Compression is CPU-intensive. Its effectiveness is dependent on the data and line speed and should be used only if it benefits the installation.

You should specify the primary compression character for text data or single-character repetitive data. Extended compression generally offers improved compression for all types of data.

***NO** specifies no compression.

***YES** enables compression. If *YES is specified, the default primary compression character is PRIMEchar=X\40\ (hex 40=" ").

If you specify *YES, Connect:Direct reduces the amount of data transmitted based on the following rules:

- ❖ Repetitive occurrences (2–63) of the primary compression character are compressed to one byte.
- ❖ Repetitive occurrences (3–63) of any other character are compressed to two bytes.

X\xx enables compression, where *xx* is the hexadecimal representation of the value to be used for the primary compression character.

C\cc enables compression, where *cc* is the character representation of the value to be used for the primary compression character.

***EXT** specifies that extended compression is used to search for repetitive strings of characters in data and compress them to codes that are transmitted and converted back to the original string during decompression. Specify this parameter when line transmission speeds are limited, the CPU is available, and data is repetitive.

CRC(*INITPARMS|*NETMAP|*OFF|*ON)

Determines whether node and Process statement overrides for Cyclic Redundancy Check (CRC) are allowed. If this value is set to ***OFF**, setting overrides for CRC checking will be ignored. The default value is ***INITPARMS**.

***INITPARMS** specifies that the CRC setting is determined by the value for the initialization parameter **TCP.CRC**.

***NETMAP** specifies that the CRC setting is determined by the value for the **NETMAP** parameter, Cyclic Redundancy Check. The value for the initialization parameter **TCP.CRC** must be set to ***ON** and the value for the initialization parameter **TCP.CRC.OVERRIDE** must be set to ***YES**.

***OFF** specifies that CRC is disabled.

***ON** specifies that CRC is enabled.

ECTUNING (ecclevel,ecwsize,ecmlevel)

ECCLEVEL specifies the extended compression level, which affects how much CPU the extended compression routines use. Higher compression levels use more CPU but achieve greater compression. The valid values for this subparameter are 1–9, inclusive. The default value is ***INITPARMS**.

ECWSIZE specifies the extended compression window size, which is specifically for the history buffer that is filled from the user's input buffer (both compressing and decompressing). The window specifies the amount of storage designated to maintain data previously read.

This data can be scanned for string matches. The extended compression window size affects how much virtual memory the extended compression routines use. Higher window size values use more memory but achieve greater compression. The valid values for this subparameter are 8–15, inclusive. The default value is ***INITPARMS**.

ECMLEVEL specifies the extended compression memory level parameter, which determines how much memory should be allocated for other internal data structures like the hash table and the previous table (pointers to previous strings starting with the same 3 characters). The extended memory level affects how much memory the extended compression routines use. Higher memory levels use more virtual memory but achieve greater compression. The valid values for this subparameter are 1–9, inclusive. The default value is ***INITPARMS**.

EXCLUDE(generic, member-name, (start-range/stop-range), 'list')

specifies criteria that identifies the file members that are not to be copied. **EXCLUDE** allows you to make exceptions to members specified generically or by range in the **SELECT** option. Refer to the *Connect:Direct Process Statements Guide* for the syntax and override priority for the **SELECT** and **EXCLUDE** parameters appropriate to the remote node.

generic specifies a generic member name. For example, if you specify **CD***, all member names beginning with **CD** are excluded.

member-name specifies an individual member name.

start-range/stop-range specifies first and last names in an alphanumeric range of members. Although member names in a range are treated as generics, they cannot be used with an asterisk (*). A slash (/) separates the first (start-range) and last (stop-range) member names. The two members specified, as well as all members in the range, are excluded.

'list' specifies any combination of the subparameters.

FALIAS(*YES|*NO)

specifies whether aliases are copied when their associated member names are copied.

FBUFND(n)

specifies the number of I/O buffers VSAM uses for transmitting data between virtual and auxiliary storage. (A buffer is the size of a control interval in the data component.) Valid values range from 1–510. The default is 2. Increasing this number generally improves the I/O performance on the file but requires more memory. This parameter is valid only when the source side is an OS/390 node.

FDBPARMS(dbid, dbsubid)

indicates that the Connect:Direct for OS/390 SQL SERVER is to process the I/O request against the database identified by the subparameters of this keyword and defined by the SQL= parameter. The DBPARMS parameter is used with the optional Connect:Direct for SQL feature. This parameter is valid only when the source side is an OS/390 node. Only DB2 is supported.

To determine the values to code to access a given DB2 table or set of DB2 tables, consult your database administrator.

dbid specifies the 1–4 byte DB2 database ID.

dbsubid specifies the 1–4 byte DB2 database sub-ID.

FDCB(modeldcb, blksize, den, dsorg, keylen, linct, lrecl, optcd, recfm, rkp, trtch)

overrides attributes of the source file. DCB attributes are determined from the operating system unless specified.

modeldcb specifies a model data set control block (DSCB).

blksize specifies the length in bytes of the block. The minimum length is 18 bytes, and the maximum length is 32,760 bytes.

den specifies the magnetic tape mode setting. The following table shows the values for the DEN parameter for 7- and 9-track tapes. When coded together, the DEN and TRTCH values are used to select a tape device for allocation by Connect:Direct for OS/390.

| DEN | 7-Track Tape | 9-Track Tape |
|-----|--------------|--------------|
| 1 | 556 bpi | -- |
| 2 | 800 bpi | 800 bpi |
| 3 | -- | 1600 bpi |
| 4 | -- | 6250 bpi |

dsorg specifies the file organization. Supported file organizations are BDAM, ISAM, PO, PS, and VSAM.

keylen specifies the length of the keys used in a file. Maximum length in bytes is 255.

linct specifies the blocks or tracks searched to find a free block or available space.

lrecl specifies the record length in bytes.

optcd specifies optional processing associated with this file. This specification only applies to this file and is not automatically applied to the other files involved in the RECEIVE operation.

Valid options are:

W performs write validity checks on direct access storage devices.

Q performs ASCII-to-EBCDIC conversion for input files and EBCDIC-to-ASCII conversion for output files. **Q** is the default and only used for AL-labeled tape files.

Z performs reduced error recovery for tape files.

recfm specifies the format of the records in the file. You can specify any valid record format, such as:

F specifies fixed format.

FA specifies fixed format with ASA printer control.

FB specifies fixed block format.

FBA specifies fixed block format with ANSI carriage control.

FM specifies fixed format with machine code control character.

U specifies undefined format.

V specifies variable format.

VB specifies variable block format.

VBA specifies variable block format with ASA printer control.

VBM specifies variable format with block machine code control character.

VS specifies variable spanned format.

VBS specifies variable block spanned format.

For FDR volumes, you must specify RECFM=U.

rkp specifies the position of the first byte of the record key within each logical record. The beginning byte of a record is addressed as **0**.

trtch specifies the magnetic tape mode setting. When coded together, Connect:Direct for OS/390 uses the TRTCH and DEN values to select a tape device for allocation. Valid options are:

C specifies data conversion, odd parity, and no translation.

E specifies no data conversion, even parity, and no translation.

T specifies no data conversion, odd parity, and BCD or EBCDIC translation.

ET specifies no data conversion, even parity, and BCD or EBCDIC translation.

COMP is a feature for 3480X tape drives only. It enables Improved Data Recording Capability (IDRC), which compresses the data. This subparameter overrides the system-wide IDRC setting for no compression. If you are specifying COMP, you must also include a UNIT= parameter that specifies either 3480X or a systems programmer-defined name equivalent to a 3480X tape drive.

NOCOMP overrides the system-wide IDRC setting for compression. NOCOMP applies to 3480X tape drives only.

FDISP(current, normal end, abnormal end)

specifies the status of the remote file and what is to be done with the file after notification of successful transmission.

current specifies the status of the file. Valid values are:

SHR specifies that the file can be read simultaneously by another operation. SHR is the default.

OLD specifies that the operation is to be given exclusive control of the file.

normal end specifies the disposition of the file following normal operation termination. Valid dispositions are as follows:

KEEP specifies that the system is to keep the file after the operation completes.

DELETE specifies that the system is to delete the file after the operation completes.

abnormal end specifies the disposition of the file after abnormal operation termination. Valid source file dispositions are:

KEEP specifies that the system is to keep the file after the operation terminates abnormally.

DELETE specifies the system is to delete the file if the operation terminates abnormally.

For subparameters for other Connect:Direct platforms, refer to the *Connect:Direct Process Statements Guide*.

Note: Currently, normal end disposition and abnormal end disposition are not applicable for Connect:Direct OS/400.

FIOEXIT(program-name)

specifies the name of the user-written program to be given control for I/O-related requests for the associated data.

FIOPARM(parameter-name)

specifies a parameter, or list of parameters, to be passed to the specified exit. This parameter is valid only when the source side is an OS/390 node. The FIOPARM syntax depends on the parameter list that the program specified in FIOEXIT requires.

FLABEL(seqno, labeltype, pswdread, inout, retpd|expdt)

specifies label information for the tape.

seqno specifies the relative file position on the tape.

labeltype is designated as:

SL specifies IBM standard labels.

AL specifies American National Standard labels.

BLP specifies bypass label processing.

LTM specifies bypass leading tape marks.

NL specifies no labels.

pswdread specifies that a password must be supplied by the operator or user before the file can be accessed.

inout specifies that a BSAM data set opened for INOUT or a BDAM data set opened for UPDAT is to be read only.

retpd specifies the retention period for the data set in days, where *nnnn* is 1–4 digits.

expdt specifies the expiration date for the data set, where *yyddd* or *yyyyddd* is a valid Julian date.

FLINK(vmuserid,pwd,accmode,ccuu)

specifies the disk where the CMS file is located. This parameter allows the user to access the CMS file. This parameter is valid for VM nodes only.

vmuserid specifies the owner ID for the CMS minidisk where the file is located. The valid length ranges from 1–8 characters.

pwd specifies the appropriate password for the CMS minidisk where the file is located. The maximum length is 256 characters. The default password is ALL.

accmode specifies the link access mode.

When used with the FROM parameter, the access modes are **W** (primary read/write access), **M** (primary multiple access), **R** (primary read only), **RR** (primary and secondary read only access), **WR** (primary read/write access; alternate read only access), **MR** (primary multiple access; alternate read only access), and **MW** (primary multiple access; alternate read/write only access).

When used with the TO parameter, the access modes are **W**, **M**, and **MW**.

ccuu specifies the virtual address of the disk where the CMS file is located. Any three-digit number is valid.

FMSVGP(data-set-name)

specifies the remote file mass storage volume group that resides on a mass storage system (MSS) device. This group must be a valid DD (data definition) name. This parameter is valid when the source side is an OS/390 node only.

FPDSDIR(*YES|*NO)

specifies whether the user-related information in the directory is sent.

FSQL(sql-statement|DSN=data-set-name)

defines the SQL statement to be processed against the database identified by the DBPARMS parameter or the DSN containing the SQL statements. The SQL parameter is used with the optional Connect:Direct for OS/390 SQL feature. This parameter is valid only when the source side is an Connect:Direct for OS/390 node.

sql-statement defines the actual SQL statement to be processed.

data-set-name specifies the data set containing the SQL statements to be processed.

FTYPE(entry-name)

specifies the entry name of the type defaults file on the remote node that contains the default file attributes. Specify this typekey only when the user requests defaults.

FUNIT(name)

specifies the unit address, device type, or user-assigned group name where the file resides or will reside. For SAM-to-SAM copies where the destination file is new and the UNIT parameter is not coded, the device type from the source file is used. For VSE nodes, you must specify either this parameter or FVOL.

Specify a unit-count to allow additional units to be allocated if required, or specify **P** to allocate the same number of units as volumes and then parallel mount the volumes. This parameter is valid only when the source side is an OS/390 node.

FVOL(private, volcount, ser)

specifies the volume serial numbers containing the file and optional processing associated with the file. If VOL is not specified, the file must be cataloged. For VSE nodes, you must specify either this parameter or FUNIT.

private specifies allocation of an output file only if the volume is specifically requested and is used for direct access storage devices only. Valid values are *YES and *NO.

volcount specifies the maximum number of volumes required by an output file.

ser identifies by serial number the volumes on which the output file resides or will reside.

FVOLREF(data-set-name)

allows you to retrieve the specified data set from the same volume as the referenced data set. You must catalog it on the system where it is referenced. This parameter is valid only when the source side is an OS/390 node.

FVSAMCAT(dsn,vmid,pwd,accmode,cuu)

specifies the catalog for the VSAM file to be copied. This parameter is required only if using a catalog other than the master catalog.

dsn specifies the filename of the VSAM catalog containing the file to be copied. The maximum length is 44 characters.

vmid specifies the owner ID for the VSAM minidisk where the file is located. The maximum length is eight characters.

pwd specifies the appropriate password for the VSAM minidisk where the file is located. The maximum length is eight characters.

accmode specifies the link access mode. Valid access modes are NULL, **W** (primary read/write access), **M** (primary multiple access), and **MW** (primary multiple access; alternate read/write only access).

cuu specifies the virtual address of the disk where the VSAM file is located. Any three-digit number is valid.

NOTIFY(userid)

specifies the user ID on the local node to receive status messages that are directed to the user's message queue.

PNAME(process-name)

identifies the Process in any messages or statistics. The name can be from 1 to 12 characters long. The first character must be alphabetic. The default name is CDRCV.

Note: Only Connect:Direct OS/400 and Connect:Direct UNIX support Process names with more than 8 characters.

PNODEID(id, pswd, newpswd)

specifies security user IDs and passwords at the local OS/400 node. Use this parameter only to validate security with a different ID than the one you used to sign on to the system.

id specifies the security ID passed to the security system at the remote node (1–10 alphanumeric characters).

pswd specifies the current security password for the specified ID. The security system can use this parameter at the remote node to validate the current security password (1–10 alphanumeric characters). This is optional unless the user has security set to require a password.

newpswd specifies the new security password. Connect:Direct OS/400 does not support this parameter.

REPLACE(*YES|*NO)

specifies that the remote file or PDS replaces members of the same name at the local file.

RMTWORK(*YES|*NO)

specifies whether a remote Process can run on the session after Connect:Direct OS/400 has completed its Process on the session.

***YES** allows a remote Process to run on the session after Connect:Direct OS/400 completes its Process.

***NO** terminates the session after Connect:Direct OS/400 executes the command function.

SACCT(snode-accounting-data)

specifies the accounting data for the remote node. The maximum length of the accounting data is 256 characters. If special characters are part of the accounting data, you must enclose the string in single quotation marks.

SECOPTIONS(* *)

Encryption and Digital Signature values.

Encryption specifies if data encryption is to be performed and what algorithm to use.

Digital Signature specifies if a digital signature is created while a file is being transmitted.

Note: The SECOPTIONS parameter is valid only if the Connect:Direct Secure+ Option is installed. For information about these parameters, refer to the *Connect:Direct Secure+ Option OS/400 Implementation Guide*.

SELECT(member, new-name, R/NR, 'list')

specifies selection criteria by which file members are to be copied. Refer to the *Connect:Direct Process Statements Guide* for the syntax and override priority for the SELECT and EXCLUDE parameters appropriate to the remote node.

Use this parameter when you specify TYPE(FILE) in the TOSYSOPTS parameter.

The SELECT parameter consists of three positional subparameters separated by commas.

member specifies the members to be copied. Member selections are:

***** represents a global generic. A global generic indicates that all members of the file are to be included.

generic specifies a generic member name. For example, if you specify CD*, all member names beginning with CD are selected for copying.

member-name specifies an individual member name.

start-range/stop-range specifies first and last names in an alphanumeric range of members. Although member names in a range are treated as generics, they cannot be used with an asterisk (*). A slash (/) separates the first (start-range) and last (stop-range) member names. The two members specified, as well as all members in the range, are copied.

new-name specifies a new name for a member. You cannot use the new-name subparameter if a generic or range is used to select the members to be copied, or if you specify a list of member names.

R/NR specifies whether a copied member replaces an existing member of the same name in the local file. When used with a generic or a range, this subparameter applies to all members selected.

Note: When using a generic and specifying NR or R, the second positional subparameter (new-name) must be null, for example, member-name,,NR.

R specifies that a member replaces an existing member of the same name in the local file. When used with the new-name subparameter, **R** applies to the specified new-name and not the original member name.

NR specifies that a member does not replace an existing member of the same name in the local file. NR overrides the REPLACE parameter.

'list' specifies any combination of the subparameters. You can specify a list of individual member names or generic member names separated by spaces. However, you cannot use the new-name and replace-member subparameters when specifying a list.

Note: Member names longer than eight characters are truncated to eight characters when the remote node is not an OS/400 node.

SNODEID(id, pswd, newpswd)

specifies security user IDs and passwords at the remote node. If nothing is specified for this parameter, the user profile of the user who submits the command is sent to the remote node with a blank password.

id specifies the security ID passed to the security system on the remote node (1–64 alphanumeric characters).

pswd specifies the current security password. The security system can use this parameter on the SNODE to validate the current security password (1–64 alphanumeric characters). This is optional unless the user has set security to require a password.

newpswd specifies the new security password. Connect:Direct OS/400 does not currently support this parameter if the remote node is an OS/400 node.

Note: Parameter values are case sensitive.

TDISP(current)

specifies the status of the file on the local OS/400 node.

current specifies the status of the file before the operation executes. Valid values for this subparameter are:

NEW specifies that the operation creates the destination file or member. If you are creating a member, the file can already exist but the member must not already exist. If you are creating a file (SAVF), the file must not already exist.

OLD specifies that the destination file or member already exists. The operation has exclusive control of the member. If the file or member does not exist, the receive operation fails.

MOD specifies that the operation modifies the file or member by adding data to the end of the member or, if none exists, allocates a new member. The file is also created if it does not exist.

RPL indicates that the destination file or member is replaced. The file is created if it does not exist.

SHR indicates that another operation can read the file simultaneously. The file or member is created if it does not exist on OS/400.

Note: Currently, normal end disposition and abnormal end disposition are not applicable when sending to Connect:Direct OS/400.

TRACEOPT

Trace Instructions

(L, S, F, C, X, K, D, H, V, W, P, |*NONE|*ALL|*EXT| *COMMON|*INITPARMS|*CURRENT

specifies the trace bits that define functions to be traced by Connect:Direct OS/400. The following are valid options:

- ❖ **L** enables the main line logic trace for all components.
- ❖ **S** enables the Process step logic trace.
- ❖ **F** enables the file handler trace.
- ❖ **C** enables the communications logic trace.
- ❖ **X** enables the XDR trace.
- ❖ **K** enables the KQV logic trace.
- ❖ **D** enables the all-purpose data dump.
- ❖ **H** enables the FMH dump.
- ❖ **V** enables the XDR dump.
- ❖ **W** enables the communications dump.
- ❖ **P** enables the CIPC dump.
- ❖ ***NONE** turns off all traces.
- ❖ ***ALL** enables all product traces.(L, S, F, C, X, K, D, H, V, W and P)
- ❖ ***EXT** enables all product traces plus two system traces (TRCICF and TRCJOB).
- ❖ ***COMMON** enables the communications traces. (L, S, F, C, and H)
- ❖ ***INITPARMS** indicates the traces specified in the initialization parameters.
- ❖ ***CURRENT** selects the trace bits that the session manager is currently using.

Command Trace Options

L,S,F,C,X,K,D,H,V,P|*ALL|*EXT|*COMMON| *NONE)

specifies the trace bits that define functions to be traced for this command but not for the Process it runs. The following are valid options:

- ❖ **L** enables the main line logic trace for all components.
- ❖ **S** enables the Process step logic trace.
- ❖ **F** enables the file handler trace.
- ❖ **C** enables the common logic trace.
- ❖ **X** enables the XDR trace.
- ❖ **K** enables the KQV logic trace.
- ❖ **D** enables the all-purpose data dump.
- ❖ **H** enables the FMH dump.
- ❖ **V** enables the XDR dump.
- ❖ **P** enables the CIPC dump.

- ❖ ***ALL** enables all product traces.(L, S, F, C, X, K, D, H, V, and P)
- ❖ ***EXT** enables all product traces plus two other traces. (TRCICF and TRCJOB)
- ❖ ***COMMON** enables the most commonly used traces. (L, S, F, C, and H)
- ❖ ***NONE** turns off all traces.

Using Block Mode Transfer

Connect:Direct OS/400 supports block mode transfer of COPY operations. In this mode, Connect:Direct uses the file block as the data unit. Using the block mode transfer improves performance because the remote and local nodes handle fewer data units. This type of transfer reduces instruction path length and decreases execution time. Larger units move between Connect:Direct and the file access routines, requiring fewer calls to the access routines and further improving performance.

Connect:Direct OS/400 simulates block reads and writes. Using logical blocks instead of physical blocks, Connect:Direct OS/400 allows you to modify the blocksize to match the other node in some cases.

Connect:Direct OS/400 supports block mode transfer when the following conditions exist:

- ❖ Remote node supports block mode
- ❖ Source and destination files have like characteristics
- ❖ Files are supported file types

Connect:Direct OS/400 supports block mode transfers for the following OS/400 file types:

- ❖ DB2/400 files (without staged compression)
- ❖ Spool files
- ❖ Save files
- ❖ Stream files (using the integrated file system)

Simulating Blocksizes

The simulated blocksize determines whether a block mode transfer occurs. If the block mode transfer does occur, the simulated blocksize is used for the transfer. The following rules determine what simulated blocksize Connect:Direct OS/400 uses.

As the local node, Connect:Direct OS/400 determines the simulated blocksize by these conditions in order of precedence:

- ❖ Destination file blocksize specified on the request
- ❖ Source file blocksize sent by the remote node in the COPY control block

If neither condition exists, Connect:Direct uses the record mode.

As the remote node, Connect:Direct OS/400 determines the simulated blocksize by these conditions in order of precedence:

- ❖ Source file blocksize specified on the request
- ❖ Destination file blocksize specified on the request
- ❖ Calculated value*

*Largest multiple of record size less than some arbitrary value, such as 4096.

Block Mode Transfer Examples

The following block mode transfer examples include both sending and receiving examples.

CDRCV Examples-Not Specifying Source File Blocksize

In the first example, the request does not specify the source file blocksize. In this scenario, the following occurs:

- ❖ The Connect:Direct OS/400 node sets the source file simulated blocksize to 3200 by using the destination file value.
- ❖ The receiving Connect:Direct OS/400 sets the destination file simulated blocksize to the value specified on the request.
- ❖ Because the blocksizes match, the block mode copy occurs.

```
C:D 400: receiving
request: source blksize=not specified; dest blksize = 3200
srce file: lrecl=80, (on another C:D 400 3.3 node)
dest file: NEW
```

CDRCV Example-Specifying Source File Blocksize

In the second example, the following occurs:

- ❖ Connect:Direct OS/400 calculates the simulated blocksize at 3200 because the destination file is new and the source file specifies a blocksize.
- ❖ The receiving node uses the existing destination file blocksize of 3200.
- ❖ A block mode transfer occurs because the blocksizes match.

```
C:D 400: receiving
request: source blksize=not specified;dest blksize = not specified;
srce file: lrecl=80, blksize=3200 (on OS390OS390 node)
dest file: NEW
```

CDSND Examples-Simulating Blocksize

In the third example, the following events occur:

- ❖ Connect:Direct OS/400 sets the simulated blocksize at 6400 from the request.
- ❖ The receiving node creates the destination file using source file attributes of blksize=6400.
- ❖ Because the file attributes match, the block mode transfer occurs.

```
C:D 400: sending
request: source blksize=6400; dest blksize = not specified;
srce file: lrecl=80
dest file: NEW (on OS390)
```

CDSND Examples-Setting Actual Blocksize

In the fourth example, the following events occur:

- ❖ the remote node sets the destination file blocksize to 3200, the actual blocksize of the destination file.
- ❖ Connect:Direct OS/400 calculates the simulated blocksize at 3200.

- ❖ The block sizes are identical, so block mode transfer occurs.

```
C:D 400:  sending
request:  source blksize=not specified; dest blksize = not specified;
srce file: lrecl=80
dest file: existing: lrecl=80, blksize=3200 (on OS390)
```

CDSND and CDRCV Example

In the fifth example, Connect:Direct OS/400 calculates the simulated block size at 32720 since the copy is between two Connect:Direct OS/400 nodes.

```
C:D 400  sending and receiving
request:  source blksize=not specified; dest blksize=not specified
srce file: lrecl=32720
dest file: new
```

Using the CDRCV Screens

Use the **Connect:Direct Receive File (CDRCV)** screens to initiate a Connect:Direct session and receive a file from a remote node. CDRCV uses certain special function keys as follows:

- ❖ **F24** more keys gives you access to additional function keys used in CDRCV.
- ❖ **F5** refresh which clears any field entries you have made.
- ❖ **F9** which gives you access to all parameters.
- ❖ **F11** which displays key words.
- ❖ **F14** which displays command strings.
- ❖ **F15** which displays any error messages pending.
- ❖ **F16** which marks the command complete.

Receiving a File From a Remote Node

Complete the following steps to receive a file from a remote node.

1. Access the **CDRCV** screens by typing **CDRCV** at the command line and pressing **F4** or by choosing the receive file option from the Connect:Direct main menu.
2. Type in the remote node name at the screen prompt and press **Enter**. The command retrieves the remote node environment and display fields for required parameters.
3. Type values for required and optional parameters as appropriate and press **Enter**.

The following are samples of the screens in the **Connect:Direct Receive File (CDRCV)** screen flow. The sample shows the keyword display option.

Connect:Direct Receive File (CDRCV) Screen 1

```
Connect:Direct Receive File (CDRCV)

Type choices, press Enter.

Sending Node Name . . . . . _____
Sending Node Environment . . . . . _____ OS400, AS400, MSP, MVS...
Sending File Name . . . . . _____

Receiving File Name . . . . . _____

Receiving System Operations . . 'TYPE(FILE) '
_____
_____
_____
_____
_____

F3=Exit  F4=Prompt  F5=Refresh  F12=Cancel  F13=How to use this display
F24=More keys

More...
```

The content of this screen and the screens that follow depend on the remote node environment.

Connect:Direct Receive File (CDRCV) Screen 2

```

Connect:Direct Receive File (CDRCV)

Type choices, press Enter.

Sending System Operations . . . .
.'TYPE(FILE)'  

_____  

_____  

_____  

_____  

_____  

Trace Options:
  Trace Instructions . . . . . *CURRENT
  Command trace options . . . . *NONE
  Process Name . . . . . CDRCV      Name
Receiving Node User Info.:
  User Id . . . . . *CURRENT      Character value, *CURRENT
  Password . . . . .              Character value
  New Password . . . . .          Character value
  User to Notify . . . . . *CURRENT      Name, *CURRENT, *NONE
                                          More...
F3=Exit  F4=Prompt  F5=Refresh  F12=Cancel  F13=How to use this display
F24=More keys
    
```

Connect:Direct Receive File (CDRCV) Screen 3

```

Connect:Direct Receive File (CDRCV)

Type choices, press Enter.

Sending Node User Info.:
  User Id . . . . . _____
  Password . . . . . _____
  New Password . . . . . _____
  Class . . . . . *MODED          1-255, *MODED
  Sending Accounting Data . . . . _____
  _____
  Checkpoint Interval . . . . . *INITPARMS  0-9999999, *INITPARMS
  Allow remote process . . . . . *NO          Character value, *YES, *NO
                                          More...
F3=Exit  F4=Prompt  F5=Refresh  F12=Cancel  F13=How to use this display
F24=More keys
    
```

Connect:Direct Receive File (CDRCV) Screen 4

```

Connect:Direct Receive File (CDRCV)

Type choices, press Enter.

File Members Selection List . . _____
_____
_____

File Members Exclusion List . . _____
_____
_____

Same Member Replaced . . . . . *YES          *YES, *NO
CRC . . . . . *INITPARMS      *INITPARMS, *NETMAP, *ON, *OFF
Secure+ Options:
  Encryption . . . . . *          */Y/N/Algorithm
  Digital Signature . . . . . *          *, N, Y
  Compress Data . . . . . *NO         Character value, *NO, *YES...

More...
F3=Exit  F4=Prompt  F5=Refresh  F12=Cancel  F13=How to use this display
F24=More keys
    
```

Connect:Direct Receive File (CDRCV) Screen 5

```

Connect:Direct Receive File (CDRCV)

Type choices, press Enter.

Extended compression tuning:
  Extended compression level . . *INITPARMS  1-9, *INITPARMS
  Extended compression window . . *INITPARMS  8-15, *INITPARMS
  Extended compression memory . . *INITPARMS  1-9, *INITPARMS
Sending File Type Parameter . . . Character value
Receiving File Disposition:
  Current Disposition . . . . . NEW          NEW, OLD, MOD, RPL, SHR
  Normal End Disposition . . . . CATLG       CATLG, KEEP
  Abnormal End Disposition . . . _____  KEEP, CATLG, DELETE

More...
F3=Exit  F4=Prompt  F5=Refresh  F12=Cancel  F13=How to use this display
F24=More keys
    
```

Connect:Direct Receive File (CDRCV) Screen 6

```

                                Connect:Direct Receive File (CDRCV)

Type choices, press Enter.

Sending DCB Info.:
Model File Name . . . . . _____

-----
Block Size in bytes . . . . . _____ Character value
Tape Mode Density Setting . . . . . ___ 1, 2, 3, 4
Organization of File . . . . . - BDAM, ISAM, PO, PS, VSAM...
Key Length of file . . . . . 000 Character value
Searching Free Block/Space . . . . . 00000 Character value
Record Length in bytes . . . . . 00000 Character value
Process Option . . . . . - W, Q, Z
Record Format . . . . . _____ F, FA, FB, FBA, FM, U, V...
Position of 1st Byte of Key . . . . . - Character value
Tape Mode Setting . . . . . _____ C, E, T, ET, COMP, NOCOMP

                                                                    Bottom
F3=Exit  F4=Prompt  F5=Refresh  F12=Cancel  F13=How to use this display
F24=More keys
    
```

Sending a Spool File

This chapter describes the Connect:Direct Send Spool (CDSNDSPL) command and its function. This chapter also shows sample **CDSNDSPL** screens and describes the required and optional parameters for the CDSNDSPL command.

Using the CDSNDSPL Command

Use the CDSNDSPL command to send a spool file on the local OS/400 node to a remote node. You can also send spool files to a remote printer through the Connect:Direct OS/400 Spool Monitor. You can specify a user-exit command (either **EXITCMD** or **FAILCMD**) to be executed after the completion of a copy process in either FROMSYSOPTS or TOSYSOPTS. Using EXITCMD, you can specify a command to be executed only if the copy process is successful. You can also specify a command to be executed only if the copy process is not successful by using the FAILCMD command. The EXITCMD and FAILCMD are executable OS/400 commands as well as Connect:Direct as long as the size of the command does not exceed 127 bytes. Refer to the *Maintaining Spool Support* chapter of the *Connect:Direct OS/400 Installation and Administration Guide*.

CDSNDSPL Command Example

The command that follows is an example of using the CDSNDSPL command.

```
CDSNDSPL SNODE(CD2200) SNODENVIRN(AS400) SPLF(CDLOG) JOB(CDSMGR          CDADMIN
nnnnnn) SPLFNUM(1) TDSN('qa/splfout(splfout)')          TOSYSOPTS('TYPE(mbr)')
TDISP(RPL)
```

CDSNDSPL Command Format

The following parameters are for the CDSNDSPL command. Required parameters are shown in bold type.

| Command | Parameters |
|----------|--|
| CDSNDSPL | SNODE(remote-node-name) |
| | SNODENVIRN(remote-environment-name) |
| | SPLF(name) |

† Connect:Direct Secure+ Option OS/400 parameter.

| Command | Parameters |
|---------|--|
| | JOB (* job-name user-name job-number) |
| | SPLFNUM (n * ONLY * LAST) |
| | TDSN (spooled-file-name data-set-name) |
| | TOSYSOPTS (' DECMPR(* YES * NO) EXITCMD(valid OS/400 command) FAILCMD(valid OS/400 command) TYPE(FILE MBR OBJ SPLF) CODEPAGE(nnnnn,nnnnn) XTRAN(table-name)[XTRANLSO(so-code)]XTRANLSI(si-code)]XTRANLDATA(MIXED D BCS)XTRANPAD(pc)] (TOSYSOPTS is required if remote node is on OS/400) ') |
| | BLKSIZE (n * CALC) |
| | CHLVAL (* NORMAL (channel#1 line#1)...(channel#12 line#12)) |
| | CKPTINV (n) |
| | CLASS (n) |
| | COMPRESS (* YES * NO X\xx\C\cc\ EXT) |
| | CRC (* INITPARMS * NETMAP * OFF * ON) |
| | CTLCHAR (* NONE * FCFC * PRTCTL) |
| | ECTUNING (ecclevel,ccminsize,ecmlevel) |
| | FDSNLEN (* SPLF) |
| | NOTIFY (userid) |
| | PNAME (name) |
| | PNODEID (id, pswd, newpswd) |
| | PRTY (n) |
| | RMTWORK (* YES * NO) |
| | SACCT (snode-accounting-data) |
| | † SECOPTIONS (* *) |
| | SNODEID (id, pswd, newpswd) |
| | TBUFND (n) |
| | TDBPARMS (dbid,dbsubid) |
| | TDCB (modeldcb, blksize, den, dsorg, keylen, limct, lrecl, optcd, recfm, rkp, trtch) |
| | TDISP (current normal end abnormal end) |
| | TIOEXIT (program-name) |
| | TIOPARM (parameter-name) |
| | TLABEL (seqno,labeltype,pswdread,inout,retpd,expdt) |

† Connect:Direct Secure+ Option OS/400 parameter.

| Command | Parameters |
|---------|---|
| | TLINK(vmid,pwd,accmode,cuu) |
| | TMSVGP(data-definition-name) (For OS/390 nodes only) |
| | TPROTCT(*YES *NO) |
| | TRACEOPT Trace Instructions: (L,S,F,C,X,K,D,H,V,W,P *NONE *ALL *EXT *COMMON *INITPARMS *CURRENT Command Trace Options: L,S,F,C,X,K,D,H,V,P *ALL *EXT *COMMON *NONE) |
| | TSPACE(avgbk,type,primary,secondary,pdsblk,rise, contig,round) (For OS/390 nodes only) |
| | TSQL(sql-statement DSN=data-set-name) (For OS/390 nodes only) |
| | TTYTYPE(name) |
| | TUNIT(unit-name) |
| | TVOL(*YES *NO) |
| | TVOLREF(data-set-name) (For OS/390 nodes only) |
| | TVSAMCAT(dsn vmid pwd accmode cuu) |

† Connect:Direct Secure+ Option OS/400 parameter.

Note: The CLASS parameter is not used by Connect:Direct OS/400.

Required Parameters

Unless otherwise noted, these required parameters apply to all remote node environments.

SNODE(remote-node-name)

specifies a 1–16 character alphanumeric name for the remote node.

Note: This value is case sensitive.

SNODENVIRN(remote-environment-name)

specifies the remote node environment.

SPLF(name)

specifies the name of the spooled output file to be copied.

JOB(*job-name user-name job-number)

specifies the name of the job that created the spooled output file. Valid values are:

* specifies that the job issuing the command is the job that created the spooled output file.

job-name specifies the name of the job that created the spooled-output file.

user-name specifies the user name that identifies the user profile for the job.

job-number specifies the system-assigned job number.

SPLFNUM(n|*ONLY|*LAST)

specifies the spooled output file number from the job whose data records are to be sent. Valid values are:

1–9999 indicates to copy the specified spooled output file number.

***ONLY** indicates that only one of the job's spooled output files has the specified file name.

***LAST** indicates to copy the highest-numbered spooled output file with the specified job name.

TDSN(spooled-file-name|data-set-name)

specifies the remote file name.

Note: Do not use member names longer than eight characters when sending to OS/390 nodes. The results are unpredictable.

If the remote node is a Connect:Direct OS/400 node, TDSN specifies the destination file name. File names are verified based on the OS/400 standard file name conventions. If you are using Connect:Direct OS/400 with the **F4** prompt feature, the system supplies the single quotes if you fail to type them with the file name on the command line.

spoiled-file-name specifies the name to be used for the spooled file when placed in the Connect:Direct out queue on the remote system. Use this parameter when you specify ('TYPE(SPLF)') in the TOSYSOPTS.

data-set-name specifies the remote file name to be copied. The source file member name is used for the destination database file member name when you use TOSYSOPTS('TYPE(FILE)'), unless you specify otherwise with the SELECT parameter. The file name is used for the member name when you use TOSYSOPTS('TYPE(MBR)').

Note: For TDSN, the values of *LIBL, *CURLIB, and QTEMP cannot be used when sending to an OS/400 system. A specific library name must be used for copying to a data set on the OS/400.

For additional information about valid platform-specific parameters, refer to the *Connect:Direct Process Statements Guide*.

The following table summarizes the data set name requirements for Connect:Direct platforms.

| SNODENVIRN | TDSN | Format | Special Considerations |
|------------|------------------------|---|---|
| OS/400 | Native File System | 'library-name/file-name' 'library-name/file-name (member-name)' | Enclose in single quotation marks. |
| | Integrated File System | '/QSYS.LIB/library-name.LIB /file-name.FILE /member-name.MBR' or '/directory/file-name /QLANSrv/file-name /QDLS/folder-name /QOpenSys/file-name' | You cannot specify the *SNDFFD, *SELECT, and *EXCLUDE parameters with the integrated file system. |
| | Spool File Support | spoiled-file-name | Do not use member names longer than eight characters when sending to OS/390, VSE, and MSP. The results are unpredictable. |

| SNODENVIRN | TDSN | Format | Special Considerations |
|------------------|--|--------|---|
| OS/390, VSE, MSP | Standard OS/390 DSN naming conventions. | | Single quotes allow special characters. Do not use member names longer than eight characters. The results are unpredictable. |
| VM | Fully qualified file-name | | |
| Tandem | \system.\$volume.subvolume.filename | | |
| Windows | drive:\directory\subdirectory\filename or \servername\sharepointname\subdirectory\filename | | |
| UNIX | /directory/subdirectory/filename | | |
| OpenVMS | node::device:[directory]filename.type;version | | When you are copying a file , the file specification must be enclosed in single quotation marks if it uses spaces or other special characters not recognized by the other node. |
| Stratus VOS | Fully qualified path and file name | | Enclose the file name in double quotation marks when you use a reserved word (statement name or keyword) for the file name. |

TOSYSOPTS(‘

DECMPR(*YES|*NO)

EXITCMD(valid OS/400 command)

FAILCMD(valid OS/400 command)

TYPE(FILE|MBR|SPLF)

XTRAN(table-name) [XTRANLSO(so-code)|

XTRANLSI(si-code)]XTRANLDATA(MIXED|DBCS)]’)

specifies system operation parameters at the remote node. The maximum number of characters permitted for TOSYSOPTS is 2K. This parameter is only required when the remote file is on another Connect:Direct OS/400 node.

For additional information about valid SYSOPTS parameters, see the appropriate COPY statement chapter of the *Connect:Direct Process Statements Guide*.

EXITCMD specifies a command to be executed only if the copy process is successful.

FAILCMD specifies a command to be executed only if the copy process is not successful.

DECMPR(*YES|*NO) states whether the remote Connect:Direct should decompress the received file. DECMPR(*NO) instructs the remote system to place the received data in a database file without decompressing it. The option DECMPR(*NO) cannot be specified if you are using Secure+ Option to perform a secured copy function.

Note: Ensure that the destination file contains no members before you send a file with DECMPR(*NO) specified.

TYPE(FILE|MBR|SPLF) specifies the type of data to be sent. You *must* define the type of data to be copied as one of the following:

FILE specifies that the file being copied is a physical database file.

MBR specifies that the object being copied is a member of a physical database file.

SPLF specifies that the data is to be copied to an OS/400 spooled output file.

For each TYPE, you can specify certain parameters as follows.

The following parameters are valid for **TYPE(FILE)** and **TYPE(MBR)** files:

RCDLEN(record-length) specifies the data length for each record in the file.

FILETYPE(*SRC|*DATA) establishes the type of file to be created. Use this parameter whenever a file is created.

TEXT('text description') sets a text description to be associated with this member (and file, if created). This description cannot exceed 50 characters and must be enclosed in single quotes.

EXPDATE(expiration-date) specifies the date after which the new or replaced member is no longer valid. If EXPDATE is not specified, then the file does not have an expiration date.

MAXMBRS(number|*NOMAX) specifies the maximum number of members a physical file can contain.

SIZE(#-of-recs, incr-value #-of-incrs|*NOMAX) is used when a new file is created for the file received.

AUT(*CHANGE|*ALL|*USE|*EXCLUDE) specifies the authority to give to a user who does not have specific authority to the file or member, is not on the authorization list, and whose user group does not have specific authority to the file or member.

The following parameters are valid for **TYPE(SPLF)** files:

DEV(*JOB|*SYSVAL|device-name) specifies the name of the printer device description.

DEVTYPE(*IPDS|*SCS|*USERASCII) sets the type of data stream created for a printer file from the data received.

PAGESIZE(page-length page-width) specifies the length and width of the page used by the printer. (This parameter overrides the FORMTYPE parameter.)

LPI(3|4|6|7.5|8|9) sets the line space setting (lines per inch) on the printer.

CPI(5|10|12|13.3|15|16.7|18|20) specifies the printer character density, in characters per inch, for the printer.

OVRFLW(overflow-line-number) specifies the line number on the page at which overflow to a new page begins.

FOLD(*NO|*YES) specifies whether entire records are printed when the record length exceeds the form width.

RPLUNPRT(*YES 'replacement-character'|*NO) specifies whether unprintable characters are replaced with printable characters when printed. Also specifies the replacement character.

ALIGN(*NO|*YES) specifies whether the page must be aligned in the printer before printing is started.

CTLCHAR(*NONE|*FCFC) specifies whether the data contains printer control characters.

CHLVAL(*NORMAL| (channel#1 line#1) ... (channel#12 line#12)) specifies the list of channel numbers with their assigned line numbers. Note that CTLCHAR(*FCFC) must be specified as a SYSOPTS parameter for this to be a valid parameter.

FORMFEED(*DEV|*CONT|*CUT|*AUTOCUT) specifies the form feed attachments used by the printer (4214, 5219, and 5553 printers only).

PRTQLTY(*STD|*DRAFT|*DEV|*NLQ) specifies the quality of print produced.

DRAWER(1|2|3|*E1) specifies the source drawer to be used when you use automatic cut-sheet feed mode.

FONT(*CPI|*DEV|font-identifier) specifies the font identifier to be used for the spooled output file.

CHRID(*DEV|*SYSVAL| graphic-character-set code-page) specifies the character identifier to use for the spooled output file.

PAGRRT(*DEV|*COR|0|90|180|270) specifies the degree of rotation (clockwise from the edge of the paper first loaded into the printer) of text on each page printed.

PRTTXT('print-text') specifies a line of text to be printed at the bottom of each page printed. Up to 30 characters enclosed in single quotes is specified.

JUSTIFY(0|50|100) controls the print positions of the characters on the page (in the spooled file) so the right margin is regular.

DUPLEX(*NO|*YES|*TUMBLE) specifies whether the spooled output file is printed on one or both sides of the paper.

SPOOL(*YES|*NO) specifies whether the data is sent to a spooled file prior to printing.

OUTQ(*JOB|*DEV|library-name/output-queue- name) specifies the output queue for the spooled output file created.

FORMTYPE(form-type) specifies the type of form to use in the printer when the spooled file is printed. The PAGESIZE parameter overrides this parameter.

COPIES(number-of-copies) specifies the number of copies to be printed. Valid values range from 1–255.

MAXRCDS(maximum-records) specifies the maximum number of records that are placed in the output queue. Valid values range from 1–500,000.

FILESEP(number-of-file-separators) specifies the number of blank separator pages to be placed between each copy of the file printed.

HOLD(*YES|*NO) specifies whether the file is to be held on the output queue until released by the user.

SAVE(*YES|*NO) specifies whether the spooled output file is to be saved on the output queue once printed.

OUTPTY(*JOB|output-priority) specifies the scheduling priority of the file on the output queue.

USRDTA(user-data) allows up to 10 characters of data to identify the spooled output file.

Refer to the *Connect:Direct Process Statements Guide* for general information on SMS support.

XTRAN(table-name) specifies the translation table to use. The named table object must exist in a library that is in the session manager job library list or else the COPY step fails.

If the XTRAN keyword is present, then the following related optional keywords can also be used:

XTRANLSO(so-code) specifies extended translation local shift-out code. This keyword specifies the hexadecimal code to use for the local (OS/400 side) shift-out character and overrides the default value of 0E. You can specify any two valid hexadecimal digits.

XTRANLSI(si-code) specifies extended translation local shift-in code. This keyword specifies the hexadecimal code to use for the local (OS/400 side) shift-in character and overrides the default value of 0F. You can specify any two valid hexadecimal digits.

XTRANLDATA(MIXED|DBCS) specifies extended translation local data format. This keyword specifies the format of the data on the local (OS/400 side) of the COPY.

MIXED indicates that the data can contain both DBCS and SBCS characters and that SO/SI characters are used. MIXED is the default.

DBCS indicates that the data is pure DBCS characters and that no SO/SI characters are used.

XTRANPAD(pc) specifies that padding characters are in use. When DBCS data is translated from EBCDIC to ASCII, PAD specifies that the SHIFT-OUT and SHIFT-IN characters are replaced by a pad character to allow the displacement of fields within a record to remain unchanged during translation.

When DBCS data is translated from ASCII to EBCDIC, PAD specifies that the input ASCII DBCS file is in a padded format. The character immediately preceding a DBCS character or string is overlaid by the SHIFT-OUT character. The character immediately following a DBCS character or string is overlaid with the SHIFT-IN character. This allows the displacement of fields within a record to remain unchanged during translation.

pc is the pad character to be used during EBCDIC to ASCII translation. **pc** is ignored for ASCII to EBCDIC translations.

If XTRANPAD is not used, the SI/SO characters are stripped from the file when transferring from EBCDIC to ASCII, and added to the records when sending from ASCII to EBCDIC.

The following rules apply to the use of the XTRAN keyword:

- ❖ You must specify the XTRAN keyword to use extended translation all others are optional.
- ❖ The default for local shift-out is the IBM standard x0E.
- ❖ IBM standard x0F is the default for local shift-in.
- ❖ The default local data format is MIXED with SO/SI in use XTRAN is *not* allowed with PRECMPR(*YES) or DECMPR(*NO)
- ❖ To send a file to an ASCII platform using extended translation, you *must* specify in the TOSYSOPTS that the data type is binary. Refer to the *Connect:Direct Process Statements Guide* for platform-specific SYSOPTS parameters.
- ❖ To use the XTRAN keyword to receive DBCS data from an ASCII platform, ensure that the record length of the file on the OS/400 side of the transfer is large enough to contain the translated record.

The record length of the file on the OS/400 side of the transfer is generally larger than the ASCII equivalent. For additional information, refer to the *Maintaining Extended Translation* chapter of the *Connect:Direct OS/400 Installation and Administration Guide*

EXITCMD specifies a command to be executed only if the copy process is successful.

FAILCMD specifies a command to be executed only if the copy process is not successful.

CODEPAGE(nnnnn,nnnnn) converts data from one code page to another. The supported conversions are identified on the IBM Web site in the V5R1 Information Center, DB2 Universal Database for iSeries SQL Reference, Appendix E. CODEPAGE() on Connect:Direct OS/400 relates to CODEPAGE() developed for the OS/390 system, UNIX, and Windows.

nnnnn identifies the IBM CCSID codepage number to convert from and the IBM CCSID code page number to convert to. If the FROM code page or TO code page is locale, the code page for the locale where CONNECT:Direct is executing is used. For example, if `fmsysopts(codepage(locale,1208))`, then the FROM code page is the code page for the locale and the TO code page is UTF-8.

Optional Parameters

The following parameters are optional. Unless otherwise noted, the parameters apply to all remote node environments.

BLKSIZE(n)*CALC)

specifies the blocksize value for the source file. This value must be a multiple of the file record size.

n specifies the block size of the file. This value must be a multiple of the record size. The valid range is 1–32720

***CALC** indicates that the blocksize is calculated.

CHLVAL(*NORMAL| (channel#1 line#1) . . . (channel#12 line#12))

specifies the list of channel numbers with their assigned line numbers. Note that you must specify `CTLCHAR(*FCFC)` for this to be a valid parameter.

***NORMAL** indicates that channel 1 causes a skip to the next line, and channel 12 causes a skip to the overflow line (`OVERFLOW` parameter). Channels 2–11 cause a space-one-line operation.

(channel#1 line#1) . . . (channel#12 line#12) specifies channel number and line number. Any combination of channel numbers, 1–12, is specified along with a line number to be assigned to that channel number. Valid line numbers range from 1–255. If no line number is assigned to a channel number and that channel number is found in the data, a default of space-one-line before printing is taken. You can specify each channel and line number once.

CKPTINV(n)

specifies the number of bytes, 0–2 gigabytes, to send before taking a checkpoint. The format is `nnnnnnn`, `nnnnnnnK`, or `nnnnnnnM`, where **K** specifies thousands of bytes and **M** specifies millions of bytes. A value of **0** specifies no checkpoint restart. Connect:Direct OS/400 uses the value you specify, rounded up to the nearest record boundary, to determine when to take a checkpoint.

A checkpoint interval specified here overrides the system-wide default value in the initialization parameters.

CLASS(n)

determines the node-to-node session on which a Connect:Direct operation can execute. The `CLASS` is a number from 1–255. If you do not specify the `CLASS` parameter, it defaults to the number of maximum sessions defined in the communications environment mode description.

Note: The `CLASS` parameter is not used by Connect:Direct OS/400.

COMPRESS (*YES|*NO|X|xx|C|cc|EXT)

specifies data compression, which reduces the amount of data transmitted as the file is copied from one node to another. The file is automatically decompressed at its destination.

Note: Compression is CPU-intensive. Its effectiveness is dependent on data and line speed and should be used only if it benefits the installation.

If compression is specified, Connect:Direct reduces the amount of data transmitted based on the following rules:

- ❖ Repetitive occurrences (ranging from 2–63) of the primary compression character are compressed to one byte.
- ❖ Repetitive occurrences (ranging from 3–63) of any other character are compressed to two bytes.

Specifying the primary compression character is recommended for text data or single-character repetitive data. Extended compression generally offers improved compression for all types of data.

***NO** specifies no compression.

***YES** enables compression. If ***YES** is specified, the default primary compression character is `PRIMEchar=X\40\` (hex 40=" ").

X\xx enables compression, where *xx* is the hexadecimal representation of the value to be used for the primary compression character.

C\cc enables compression, where *cc* is the character representation of the value to be used for the primary compression character.

EXT specifies that extended compression is used to search for repetitive strings of characters in data and compress them to codes that are transmitted and converted back to the original string during decompression. It is advantageous to specify this parameter when line transmission speeds are limited, CPU is available, and data is repetitive.

CRC(*INITPARMS|*NETMAP|*OFF|*ON)

Determines whether node and Process statement overrides for Cyclic Redundancy Check (CRC) are allowed. If this value is set to ***OFF**, setting overrides for CRC checking will be ignored. The default value is ***INITPARMS**.

***INITPARMS** specifies that the CRC setting is determined by the value for the initialization parameter, `TCP.CRC`.

***NETMAP** specifies that the CRC setting is determined by the value for the `NETMAP` parameter, Cyclic Redundancy Check. The value for the initialization parameter `TCP.CRC` must be set to ***ON** and the value for the initialization parameter `TCP.CRC.OVERRIDE` must be set to ***YES**.

***OFF** specifies that CRC is disabled.

***ON** specifies that CRC is enabled.

ECTUNING (ecclelevel,ecwsize,ecmlevel)

ECCLEVEL specifies the extended compression level, which affects how much CPU the extended compression routines use. Higher compression levels use more CPU but achieve greater compression. The valid values for this subparameter are 1–9, inclusive. The default value is ***INITPARMS**.

ECWINSIZE specifies the extended compression window size, which is specifically for the history buffer that is filled from the user's input buffer (both compressing and decompressing). The window specifies the amount of storage designated to maintain data previously read.

This data can be scanned for string matches. The extended compression window size affects how much virtual memory the extended compression routines use. Higher window size values use more memory but achieve greater compression. The valid values for this subparameter are 8–15, inclusive. The default value is ***INITPARMS**.

ECMLEVEL specifies the extended compression memory level parameter, which determines how much memory should be allocated for other internal data structures like the hash table and the previous table (pointers to previous strings starting with the same 3 characters). The extended memory level affects how much memory the extended compression routines use. Higher memory levels use

more virtual memory but achieve greater compression. The valid values for this subparameter are 1–9, inclusive. The default value is *INITPARMS.

CTLCHAR(*NONE|*FCFC|*PRTCTL)

specifies whether the data contains printer control characters. Valid values are:

*NONE indicates that the data does not contain printer control characters.

*FCFC indicates that the first character of each record contains an ANSI forms-control character. Any incorrect control characters are ignored, and single spacing is assumed. This parameter should be used when the source OS/390 file is RECFM=xxA, which indicates it contains ANSI carriage control.

*PRTCTL indicates that skip and space-before values are in the first four characters of every record. These values are useful in high-level language (HLL) programs. Refer to the CPYSPLF command in the *OS/400 CL Reference* for more information on these values.

FDSNLEN(*SPLF)

specifies the record length of the local file. The default value *SPLF means: look at the actual spool file and use its length in this parameter.

Note: For TDSN, the values of *LIBL, *CURLIB, QTEMP cannot be used when sending to or from an OS/400 system using Connect:Direct OS/400. A specific library name must be used for copying from or to a data set on the OS/400.

NOTIFY(userid)

specifies the user ID on the local node to receive status messages that are directed to the message queue of the user.

PNAME(name)

identifies the Connect:Direct Process in any messages or statistics related to the operator. The name is from 1 to 12 characters long. The first character must be alphabetic. Use this name to identify the operation in any messages or statistics. The default name is CDSNDSPL.

Note: Only Connect:Direct OS/400 and Connect:Direct UNIX support Process names with more than 8 characters.

PNODEID(id, pswd, newpswd)

specifies security user IDs and passwords at the local node. This parameter should only be used to validate security with a different ID than the one you used to sign on to Connect:Direct. PNODEID is not used when both the ID and password match on the local and remote nodes.

id specifies the security ID passed to the security system on the local node (1–10 alphanumeric characters).

pswd specifies the current security password for the specified ID. This parameter is used by the security system on the local node to validate the current security password (1–10 alphanumeric characters). This is optional unless the user has security set to require a password.

newpswd specifies the new security password. It is used by the security system to change the current security password to the new security password (1–10 alphanumeric characters).

Note: Although you can specify a value for newpswd, Connect:Direct OS/400 does not support this parameter.

PRTY(n)

specifies the priority of the operation. High numbers indicate high priorities; low numbers indicate low priorities. Use this priority only for selection within CLASS. It does not affect transmission priority. The range is from 0–15. The default is *INITPARMS. Type **DSPPFM INITPARMS** to view the default.

RMTWORK(*YES|*NO)

specifies whether a remote Process can run on the session after Connect:Direct OS/400 has completed its Process on the session.

***YES** allows the remote Process to run on the session after Connect:Direct OS/400 completes its Process.

***NO** terminates the session after Connect:Direct OS/400 executes the command function. ***NO** is the default for this parameter.

SACCT(snode-accounting-data)

specifies the accounting data for the remote node. The maximum length of the accounting data is 256 characters. If special characters are part of the accounting data, the string must be enclosed in single quotation marks. This parameter is valid for OS/390 nodes only.

SECOPTIONS(* *)

Encryption and Digital Signature values.

Encryption specifies if data encryption is to be performed and what algorithm to use.

Digital Signature specifies if a digital signature is created during file transmission.

Note: The SECOPTIONS parameter is valid only if Connect:Direct Secure+ Option is installed. For information about these parameters, refer to the *Connect:Direct Secure+ Option OS/400 Implementation Guide*.

SNODEID(id, pswd, newpswd)

specifies security user IDs and passwords at the remote node. Use this parameter only to validate security with a different ID than the one you used to sign on to Connect:Direct.

Note: Parameter values are case sensitive.

id specifies the security ID passed to the security system on the remote node (1–64 alphanumeric characters).

pswd specifies the current security password and is used by the security system on the SNODE to validate the current security password (1–64 alphanumeric characters). This is optional unless the user has security set to require a password.

newpswd specifies the new security password and is used by the security system to change the current security password to the new security password (1–64 alphanumeric characters).

Note: newpswd is not supported if the remote node is an OS/400 node.

TBUFND(n)

specifies the number of I/O buffers VSAM uses for transmitting data between virtual and auxiliary storage. Valid values range from 1–510. The default is 2. Increasing this number generally improves the I/O performance on the file but requires more memory. This parameter is valid for OS/390 nodes only.

TDBPARMS(dbid, dbsubid)

indicates that the Connect:Direct OS/390 SQL SERVER is to process the I/O request against the database identified by the subparameters of this keyword and defined by the SQL= parameter. The DBPARMS parameter is used with the optional Connect:Direct OS/390 SQL feature. This parameter is valid for OS/390 nodes only. Only DB2 is supported.

To determine the values to code for access to a given DB2 table or set of DB2 tables, consult the database administrator.

dbid specifies the 1–4 byte DB2 database ID.

dbsubid specifies the 1–4 byte DB2 database sub ID.

TDCB(modeldcb, blksize, den, dsorg, keylen, limct, lrecl, optcd, recfm, rkp, trtch)

overrides attributes of the source file. For existing source and destination files, DCB attributes are determined from the operating system unless specified. For a new destination file, the DCB attributes of the source file are used to allocate the destination file unless DCB information is provided in the operation.

modeldcb specifies a model data set control block (DSCB).

blksize specifies the block length in bytes. The minimum and maximum lengths are 18 bytes, and 32,760 bytes.

den specifies the magnetic tape mode setting. The following table shows values for the DEN parameter for 7- and 9-track tapes. When coded together, the DEN and TRTCH values are used to select a tape device for allocation by Connect:Direct OS/390.

| DEN | 7-Track Tape | 9-Track Tape |
|-----|--------------|--------------|
| 1 | 556 bpi | -- |
| 2 | 800 bpi | 800 bpi |
| 3 | -- | 1600 bpi |
| 4 | -- | 6250 bpi |

dsorg specifies the file organization. Supported file organizations are BDAM, ISAM, PO, PS, and VSAM.

keylen specifies the length of the keys used in a file. Maximum length in bytes is 255.

limct specifies the blocks or tracks searched to find a free block or available space.

lrecl specifies the record length in bytes.

optcd establishes optional processing associated with a specific file. This optional processing only applies to this file and is not automatically applied to other files involved in a RECEIVE operation. Valid options are:

W performs write validity checks on direct access storage devices.

Q performs ASCII-to-EBCDIC conversion for input files and EBCDIC-to-ASCII conversion for output files. **Q** is the default and only used for AL-labeled tape files.

Z performs reduced error recovery for tape files.

recfm specifies the format of the records in the file. You can specify any valid record format, such as:

F specifies fixed format.

FA specifies fixed format with ASA printer control.

FB specifies fixed block format.

FBA specifies fixed block format with ANSI carriage control.

FM specifies fixed format with machine code control character.

U specifies undefined format.

V specifies variable format.

VB specifies variable block.

VBA specifies variable block format with ASA printer control.

VBM specifies variable block format with machine code control character.

VS specifies variable spanned format.

VBS specifies variable block spanned format.

For FDR volumes, you must specify RECFM=U.

rkp specifies the position of the first byte of the record key within each logical record. The beginning byte of a record is addressed as **0**.

trtch specifies the magnetic tape mode setting. When coded together, the TRTCH and DEN values are used to select a tape device for allocation by Connect:Direct OS/390. Valid options are:

C specifies data conversion, odd parity, and no translation.

E sets no data conversion, even parity, and no translation.

T specifies no data conversion, odd parity, and BCD or EBCDIC translation.

ET specifies no data conversion, even parity, and BCD or EBCDIC translation.

COMP is a feature for 3480X tape drives only. It enables Improved Data Recording Capability (IDRC), which compresses the data. This subparameter overrides the system-wide IDRC setting for no compression. If you are specifying COMP, you must also include a UNIT= parameter that specifies either 3480X or a systems-programmer-defined name equivalent to a 3480X tape drive.

NOCOMP overrides the system-wide IDRC setting for compression. NOCOMP applies to 3480X tape drives only.

TDISP(current, normal end, abnormal end)
specifies the status of the file on the remote node.

current specifies the status of the file before the operation executes. Valid choices for this subparameter are:

NEW specifies that the operation creates the destination member for an existing file. NEW is the default. The file is created if the member does not exist. The file cannot be created if the member already exists.

OLD specifies that the destination member already exists. The operation has exclusive control of the member.

MOD specifies that the operation modifies the member by adding data to the end of the member or, if none exists, allocates a new member. The file is also created if it does not exist.

RPL specifies that the destination member replaces any existing member or, if none exists, allocates a new member. The file is created if it does not exist.

SHR specifies that the destination member already exists. The file is read simultaneously by another job or operation.

Note: Normal and abnormal second disposition are not applicable when sending to Connect:Direct OS/400.

For information on parameters for other platforms, refer to the appropriate volume of the *Connect:Direct Process Statements Guide*.

TIOEXIT(program-name)

specifies the name of the user-written program to be given control for I/O-related requests for the associated data. This parameter is valid for OS/390 nodes only.

TIOPARM(parameter-name)

establishes a parameter, or list of parameters, to be passed to the specified exit. The TIOPARM syntax is dependent on the parameter list required by the program specified in TIOEXIT. This parameter is valid for OS/390 nodes only.

TLABEL(seqno,labeltype,pswdread,inout,retpd,expdt)

specifies label information for the tape. This parameter is valid for OS/390 nodes only.

seqno specifies the relative file position on the tape.

labeltype is designated as:

SL specifies IBM standard labels.

AL specifies American National Standard labels.

BLP specifies bypass label processing.

LTM specifies bypass leading tape marks.

NL specifies no labels.

pswdread specifies that a password must be given by the operator or user before the file is accessed.

inout specifies that a BSAM data set opened for INOUT or a BDAM data set opened for UPDAT is to be read only.

retpd specifies the retention period for the data set in days, where *nnnn* is 1–4 digits.

expdt specifies the expiration date for the data set, where *yyddd* or *yyyyddd* is a valid Julian date.

TLINK(vmid,pwd,accmode,uu)

specifies the disk where the CMS file is located. This parameter allows the user to access the CMS file. This parameter is valid for VM or VSE nodes only.

vmid specifies the owner ID for the CMS minidisk where the file is located. The valid length ranges from 1–8 characters.

pwd specifies the appropriate password for the CMS minidisk where the file is located. The maximum length is 256 characters. The default password is ALL.

accmode specifies the link access mode.

When used with the FROM parameter, the access modes are **W** (primary read/write access), **M** (primary multiple access), **R** (primary read only), **RR** (primary and secondary read only access), **WR** (primary read/write access; alternate read only access), **MR** (primary multiple access; alternate read only access), and **MW** (primary multiple access; alternate read/write only access).

When used with the TO parameter, the access modes are **W**, **M**, and **MW**.

uu specifies the virtual address of the disk where the CMS file is located. Any three-digit number is valid.

TMSVGP(n)

specifies the remote file mass storage volume group that resides on a mass storage system (MSS) device, which must be a valid DD (data definition) name. This parameter is valid for OS/390 nodes only.

TPROTCT(*YES|*NO)

specifies whether an IBM RACF profile is created for a new file on a remote VM system.

TRACEOPT**Trace Instructions**

(L, S, F, C, X, K, D, H, V, W, P|*NONE|*ALL|*EXT| *COMMON|*INITPARMS|*CURRENT

specifies the trace bits that define functions to be traced by Connect:Direct OS/400. The following are valid options:

- ❖ **L** enables the main line logic trace for all components.
- ❖ **S** enables the Process step logic trace.
- ❖ **F** enables the file handler trace.
- ❖ **C** enables the communications logic trace.
- ❖ **X** enables the XDR trace.
- ❖ **K** enables the KQV logic trace.
- ❖ **D** enables the all-purpose data dump.
- ❖ **H** enables the FMH dump.
- ❖ **V** enables the XDR dump.
- ❖ **W** enables the communications dump.
- ❖ **P** enables the CIPC dump.
- ❖ ***NONE** turns off all traces.
- ❖ ***ALL** enables all product traces.(L, S, F, C, X, K, D, H, V, W and P)
- ❖ ***EXT** enables all product traces plus two system traces (TRCICF and TRCJOB).
- ❖ ***COMMON** enables the communications traces. (L, S, F, C, and H)

- ❖ ***INITPARMS** indicates the traces specified in the initialization parameters.
- ❖ ***CURRENT** selects the trace bits that the session manager is currently using.

Command Trace Options

L,S,F,C,X,K,D,H,V,P|*ALL|*EXT|*COMMON| *NONE

specifies the trace bits that define functions to be traced for this command but not for the Process it runs. The following are valid options:

- ❖ **L** enables the main line logic trace for all components.
- ❖ **S** enables the Process step logic trace.
- ❖ **F** enables the file handler trace.
- ❖ **C** enables the common logic trace.
- ❖ **X** enables the XDR trace.
- ❖ **K** enables the KQV logic trace.
- ❖ **D** enables the all-purpose data dump.
- ❖ **H** enables the FMH dump.
- ❖ **V** enables the XDR dump.
- ❖ **P** enables the CIPC dump.
- ❖ ***ALL** enables all product traces.(L, S, F, C, X, K, D, H, V, and P)
- ❖ ***EXT** enables all product traces plus two other traces. (TRCICF and TRCJOB)
- ❖ ***COMMON** enables the most commonly used traces. (L, S, F, C, and H)
- ❖ ***NONE** turns off all traces.

TSPACE(**avgblk**, **type**, **primary**, **secondary**, **pdsblk**, **rlse**, **contig**, **round**)

specifies the amount of storage to be allocated for new files on the destination node. If TSPACE is specified, the DISP of the destination file must be NEW. If TSPACE is not specified and the DISP is NEW, space allocation defaults to the value obtained from the source file (unless a TTYPE has been specified). The default allocation is in blocks, and if supplied with the ROUND option, provides device-independent space allocation. This parameter is valid only for OS/390 nodes.

avgblk defines the average block size.

type defines the space allocation. Valid values are:

- ❖ **CYL** specifies that space is to be allocated by cylinder.
- ❖ **TRK** specifies that space is to be allocated by track.
- ❖ **blk** specifies that space is to be allocated by the average block length of the data and is the default. The system computes the number of tracks to be allocated. If the subparameter ROUND is also specified, the system allocates the space in cylinders. ROUND is preferred because allocation is performed on cylinders in a device-independent manner. If no space information is coded, allocation is in blocks, due to device dependencies.

primary specifies the primary allocation of storage (number of units).

secondary specifies the secondary allocation of storage (number of units).

pdsblk specifies the number of PDS directory blocks to be created in the file.

rlse sets the release of unused storage allocated to the output file. Valid values are *YES and *NO.

contig specifies the contiguous storage for the primary allocation. Valid values are *YES and *NO.

round specifies the rounding of storage allocated by average block length to an integral number of cylinders. Valid values are *YES and *NO.

TSQL(sql-statement|DSN=data-set-name)

defines the SQL statement to be processed against the database identified by the DBPARMS parameter or the DSN containing the SQL statements(s). The SQL parameter is used with the optional Connect:Direct for SQL feature. This parameter is valid for OS/390 nodes only.

sql-statement defines the actual SQL statement to be processed.

data-set-name specifies the data set containing the SQL statement or statements to be processed.

TTYTYPE(name)

specifies the entry name of the type defaults file on the remote node that contains the default file attributes used to allocate the destination file. TTYTYPE is required only if sending to a MS-DOS node.

TUNIT(unit-name)

specifies the unit address, device type, or user-assigned group name where the file resides or will reside. For SAM-to-SAM copies where the destination file is new and the UNIT parameter is not coded, the device type from the source file is used. For VSE nodes, you must specify either this parameter or TVOL.

Specify a unit-count to allow additional units to be allocated if required, or specify **P** to allocate the same number of units as volumes and then parallel mount the volumes.

TVOL(*YES|*NO)

specifies the volume serial number(s) containing the file and optional processing associated with the file. If TVOL is not specified, the file must be cataloged. For VSE nodes, you must specify either this parameter or TUNIT.

private specifies allocation of an output file only if the volume is specifically requested and is used for direct access storage devices only. Valid values are *YES and *NO.

volcount specifies the maximum number of volumes required by an output file.

ser identifies by serial number the volumes where the output file resides or will reside.

TVOLREF(data-set-name)

allows you to place a data set on the same volume as the referenced data set. It must be cataloged on the system where it is referenced. This parameter is valid for OS/390 nodes only.

TVSAMCAT(dsn,vmid,pwd,accmode,cuu)

specifies the catalog for the VSAM file to be copied. This parameter is required only if using a catalog other than the master catalog. This parameter is valid for VSE nodes only.

dsn specifies the filename of the VSAM catalog containing the file to be copied. The maximum length is 44 characters.

vmid specifies the owner ID for the VSAM minidisk where the file is located. The maximum length is eight characters.

pwd specifies the appropriate password for the VSAM minidisk where the file is located. The maximum length is eight characters.

accmode specifies the link access mode. Valid access modes are NULL, **W** (primary read/write access), **M** (primary multiple access), and **MW** (primary multiple access; alternate read/write only access).

cuu specifies the virtual address of the disk where the VSAM file is located. Any three-digit number is valid.

Sending a Spooled File to a Remote Node

Use the **Connect:Direct Send Spool (CDSNDSPL)** screens to send a spooled file to a remote node. Complete the following steps to send a spooled file to a remote node:

1. Access the **CDSNDSPL** screens by typing **CDSNDSPL** at the command line and pressing **F4** or by choosing the send spooled file option from the Connect:Direct main menu.
2. Type the remote node name and press **Enter**. The command retrieves the remote node environment and display fields for required parameters.
3. Type values for required and any optional parameters as appropriate and press **Enter**.

The following is a sample of the **Connect:Direct Send Spool (CDSNDSPL)** screen.

```
Connect:Direct Send Spool File (CDSNDSPL)

Type choices, press Enter.

Receiving Node Name . . . . . _____
Receiving Node Environment . . . _____ AS400, MSP, MVS, OS400...
Spooled file . . . . . _____ Name
Job name:
    User Id . . . . . _____ Name, *
    Number . . . . . _____ 000000-999999
Spooled file number . . . . . _____ 1-9999, *ONLY, *LAST
Receiving File Name . . . . . _____

Bottom
F3=Exit  F4=Prompt  F5=Refresh  F12=Cancel  F13=How to use this display
F24=More keys
```

Running a Remote Task

This chapter describes the Connect:Direct Run Task (CDRUNTASK) command and its function. This chapter also shows sample **CDRUNTASK** screens and describes the required and optional CL parameters for the CDRUNTASK command.

Using the CDRUNTASK Command

Use the CDRUNTASK command to run a task at a remote node. This command allows user programs, or subtasks, to be attached and run as a subtask under the remote Connect:Direct during command execution.

For additional information, refer to the appropriate RUN TASK chapter of the *Connect:Direct Process Statements Guide* for information about the remote node.

Note: RUN JOB and RUN TASK Process statements use the authenticated user's JOBD for the library list and not the CDJOB library list, which is the CDADMIN job description used to start Connect:Direct. RUN JOB and RUN TASK Process statements use the CDJOBQ job queue.

CDRUNTASK Command Example

The command shown in the following figure is an example of the CDRUNTASK command.

```
CDRUNTASK      PNAME(CDTASK) SNODE(DALLAS.OS3901)
               SNODENVIRN(OS390) PGM(ACCTUPDT)
               PARM('CL44'DALLAS.ACCTDATA' 'CL44'
                   'DALLAS.REPORT''')
```

CDRUNTASK Example With New TraceOpt Parameters

```

==> CDRUNTASK SNODE(CDDV3500) SNODENVIRN(AS400)
CMD('WRKACTJOB SBS(CDDV3500) OUTPUT(*PRINT)') TRACEOPT(*ALL *ALL)
SNODEID(RMTUSER ())

The associated Statistics record:

                                Display Spooled File
File . . . . . :   CDSELSTAT                                Page/Line   1/6
Control . . . . .                               Columns    1 - 130
Find . . . . .
*...+...1...+...2...+...3...+...4...+...5...+...6...+...7...
C:D/400          Select Statistics (CDSELSTAT) Detail 03/16/04 11:03:12 Page 0001

-----
Event:           Communications Session Started (SMSES)
Process Name:    CDTASK                                     Process Number: 00014891
Date/Time:       03/16/04      10:57:12
Local Node:      CDDV3500                                   Local User:    LCLUSER
Remote Node:     CDDV3500
Protocol:        TCP/IP                                    Type:         INIT
Message Id:      ASMT292I

-----
Event:           Process Started (SMPST)
Process Name:    CDTASK                                     Process Number: 00014891
Date/Time:       03/16/04      10:57:12
Local Node:      CDDV3500                                   Local User:    RMTUSER
Remote Node:     CDDV3500
Submit User:     CDDV3500                                   Pnode:        N

-----
Event:           Process Started (SMPST)
Process Name:    CDTASK                                     Process Number: 00014891
Date/Time:       03/16/04      10:57:13
Local Node:      CDDV3500                                   Local User:    LCLUSER
Remote Node:     CDDV3500
Submit User:     IDEVUSER                                   Pnode:        Y

```

CDRUNTASK Command Format

The following are the parameters for the CDRUNTASK command. Required parameters are in bold.

| Command | Parameters |
|-----------|--|
| CDRUNTASK | SNODE(remote-node-name) |
| | SNODENVIRN(remote-environment-name) |
| | † PGM(program-name) |
| | ‡ CMD(command) |
| | CLASS(n) |
| | CRC(* INITPARMS *NETMAP *OFF *ON) |
| | NOTIFY(userid) |
| | ‡‡ PARM(parameters) |

† For tasks on OS/390, Windows, Tandem, VM, and VSE

‡ For tasks on OS/400, Windows, OpenVMS, UNIX, Stratus VOS

‡‡ For tasks on OS/390, Tandem, VM, and VSE

| Command | Parameters |
|--|---|
| | PNAME(name) |
| | PNODEID(id, pswd, newpswd) |
| | RMTWORK(*YES *NO) |
| | SACCT(snode-accounting-data) |
| | SNODEID(id, pswd, newpswd) |
| | TRACEOPT Trace Instructions: (L,S,F,C,X,K,D,H,V,W,P *NONE *ALL *EXT *COMMON *INITPARMS *CURRENT Command Trace Options: L,S,F,C,X,K,D,H,V,W,P *ALL *EXT *COMMON *NONE) |
| † | For tasks on OS/390, Windows, Tandem, VM, and VSE |
| ‡ | For tasks on OS/400, Windows, OpenVMS, UNIX, Stratus VOS |
| †‡ | For tasks on OS/390, Tandem, VM, and VSE |
| Note: The CLASS parameter is not used by Connect:Direct OS/400. | |

Required Parameters

The following two parameters are required when you use the CDRUNTASK command.

SNODE(remote-node-name)

specifies a 1–16 character alphanumeric name for the remote node.

Note: This value is case sensitive.

SNODENVIRN(remote-environment-name)

specifies the remote environment to execute the task.

One of the next two parameters is required for the CDRUNTASK command. Each parameter lists the environments for which they apply.

PGM(program-name)

specifies the RUN TASK program name on the remote node. The following environments can use this parameter: OS/390, Windows, Tandem, VM, and VSE

CMD(command)

specifies batch-capable OS/400 CL commands and parameters for a remote node. The maximum number of permitted characters is 256. The following environments can use this parameter: OS/400, MS-DOS, Windows, OpenVMS, UNIX, and Stratus VOS.

Refer to the *Connect:Direct Process Statements Guide* for parameter values for the remote node.

Optional Parameters

The following parameters are optional. Unless otherwise noted, the parameters apply to all remote node environments.

CLASS(n)

determines the node-to-node session on which a Connect:Direct operation can execute. The CLASS is a number from 1–255. If you do not specify the CLASS parameter, it defaults to the maximum number of sessions defined in the mode description for the communications environment.

Note: The CLASS parameter is not used by Connect:Direct OS/400.

CRC(*INITPARMS|*NETMAP|*OFF|*ON)

Determines whether node and Process statement overrides for Cyclic Redundancy Check (CRC) are allowed. If this value is set to *OFF, setting overrides for CRC checking will be ignored. The default value is *INITPARMS.

*INITPARMS specifies that the CRC setting is determined by the value for the initialization parameter TCP.CRC.

*NETMAP specifies that the CRC setting is determined by the value for the NETMAP parameter, Cyclic Redundancy Check. The value for the initialization parameter TCP.CRC must be set to *ON and the value for the initialization parameter TCP.CRC.OVERRIDE must be set to *YES.

*OFF specifies that CRC is disabled.

*ON specifies that CRC is enabled.

NOTIFY(userid)

specifies the user ID on the local node to receive status messages that are directed to the message queue of the user.

PARM(parameters)

specifies the remote parameters needed for the program specified in the PGM parameter. This parameter is valid for tasks on OS/390, Tandem, VM, and VSE.

PNAME(name)

identifies the Connect:Direct Process in any messages or statistics. The name is from 1 to 12 characters long. The first character must be alphabetic. The default name is CDSND.

Note: Only Connect:Direct OS/400 and Connect:Direct UNIX support Process names with more than 8 characters.

PNODEID(id, pswd, newpswd)

specifies security user IDs and passwords at the local node. Only use this parameter to validate security with a different ID than the one you used to sign on to Connect:Direct.

id specifies the security ID passed to the security system at the local node (1–10 alphanumeric characters).

pswd specifies the current security password for the specified ID. The security system at the local node can use this parameter to validate the current security password (1–10 alphanumeric characters). This is optional unless the user has security set to require a password.

newpswd specifies the new security password. The security system can use this parameter to change the current security password to the new security password (1–10 alphanumeric characters).

Note: Although you can specify a value for the new password, Connect:Direct OS/400 does not currently support this parameter.

RMTWORK(*YES|*NO)

specifies whether a remote Process can run on the session after Connect:Direct OS/400 has completed its Process on the session.

***YES** allows a remote Process to run on the session after the Connect:Direct OS/400 completes its Process.

***NO** terminates the session after Connect:Direct OS/400 executes the command function. ***NO** is the default.

SACCT(snode-accounting-data)

specifies the accounting data for the remote node. The maximum length of the accounting data is 256 characters. If special characters are part of the accounting data, the string must be enclosed in single quotation marks.

SNODEID(id, pswd, newpswd)

specifies security user IDs and passwords at the remote node. This parameter should only be used to validate security with a different ID than the one you used to sign on to Connect:Direct.

id specifies the security ID passed to the security system on the remote node (1–64 alphanumeric characters).

pswd specifies the current security password and is used by the security system on the SNODE to validate the current security password (1–64 alphanumeric characters). This parameter is optional unless the user has security set to require a password.

newpswd specifies the new security password and is used by the security system to change the current security password to the new security password (1–64 alphanumeric characters).

Note: newpswd is not valid if the remote node is a Connect:Direct OS/400 node.
Parameter values are case sensitive.

TRACEOPT

Trace Instructions

(L, S, F, C, X, K, D, H, V, W, P,|*NONE|*ALL|*EXT| *COMMON|*INITPARMS|*CURRENT

specifies the trace bits that define functions to be traced by Connect:Direct OS/400. The following are valid options:

- ❖ **L** enables the main line logic trace for all components.
- ❖ **S** enables the Process step logic trace.
- ❖ **F** enables the file handler trace.
- ❖ **C** enables the communications logic trace.
- ❖ **X** enables the XDR trace.
- ❖ **K** enables the KQV logic trace.
- ❖ **D** enables the all-purpose data dump.
- ❖ **H** enables the FMH dump.
- ❖ **V** enables the XDR dump.
- ❖ **W** enables the communications dump.
- ❖ **P** enables the CIPC dump.
- ❖ ***NONE** turns off all traces.
- ❖ ***ALL** enables all product traces.(L, S, F, C, X, K, D, H, V, W and P)

- ❖ ***EXT** enables all product traces plus two system traces (TRCICF and TRCJOB).
- ❖ ***COMMON** enables the communications traces. (L, S, F, C, and H)
- ❖ ***INITPARMS** indicates the traces specified in the initialization parameters.
- ❖ ***CURRENT** selects the trace bits that the session manager is currently using.

Command Trace Options

L,S,F,C,X,K,D,H,V,P|*ALL|*EXT|*COMMON| *NONE)

specifies the trace bits that define functions to be traced for this command but not for the Process it runs. The following are valid options:

- ❖ **L** enables the main line logic trace for all components.
- ❖ **S** enables the Process step logic trace.
- ❖ **F** enables the file handler trace.
- ❖ **C** enables the common logic trace.
- ❖ **X** enables the XDR trace.
- ❖ **K** enables the KQV logic trace.
- ❖ **D** enables the all-purpose data dump.
- ❖ **H** enables the FMH dump.
- ❖ **V** enables the XDR dump.
- ❖ **P** enables the CIPC dump.
- ❖ ***ALL** enables all product traces.(L, S, F, C, X, K, D, H, V, and P)
- ❖ ***EXT** enables all product traces plus two other traces. (TRCICF and TRCJOB)
- ❖ ***COMMON** enables the most commonly used traces. (L, S, F, C, and H)
- ❖ ***NONE** turns off all traces.

Using the CDRUNTASK Screens

Use the **Connect:Direct Run Task (CDRUNTASK)** screen to initiate a task on the remote node.

Initiating a Task on a Remote Node

Complete the following steps to initiate a task on a remote node:

1. Access the CDRUNTASK screen by typing **CDRUNTASK** at the command line and pressing **F4** or by selecting the Run Task option from the main menu.
2. Type the remote node name at the command prompt and press **Enter**. The command retrieves the remote node environment and display fields for required parameters.
3. Type values for required and optional parameters as appropriate, and press **Enter**.

The following figure shows a sample of the first screen in the **Connect:Direct Run Task (CDRUNTASK)** screen flow for a Connect:Direct OS/400 remote environment.

```

Connect:Direct Run Task (CDRUNTASK)

Type choices, press Enter.

Remote Node Name . . . . . > DALLAS
Remote Environment . . . . . > OS400      AS400, MVS, OS390, OS400...
Remote Task Command . . . . . _____

-----
CRC . . . . . *INITPARMS  *INITPARMS, *NETMAP, *ON, *OFF
Trace Options:
  Trace Instructions . . . . . *CURRENT_____
  Command trace options . . . . *NONE_____
Process Name . . . . . CDTASK      Name
Local Node User Info.:
  User Id . . . . . *CURRENT_____  Character value, *CURRENT
  Password . . . . . _____      Character value
  New Password . . . . . _____   Character value
  User to Notify . . . . . *CURRENT_____  Name, *CURRENT, *NONE
                                          More...
F3=Exit  F4=Prompt  F5=Refresh  F12=Cancel  F13=How to use this display
F24=More keys

```

Additional screens vary according to the remote node environment.

Submitting a Job on a Remote Node

This chapter describes the Connect:Direct Run Job (CDRUNJOB) command and its function. This chapter also shows sample **CDRUNJOB** screens and describes the required and optional CL parameters for the CDRUNJOB command.

Using the CDRUNJOB Command

Use the CDRUNJOB command to submit a job on the remote node. The job can be:

- ❖ A CL command that is submitted on a remote OS/400 node.
- ❖ JCL that is submitted by the remote Connect:Direct for OS/390, VM, or VSE to the OS/390, VM, or VSE system.
- ❖ A UNIX command or program that is submitted by Connect:Direct Windows, or UNIX to the Windows, or UNIX node.
- ❖ An OpenVMS command or program to submit a job on the OpenVMS node.

The command, JCL, or program must exist on the remote system before you submit it with CDRUNJOB.

Note: RUN JOB and RUN TASK Process statements use the authenticated user's JOBD for the library list and not the CDJOB library list, which is the CDADMIN job description used to start Connect:Direct. RUN JOB and RUN TASK Process statements use the CDJOBQ job queue.

CDRUNJOB Command Example

The command shown in the following figure is an example of the CDRUNJOB command.

```
CDRUNJOB      SNODE(DALLAS.OS3901) SNODENVIRN(OS390)
              JOBFILE('USER1.AS400.CNTL(IEFBR14)')
              SNODEID(USERID PASSWORD)
```

For additional examples, refer to the *Connect:Direct Process Concepts and Examples Guide*.

CDRUNJOB Command Format

The following are the parameters for the CDRUNJOB command. Required parameters are in bold.

| Command | Parameters |
|--|--|
| CDRUNJOB | SNODE(node-name) |
| | SNODENVIRN(environment-name) |
| | BATCHID(idname) |
| | CLASS(n) |
| | CRC(* INITPARMS I*NETMAP N*OFF F*ON O) |
| | †JOBFILE(filename) |
| | LINK(CMS-file-information) |
| | NOTIFY(userid) |
| | PNAME(name) |
| | PNODEID(userid,pswd,newpswd) |
| | RMTWORK(* YES * NO) |
| | SACCT(SNODE accounting-data) |
| | SNODEID(userid,pswd,newpswd) |
| | ‡TSYSOPTS(remote-job-command) |
| | TRACEOPT Trace Instructions: (L,S,F,C,X,K,D,H,V,W,P * NONE * ALL * EXT * COMMON * INITPARMS * CURRENT Command Trace Options: L,S,F,C,X,K,D,H,V,P * ALL * EXT * COMMON * NONE) |
| | † Valid for OS/390, OpenVMS, VM, VSE, and Windows only |
| | ‡ Valid for OS/400, MS-DOS, OpenVMS, UNIX, Stratus VOS, and Windows |
| Note: The CLASS parameter is not used by Connect:Direct OS/400. | |

Required Parameters

The following parameters are required. Unless otherwise noted, the parameters apply to all remote node environments.

SNODE(node-name)

specifies a 1–16 character alphanumeric name for the remote node.

Note: This value is case sensitive.

SNODENVIRN(environment-name)

specifies the remote environment to execute the job.

Optional Parameters

The following parameters, listed alphabetically, are optional. Unless otherwise noted, the parameters apply to all remote node environments.

BATCHID(idname)

specifies the VM remote Virtual Machine ID name. The valid range is 1–8 characters.

CLASS(n)

determines the node-to-node session where a Connect:Direct operation can execute. The CLASS is a number from 1–255. If you do not specify the CLASS parameter, it defaults to the maximum number of sessions defined in the mode description for the communications environment.

Note: The CLASS parameter is not used by Connect:Direct OS/400.

CRC(*INITPARMS|*NETMAP|N*OFF|F*ON|O)

Determines whether node and process statement overrides for Cyclic Redundancy Check (CRC) are allowed. If this value is set to *OFF, setting overrides for CRC checking will be ignored. The default value is *INITPARMS.

*INITPARMS (or *I) specifies that the CRC setting is determined by the value for the initialization parameter TCP.CRC.

*NETMAP (or *N) specifies that the CRC setting is determined by the value for the NETMAP parameter, Cyclic Redundancy Check. The value for the initialization parameter TCP.CRC must be set to *ON and the value for the initialization parameter TCP.CRC.OVERRIDE must be set to *YES.

*OFF (or *F) specifies that CRC is disabled.

*ON (or *O) specifies that CRC is enabled.

JOBFILE(filename)

specifies the name of the file that contains the job to be submitted. This file must already exist on the node where the job is to be submitted.

LINK(CMS-file-information)

specifies where the CMS file is located. This parameter allows you to access the VM CMS file.

owner id specifies the user ID for the owner of the CMS minidisk where the file is located.

owner password specifies the password for the CMS minidisk where the file is located. This parameter accepts 1–8 characters. The default is ALL.

LINK access mode specifies the LINK access mode. The following entries are valid:

- ❖ W for primary read/write
- ❖ M for primary multiple access
- ❖ R for primary read only
- ❖ RR for primary and secondary read only
- ❖ WR for primary read/write; alternate read only
- ❖ MW for primary multiple access; alternate read/write

virtual address specifies the virtual address of the disk where the CMS file is located. A three-digit number is valid.

NOTIFY(userid)

specifies the user ID on the local node to receive status messages that are directed to the message queue of the user.

PNAME(name)

identifies the Process in any messages or statistics related to the operation. The name is from 1–12 characters long. The first character must be alphabetic. The default name is CDSND.

Note: Only Connect:Direct OS/400 and Connect:Direct UNIX support Process names with more than 8 characters.

PNODEID(id, pswd, newpswd)

specifies security user IDs and passwords at the local node. You should only use this parameter to validate security with a different ID than the one you used to sign on to Connect:Direct.

id specifies the security ID passed to the security system at the local node (1–10 alphanumeric characters).

pswd specifies the current security password for the specified ID. The security system at the local node can use this parameter to validate the current security password (1–10 alphanumeric characters). This is optional unless you have security set to require a password.

newpswd specifies the new security password. The security system can use this parameter to change the current security password to the new security password (1–10 alphanumeric characters).

Note: Although you can specify a value for the new password, Connect:Direct OS/400 does not support this parameter.

RMTWORK(*YES|*NO)

specifies whether a remote Process can run on the session after Connect:Direct OS/400 has completed its Process on the session.

***YES** allows a remote Process to run on the session after Connect:Direct OS/400 completes its Process.

***NO** terminates the session after Connect:Direct OS/400 executes the command function.

SACCT(SNODE accounting-data)

specifies the accounting data for the remote node. The maximum length of the accounting data is 256 characters. If special characters are part of the accounting data, the string must be enclosed in single quotation marks.

SNODEID(userid, pswd, newpswd)

specifies security user IDs and passwords at the remote node. You should only use this parameter to validate security with a different ID than the one you used to sign on to Connect:Direct.

userid specifies the security ID passed to the security system on the remote node (1–64 alphanumeric characters).

pswd specifies the current security password and is used by the security system on the SNODE to validate the current security password (1–64 alphanumeric characters). This is optional unless the user has security set to require a password.

newpswd specifies the new security password and is used by the security system to change the current security password to the new security password (1–64 alphanumeric characters).

Note: Parameter values are case sensitive.
Newpswd is not valid if the remote node is a Connect:Direct OS/400 node.

TRACEOPT

Trace Instructions

(L, S, F, C, X, K, D, H, V, W, P, |*NONE|*ALL|*EXT| *COMMON|*INITPARMS|*CURRENT)

specifies the trace bits that define functions to be traced by Connect:Direct OS/400. The following are valid options:

- ❖ **L** enables the main line logic trace for all components.
- ❖ **S** enables the Process step logic trace.
- ❖ **F** enables the file handler trace.
- ❖ **C** enables the communications logic trace.
- ❖ **X** enables the XDR trace.
- ❖ **K** enables the KQV logic trace.
- ❖ **D** enables the all-purpose data dump.
- ❖ **H** enables the FMH dump.
- ❖ **V** enables the XDR dump.
- ❖ **W** enables the communications dump.
- ❖ **P** enables the CIPC dump.
- ❖ ***NONE** turns off all traces.
- ❖ ***ALL** enables all product traces.(L, S, F, C, X, K, D, H, V, W and P)
- ❖ ***EXT** enables all product traces plus two system traces (TRCICF and TRCJOB).
- ❖ ***COMMON** enables the communications traces. (L, S, F, C, and H)
- ❖ ***INITPARMS** indicates the traces specified in the initialization parameters.
- ❖ ***CURRENT** selects the trace bits that the session manager is currently using.

Command Trace Options

(L,S,F,C,X,K,D,H,V,P|*ALL|*EXT|*COMMON| *NONE)

specifies the trace bits that define functions to be traced for this command but not for the Process it runs. The following are valid options:

- ❖ **L** enables the main line logic trace for all components.
- ❖ **S** enables the Process step logic trace.
- ❖ **F** enables the file handler trace.
- ❖ **C** enables the common logic trace.
- ❖ **X** enables the XDR trace.
- ❖ **K** enables the KQV logic trace.
- ❖ **D** enables the all-purpose data dump.
- ❖ **H** enables the FMH dump.
- ❖ **V** enables the XDR dump.
- ❖ **P** enables the CIPC dump.

- ❖ ***ALL** enables all product traces.(L, S, F, C, X, K, D, H, V, and P)
- ❖ ***EXT** enables all product traces plus two other traces. (TRCICF and TRCJOB)
- ❖ ***COMMON** enables the most commonly used traces. (L, S, F, C, and H)
- ❖ ***NONE** turns off all traces.

TSYSOPTS(remote-job-command)

specifies system-specific submission information. For a remote OS/400 system, this parameter specifies a string 'cmd(any valid batch CL command) [any valid parameters for the OS/400 SBMJOB command]'. This CL command is submitted on the remote OS/400 system through a SBMJOB command. This parameter is valid for OS/400, OpenVMS, UNIX, Stratus VOS, and Windows.

See the *Connect:Direct Process Statements Guide* for valid platform-specific parameters.

Using the CDRUNJOB Screens

Use the **Connect:Direct Run Job (CDRUNJOB)** screens to submit a job to a remote node.

Submitting a Job to a Remote Node

Complete the following steps to submit a job to a remote node:

1. Access the **CDRUNJOB** screens by typing **CDRUNJOB** at the command line and pressing **F4** or by selecting the RUNJOB option from the main menu.
2. Type the remote node name at the command prompt and press **Enter**. The command retrieves the remote node environment and display fields for required parameters.
3. Type values for required and optional parameters as appropriate and press **Enter**. Additional screens displays as required by the remote node type.

The primary **CDRUNJOB** screen looks similar to the following.

```

Connect:Direct Run Job (CDRUNJOB)

Type choices, press Enter.

Remote Node Name . . . . . > hotpepper_____
Remote Environment . . . . . > AS400_____ AS400, MVS, OS390, OS400...
Remote Job command . . . . . _____

_____
_____

CRC . . . . . *INITPARMS *INITPARMS, *NETMAP, *ON, *OFF
Trace Options:
  Trace Instructions . . . . . *CURRENT_____
  Command trace options . . . . . *NONE_____
Process Name . . . . . CDJOB_____ Name
Local Node User Info.:
  User Id . . . . . *CURRENT_____ Character value, *CURRENT
  Password . . . . . _____ Character value
  New Password . . . . . _____ Character value
  User to Notify . . . . . *CURRENT_____ Name, *CURRENT, *NONE
                                                    More...

F3=Exit  F4=Prompt  F5=Refresh  F12=Cancel  F13=How to use this display
F24=More keys
    
```

Submitting a Connect:Direct Process on a Remote Node

This chapter describes the Connect:Direct Submit (CDSUBMIT) command and its function. This chapter also shows sample **CDSUBMIT** screens and describes the CL parameters used for the CDSUBMIT command.

Using the CDSUBMIT Command

Use the CDSUBMIT command to submit a Connect:Direct Process on a remote node. This command allows you to perform the following tasks:

- ❖ Initiate a session with a remote node
- ❖ Submit a Process to the remote Connect:Direct
- ❖ Override certain parameters of the submitted Process

The remote node must support the Connect:Direct Process language.

Note: The Process to be submitted must exist on the remote system.

CDSUBMIT Command Example

The following example presents a sample of the CDSUBMIT command.

```
CDSUBMIT SNODE(OS390.V20100) SNODENVIRN(OS390) PROCFILE(file1.tst) PNAME(CDSUBOS390)
```

CDSUBMIT Command Format

The following are the parameters for the CDSUBMIT command. Required parameters are in bold.

| Command | Parameters |
|----------|--|
| CDSUBMIT | SNODE(remote-node-name) |
| | SNODENVIRN(remote-environment-name) |
| | PROCFILE(file-name) |

† These parameters override the associated parameters of the remote Connect:Direct Process.

| Command | Parameters |
|---------|---|
| | CLASS(n <u>MODED</u>) |
| | CRC(* <u>INITPARMS</u> *NETMAP *OFF *ON) |
| | †NEWNAME(file-name <u>NONE</u>) |
| | NOTIFY(* <u>CURRENT</u> *NONE userid) |
| | †PCLASS(n) |
| | †PHOLD(*YES *NO *CALL) |
| | PNAME(process-name) |
| | PNODEID(id,pswd,newpswd) |
| | †PNOTIFY(userid) |
| | †PPACCT(PNODE accounting-data) |
| | †PPNODEID(id,pswd,newpswd) |
| | †PPRTY(n) |
| | †PREQUEUE(*YES *NO) |
| | †PRETAIN(*YES *NO *INITIAL) |
| | †PSACCT(SNODE accounting-data) |
| | †PSNODE(secondary-node-name) |
| | †PSNODEID(id,pswd,newpswd) |
| | †PSTARTT(day date,time) |
| | †PSYMBOLS(&symbolic n = variable n) |
| | RMTWORK(*YES *NO) |
| | SACCT(SNODE accounting-data) |
| | SNODEID(id,pswd,newpswd) |
| | TRACEOPT Trace Instructions: (L,S,F,C,X,K,D,H,V,W,P *NONE *ALL *EXT *COMMON *INITPARMS <u>CURRENT</u> Command Trace Options: L,S,F,C,X,K,D,H,V,W,P *ALL *EXT *COMMON * <u>NONE</u>) |

† These parameters override the associated parameters of the remote Connect:Direct Process.

Note: The CLASS parameter is not used by Connect:Direct OS/400.

Required Parameters

The following parameters are required. Unless otherwise noted, the parameters apply to all remote node environments.

SNODE(remote-node-name)

specifies a 1–16 character alphanumeric name for the remote node.

SNODENVIRN(remote-environment-name)

specifies the remote node environment.

PROCFILE(file-name)

specifies the name of the file or member that contains the Connect:Direct Process to be submitted.

This file must already exist on the node where the Connect:Direct Process is to be submitted.

For information about parameters for the remote node, refer to the *Connect:Direct Process Statements Guide*.

Optional Parameters

The following parameters are optional. Unless otherwise noted, the parameters apply to all remote node environments.

CLASS(n|*MODED)

determines the node-to-node session on which an operation can execute. The CLASS is a number from 1–255. If you do not specify the CLASS parameter, it defaults to the number of maximum sessions defined in the mode description for the communications environment.

Note: The CLASS parameter is not used by Connect:Direct OS/400.

*MODED uses the class value specified for the destination node.

CRC(*INITPARMS|*NETMAP|*OFF|*ON)

Determines whether node and process statement overrides for Cyclic Redundancy Check (CRC) are allowed. If this value is set to *OFF, setting overrides for CRC checking will be ignored. The default value is *INITPARMS.

*INITPARMS specifies that the CRC setting is determined by the value for the initialization parameter TCP.CRC.

*NETMAP specifies that the CRC setting is determined by the value for the NETMAP parameter, Cyclic Redundancy Check. The value for the initialization parameter TCP.CRC must be set to *ON and the value for the initialization parameter TCP.CRC.OVERRIDE must be set to *YES.

*OFF specifies that CRC is disabled.

*ON specifies that CRC is enabled.

NEWNAME(file-name|*NONE)

specifies a new name to be given to the submitted Process on the remote system. This name overrides the name in the Process file.

file-name specifies the name for the submitted Process on the remote system.

*NONE uses the name specified in the Process.

NOTIFY(*CURRENT|*NONE|userid)

specifies the user ID on the receiving node to receive status messages that are directed to the message queue of the user.

*CURRENT uses the ID of the current user.

*NONE indicates that no user receives the messages.

userid specifies the name of the user to receive the status messages.

PCLASS(n)

specifies the Connect:Direct Process CLASS for the submitted remote Process. This entry overrides the class specified in the Process.

PHOLD(*YES|*NO|*CALL)

specifies whether the submitted remote Process is placed in the hold queue at submission. The default is the HOLD value of the Process.

***YES** specifies that the Process submits to the hold queue.

***NO** specifies that the Process executes as soon as possible.

***CALL** specifies that the remote Process is placed in the hold queue until a session is established with its SNODE.

PNAME(process-name)

identifies the Process in any messages or statistics. The name is from 1 to 12 characters long. The first character must be alphabetic. The default name is CDSND.

Note: Only Connect:Direct OS/400 and Connect:Direct UNIX support Process names with more than 8 characters.

PNODEID(id, pswd, newpswd)

specifies security user IDs and passwords at the local node. Use this parameter only to validate security with a different ID than the one you used to sign on to Connect:Direct. Do not use PNODEID when both the ID and password match on the local and remote nodes.

id specifies the security ID passed to the security system at the local node (1–10 alphanumeric characters).

pswd specifies the current security password for the specified ID. The security system at the local node can use this parameter to validate the current security password (1–10 alphanumeric characters). This is optional unless the user has security set to require a password.

newpswd specifies the new security password.

Note: Although you can specify a value for newpswd, Connect:Direct OS/400 does not support this parameter.

PNOTIFY(userid)

specifies the user who is to receive remote Process completion messages. This entry overrides the one specified in the Process.

PPACCT(PNODE accounting-data)

specifies the accounting data for the PNODE in the submitted remote Process. This entry overrides the one specified in the Process.

PPNODEID(id,pswd,newpswd)

specifies the primary node user ID and password for the submitted remote Process. This entry overrides the one specified in the Process.

Note: Parameter values are case sensitive.

PPRTY(n)

specifies the Connect:Direct priority class for the submitted remote Process. This entry overrides the one specified in the Process. The valid range is 0–15.

PREQUEUE(*YES|*NO)

specifies whether a copy step should be requeued with HE status after an abnormal termination. This parameter is only valid when checkpointing.

PRETAIN(*YES|*NO|*INITIAL)

tells Connect:Direct OS/400 to keep a copy of the remote Process in the hold queue of the remote node after the Process executes.

***INITIAL** specifies that the Process executes each time the remote Connect:Direct is initialized.

PSACCT(SNODE accounting-data)

specifies the accounting data for the remote node in the remote submitted Process. This entry overrides the one specified in the Process.

PSNODE(secondary node-name)

specifies the secondary node for the submitted remote Process. This entry overrides the one specified in the submitted remote Process.

PSNODEID(id,pswd,newpswd)

specifies the secondary node user ID and password for the submitted remote Process. This entry overrides the one specified in the Process.

Note: Parameter values are case sensitive.

PSTARTT(day|date,time)

specifies the day or date and time the submitted remote Process is to execute. The date format must be specified as the format expected by the remote node. The time field is 10 characters in length and the date field is 9 characters in length.

PSYMBOLS(&symbolic n = variable n)

specifies values to be used for symbolic substitution in the submitted remote Process.

RMTWORK(*YES|*NO)

specifies whether a remote Process can run on the session after Connect:Direct OS/400 has completed its Process on the session.

***YES** allows a remote Process to run on the session after the Connect:Direct OS/400 completes its Process.

***NO** terminates the session after Connect:Direct OS/400 executes the command function.

SACCT(SNODE accounting-data)

specifies the accounting data for the remote node. The maximum length of the accounting data is 256 characters. If special characters are part of the accounting data, the string must be enclosed in single quotation marks.

SNODEID(id,pswd,newpswd)

specifies security user IDs and passwords at the remote node. This parameter should only be used to validate security with a different user ID than the one you used to sign on to Connect:Direct.

id specifies the security user ID passed to the security system on the remote node (1–64 alphanumeric characters).

pswd specifies the current security password on the remote node and is used by the security system on the remote node to validate the current security password (1–64 alphanumeric characters). This is optional unless the user has security set to require a password.

newpswd specifies the new security password and is used by the security system to change the current security password to the new security password (1–64 alphanumeric characters).

Note: Connect:Direct OS/400 does not support newpswd if the remote node is an OS/400 node. Parameter values are case sensitive.

TRACEOPT

Trace Instructions

(L, S, F, C, X, K, D, H, V, W, P, |*NONE|*ALL|*EXT| *COMMON|*INITPARMS|*CURRENT

specifies the trace bits that define functions to be traced by Connect:Direct OS/400. The following are valid options:

- ❖ **L** enables the main line logic trace for all components.
- ❖ **S** enables the Process step logic trace.
- ❖ **F** enables the file handler trace.
- ❖ **C** enables the communications logic trace.
- ❖ **X** enables the XDR trace.
- ❖ **K** enables the KQV logic trace.
- ❖ **D** enables the all-purpose data dump.
- ❖ **H** enables the FMH dump.
- ❖ **V** enables the XDR dump.
- ❖ **W** enables the communications dump.
- ❖ **P** enables the CIPC dump.
- ❖ ***NONE** turns off all traces.
- ❖ ***ALL** enables all product traces.(L, S, F, C, X, K, D, H, V, W and P)
- ❖ ***EXT** enables all product traces plus two system traces (TRCICF and TRCJOB).
- ❖ ***COMMON** enables the communications traces. (L, S, F, C, and H)
- ❖ ***INITPARMS** indicates the traces specified in the initialization parameters.
- ❖ ***CURRENT** selects the trace bits that the session manager is currently using.

Command Trace Options

L,S,F,C,X,K,D,H,V,P|*ALL|*EXT|*COMMON| *NONE)

specifies the trace bits that define functions to be traced for this command but not for the Process it runs. The following are valid options:

- ❖ **L** enables the main line logic trace for all components.
- ❖ **S** enables the Process step logic trace.
- ❖ **F** enables the file handler trace.
- ❖ **C** enables the common logic trace.
- ❖ **X** enables the XDR trace.
- ❖ **K** enables the KQV logic trace.
- ❖ **D** enables the all-purpose data dump.

- ❖ **H** enables the FMH dump.
- ❖ **V** enables the XDR dump.
- ❖ **P** enables the CIPC dump.
- ❖ ***ALL** enables all product traces.(L, S, F, C, X, K, D, H, V, and P)
- ❖ ***EXT** enables all product traces plus two other traces. (TRCICF and TRCJOB)
- ❖ ***COMMON** enables the most commonly used traces. (L, S, F, C, and H)
- ❖ ***NONE** turns off all traces.

Using the CDSUBMIT Screens

Use the **CDSUBMIT** screens to submit a Connect:Direct Process on a remote node.

Submitting a Process on a Remote Node

Complete the following steps to submit a Process on a remote node:

1. Access the **CDSUBMIT** screens by typing **CDSUBMIT** at the command line and pressing **F4** or by selecting the **SUBMIT** option from the main menu.
2. Type the remote node name at the command prompt and press **Enter**. The command retrieves the remote node environment and display fields for required parameters.
3. Type values for required and optional parameters as appropriate and press **Enter**. Additional screens relative to the remote environment are displayed.

Connect:Direct Submit Primary Screen

The following is a sample of the first screen in the **Connect:Direct Submit (CDSUBMIT)** screen flow.

```

Connect:Direct Submit (CDSUBMIT)

Type choices, press Enter.

Remote Node Name . . . . . > MVS.LEVEL1
Remote Environment . . . . . > OS/390      MVS, OS390, MSP, VSE, VM...
Remote process file name . . . . . 'KMOOR1.AS400.CNT($BOTH)'
-----
CRC . . . . . *INITPARMS      *INITPARMS, *NETMAP, *ON, *OFF
Trace Options:
  Trace Instructions . . . . . *CURRENT
  Command trace options . . . . . *NONE
Process Name . . . . . CDSUBMIT      Name
Local Node User Info.:
  User Id . . . . . *CURRENT      Character value, *CURRENT
  Password . . . . .           Character value
  New Password . . . . .           Character value
  User to Notify . . . . . *CURRENT      Name, *CURRENT, *NONE

More...
F3=Exit   F4=Prompt   F5=Refresh   F12=Cancel   F13=How to use this display
F24=More keys

```

Controlling Processes

Connect:Direct OS/400 implements a Connect:Direct Process Management Queue. You can use two commands to schedule, control, and monitor any active or queued Processes:

- ❖ CDSUBPROC command allows you to:
 - ◆ Submit Connect:Direct Processes for asynchronous execution
 - ◆ Control certain characteristics of the execution
- ❖ WRKCDPROC command allows you to work with active or queued Connect:Direct Processes. With this command, you can perform the following Process tasks:
 - ◆ Schedule
 - ◆ Control
 - ◆ Monitor

This chapter explains the Process Management Queue, the CDSUBPROC command, and the WRKCDPROC command and their use for Process management.

Understanding the Process Management Queue

The Process Management Queue is a repository for Processes currently in the Connect:Direct OS/400 system. Five logical queues are associated with the Process Management Queue:

- ❖ ACTIVQ - active, executing Processes
- ❖ WAITQ - Processes waiting to run
- ❖ HOLDQ - Processes currently held
- ❖ TIMERQ - Processes waiting for a timer event
- ❖ STARTQ - Processes being activated

Understanding Asynchronous and Synchronous Processes

The Process Management Queue contains synchronous and asynchronous Processes.

Asynchronous Processes are those submitted using the CDSUBPROC command. These Processes are scheduled and maintained according to run instructions provided in the CDSUBPROC command.

Synchronous Processes are Connect:Direct commands issued through CL programs and CL commands other than CDSUBPROC. They cannot be scheduled once they are in the Process Management Queue.

The Process Management Queue handles all processes:

- ❖ Local Synchronous (Examples: CDSND, CDRCV, CDRUNTASK)
- ❖ Local Asynchronous (CDSUBPROC)
- ❖ Remote

Submitting Processes for Asynchronous Execution

The CDSUBPROC command allows you to submit a Connect:Direct Process to the Process queue for asynchronous execution. This command also allows you to determine:

- ❖ When the Process starts
- ❖ Whether the Process is retained in the queue after execution
- ❖ Whether the Process is placed in the HOLD queue initiall

Note: For TDSN and FDSN, the values of *LIBL, *CURLIB, QTEMP cannot be used when sending to or from an OS/400 system using Connect:Direct OS/400. A specific library name must be used for copying from or to a data set on the OS/400.

CDSUBPROC Command Example

The following command example shows the CDSUBPROC command used to submit an asynchronous Process.

```
CDSUBPROC CMD(CDSND SNODE(remote.node) SNODENVIRON(Windows)
FDSN('library/file(mbr)') TDSN('\\system\drive\directory\file')
FMSYSOPTS('TYPE(mbr)')) STARTT('11/22/96' *NOON *WEEK) RETAIN(*YES)
```

CDSUBPROC Command Format

The following format is for the CDSUBPROC command. Required parameters are shown in bold print.

| Command | Parameters |
|-----------|----------------------------|
| CDSUBPROC | CMD(command string) |
| | HOLD(*YES *NO) |
| | PRIORITY(<i>n</i>) |
| | RETAIN(*YES *NO *INITIAL) |
| | STARTT(day,time,freq) |

| Command | Parameters |
|---------|---|
| | TRACEOPT Trace Instructions: (L,S,F,C,X,K,D,H,V,W,P *NONE *ALL *EXT *COMMON *INITPARMS *CURRENT Command Trace Options: L,S,F,C,X,K,D,H,V,P *ALL *EXT *COMMON *NONE) |

Required Parameter

The CMD parameter is required for the CDSUBPROC command.

CMD(command string)

specifies the Connect:Direct command string to execute. This value must be a valid Connect:Direct OS/400 command with any required parameters and subparameters. Connect:Direct checks the command and its parameters at submission. If the command or the parameters are not valid, the submission fails with an error message.

Optional Parameters

The following parameters are optional for the CDSUBPROC command.

HOLD(*YES|*NO)

specifies whether Connect:Direct places the Process in the HOLD queue upon submission.

*YES places the Process in the HOLD queue immediately. HOLD(*YES) is mutually exclusive with the STARTT parameter.

*NO prevents Connect:Direct from placing the Process in the HOLD queue.

PRIORITY(n)

specifies a priority value for the submitted Process. This parameter determines the Process position in the Process WAIT queue and can affect the order of Process execution. The value is 1–15, with 15 being the highest priority. The default value is 7.

RETAIN(*YES|*NO|*INITIAL)

specifies whether Connect:Direct keeps a copy of the Process in the HOLD queue after the Process executes.

*YES places the Process in the HOLD queue after execution.

*NO deletes the Process after execution.

*INITIAL indicates that the Process executes every time the Connect:Direct OS/400 node initializes. If you select *INITIAL, the Process does not execute when you submit it.

STARTT(day,time,freq)

specifies when the submitted command runs. Day and time together indicate the scheduled time. Frequency indicates a repeated execution. If you specify frequency, Connect:Direct ignores any RETAIN parameter.

day specifies the day of the week when the Process is executed. You can specify any of the following: *NONE, *SUN, *MON, *TUE, *WED, *THU, *FRI, *SAT, *TODAY, *TOMORROW, or the date. If you specify the date, you must give the date in the job date format. Input dates are interpreted according to the date format of the current job (OS/400 job date format).

If you use day without a time, the time defaults to 00:00 (midnight). The default value is *NONE, which indicates no scheduled day.

time indicates the time of day when the Process runs. You can specify time as any of the following: *NONE, *NOON, *MIDNIGHT, or hh:mm:ssXM.

If you give time in the hh:mm:ssXM format, you can enter the time with or without separators. Minutes and seconds are optional. If you do not enter minutes and seconds, they default to 00. If you specify AM or PM, Connect:Direct assumes the time is in 12-hour format. If you do not select AM or PM, Connect:Direct assumes the time is in 24-hour format.

If you specify time but not day, the Process is run on the first occurrence of the specified time.

frequency indicates how often the Process runs. You can determine the frequency by entering one of the following selections: *NONE, *DAY, or *WEEK.

If you enter *NONE, the Process is run only once automatically. *DAY indicates that the Process is run every day at the same time after the first scheduled time. *WEEK releases the Process weekly at the same time and day of the week as the first execution.

TRACEOPT

Trace Instructions

(L, S, F, C, X, K, D, H, V, W, P, |*NONE|*ALL|*EXT| *COMMON|*INITPARMS|*CURRENT

specifies the trace bits that define functions to be traced by Connect:Direct OS/400. The following are valid options:

- ❖ **L** enables the main line logic trace for all components.
- ❖ **S** enables the Process step logic trace.
- ❖ **F** enables the file handler trace.
- ❖ **C** enables the communications logic trace.
- ❖ **X** enables the XDR trace.
- ❖ **K** enables the KQV logic trace.
- ❖ **D** enables the all-purpose data dump.
- ❖ **H** enables the FMH dump.
- ❖ **V** enables the XDR dump.
- ❖ **W** enables the communications dump.
- ❖ **P** enables the CIPC dump.
- ❖ ***NONE** turns off all traces.
- ❖ ***ALL** enables all product traces.(L, S, F, C, X, K, D, H, V, W and P)
- ❖ ***EXT** enables all product traces plus two system traces (TRCICF and TRCJOB).
- ❖ ***COMMON** enables the communications traces. (L, S, F, C, and H)
- ❖ ***INITPARMS** indicates the traces specified in the initialization parameters.
- ❖ ***CURRENT** selects the trace bits that the session manager is currently using.

Command Trace Options

L,S,F,C,X,K,D,H,V,P|*ALL|*EXT|*COMMON| *NONE)

specifies the trace bits that define functions to be traced for this command but not for the Process it runs. The following are valid options:

- ❖ **L** enables the main line logic trace for all components.
- ❖ **S** enables the Process step logic trace.

- ❖ **F** enables the file handler trace.
- ❖ **C** enables the common logic trace.
- ❖ **X** enables the XDR trace.
- ❖ **K** enables the KQV logic trace.
- ❖ **D** enables the all-purpose data dump.
- ❖ **H** enables the FMH dump.
- ❖ **V** enables the XDR dump.
- ❖ **P** enables the CIPC dump.
- ❖ ***ALL** enables all product traces.(L, S, F, C, X, K, D, H, V, and P)
- ❖ ***EXT** enables all product traces plus two other traces. (TRCICF and TRCJOB)
- ❖ ***COMMON** enables the most commonly used traces. (L, S, F, C, and H)
- ❖ ***NONE** turns off all traces.

Using the CDSUBPROC Screens

Use the **Connect:Direct Submit Process (CDSUBPROC)** screen to submit a Connect:Direct Process to the Process queue for asynchronous execution.

Submitting a Process for Asynchronous Execution

Complete the following steps to submit a Process to the Process queue for asynchronous execution:

1. Access the **CDSUBPROC** screen by typing **CDSUBPROC** at the command line and pressing **F4** or by choosing the submit process option from the Connect:Direct menu.
2. Enter the parameters that define the Process execution: **CMD**, **STARTT**, **RETAIN**, **HOLD**, and **PRIORITY**.
3. After you enter the command, press **F4** to display the applicable entry fields for the command.
4. After you complete the parameters for the CDSUBPROC command, press **Enter**. Your Process name and number are assigned and displayed. The Process is placed in the Process Management Queue.

The following screen is an example of the **Connect:Direct Submit Process** screen.

```

Submit C:D Process (CDSUBPROC)

Type choices, press Enter.

Connect:Direct command . . . . . CMD_____
_____
_____
_____
_____
_____
_____
...

Execution date & time:
  Start date . . . . . *NONE_____ Character value, *SUN...
  Start time . . . . . *NONE_____ Character value, *NONE...
  Frequency . . . . . *NONE_____ *NONE, *DAY, *WEEK
Retain process after execution *NO_____ *NO, *YES, *INITIAL
Hold process on queue . . . . . *NO_____ *NO, *YES
Priority on queue . . . . . 7_____ 1-15

Bottom
F3=Exit   F4=Prompt   F5=Refresh   F10=Additional parameters   F12=Cancel
F13=How to use this display   F24=More keys
    
```

Working with Connect:Direct Processes

Use the WRKCDPROC command to schedule, monitor, and control the Processes. The following options are available:

Selecting Specific Processes

Selection options allow you to specify the Processes with which you work.

Viewing All Processes

The Display option allows you to view detailed information for all Processes, including execution information for active Processes, both synchronous and asynchronous.

Note: Your system administrator specifies the user's authority. If you do not have administrative authority, you can only select Processes that you submit.

WRKCDPROC Command Example

The following command example shows the WRKCDPROC command used to work with Connect:Direct Processes.

```
WRKCDPROC QNAME(ACTIVQ) PNAME(CDSND) PNUM(1896)
```

WRKCDPROC Command Format

The following syntax is for the WRKCDPROC command.

| Command | Parameters |
|-----------|--|
| WRKCDPROC | PNAME(*ALL name generic) |
| | PNUM(n *ALL) |
| | PUSER(*ALL name generic) |
| | QNAME(ACTIVQ HOLDQ WAITQ TIMERQ STARTQ *ALL) |
| | RMTNODE(*ALL name generic) |
| | TYPE(_ L R S A) |

Required Parameters

There are no required parameters for the WRKCDPROC command. If you do not specify any parameters, Connect:Direct displays information for all Processes that you are authorized to view.

Optional Parameters

The following parameters are optional for the WRKCDPROC command.

PNAME(*ALL|name|generic)

specifies the Connect:Direct Processes you are selecting. The PNAME parameter can contain 1 to 12 characters and has the following options:

***ALL** indicates that you select all Process names.

name is the name of a specific Process you want to select. Enter the name of a Connect:Direct Process.

generic identifies a generic Process name. For example, CD* selects all Processes that begin with CD.

PNUM(n|*ALL)

specifies the Process number for the selected Process. This parameter has two options:

***ALL** indicates that you select all Process numbers.

n is the number of a specific Process you want to select. Enter the number of a Connect:Direct Process.

PUSER(*ALL|name|generic)

specifies the Connect:Direct Processes submitted by a specific user. This parameter has the following options:

***ALL** indicates that you choose all submitter IDs.

name is the user ID of a specific user whose Processes you want to select. Enter the user ID of a Connect:Direct user.

generic identifies a generic user name. For example, TH* would select Processes submitted by all users whose submitter IDs begin with TH.

QNAME(ACTIVQ|HOLDQ|WAITQ|TIMERQ|STARTQ|*ALL)

specifies the Connect:Direct queue for the Processes you want to select. This parameter has six options:

ACTIVQ selects all Processes that are currently executing.

HOLDQ selects all Processes that are currently in the HOLD queue.

WAITQ selects all Processes that are waiting for a session manager to run.

TIMERQ selects all Processes that are awaiting execution time or retry time after a session failure.

STARTQ selects all Processes that are ready for execution.

***ALL** selects all Processes.

RMTNODE(*ALL|name|generic)

specifies the selection of Processes that have the specified remote node name. The RMTNODE parameter has the following three options:

***ALL** indicates all remote node names.

name indicates the name of a specific remote node.

generic indicates a generic node name. For example, CD* would select all remote node names that begin with CD.

TYPE(*|L|R|S|A)

specifies the category or type of Connect:Direct Process to select. Five values are options for the TYPE parameter:

***** specifies all Processes.

L specifies all Processes initiated on the local node.

R specifies all Processes initiated on the remote node.

S specifies all synchronous Processes initiated on the local node.

A specifies all Processes except synchronous processes initiated on the local node.

Using the WRKCDPROC Screens

Use the **Work with Connect:Direct Process (WRKCDPROC)** screen to monitor and control Processes in the subsystem.

Monitoring and Controlling Processes

Complete the following steps to monitor or control a Process:

1. Access the **WRKCDPROC** screen by typing **WRKCDPROC** at the command line and press **F4** or choose the Work with Connect:Direct Processes option from the Connect:Direct main menu.
2. Complete the information requested on the screen and press **Enter**.

The following screen is an example of the **Work with Connect:Direct Process** prompt screen.

```

Work with C:D Process (WRKCDPROC)

Type choices, press Enter.

Process Type . . . . . *          *, L, R, S, A
Process Queue . . . . . *ALL      *ALL, ACTIVQ, HOLDQ, WAITQ...
Process Name . . . . . *ALL      Character value
Process number . . . . . *ALL     Character value
Processing User . . . . . *ALL    Character value
Remote Node . . . . . *ALL

F3=Exit  F4=Prompt  F5=Refresh  F12=Cancel  F13=How to use this display
F24=More keys
Bottom

```

The next screen is a sample of the **WRKCDPROC** screen (View 1) that displays in response to the information you entered on the prompt screen.

```

Work with C:D Process

Type option and press Enter.
  2=Change  3=Hold  4=Delete  5=Display  6=Release  7=End  8=Suspend

Process          Process          Remote
Opt  Name        Number  Ty  Queue  Submitter  Node        Task
CDSND  00014895  A  HOLDQ  IDEVUSER  FRAN.CDDV3500

F1=Help  F3=Exit  F5=Refresh  F11=View 2  F12=Cancel  F21=Command line
Bottom

```

Press **F11** to display View 2, which provides additional information about Processes you selected. You can select an option to monitor or change Processes from this screen or the View 1 screen.

| Work with C:D Process | | | | | | | |
|------------------------------|--------------|----------------|------------|-------------|------------------|----------------|------------|
| Type option and press Enter. | | | | | | | |
| 2=Change | | 3=Hold | | 4>Delete | | 5=Display | |
| 6=Release | | 7=End | | 8=Suspend | | | |
| Opt | Process Name | Process Number | Ty | Security ID | Scheduled Date | Scheduled Time | Retry Prty |
| | CDSND | 00014895 | A | IDEVUSER | | : : | 00 07 |
| | | | | | | | Bottom |
| F1=Help | F3=Exit | F5=Refresh | F11=View 2 | F12=Cancel | F21=Command line | | |

WRKCDPROC Option Descriptions

The seven options you can select from the **Work With Connect:Direct Process** screens are described in the following paragraphs. To select these options, type the appropriate number in the option column next to the applicable Process.

Changing Process Characteristics

Change (Option 2) allows you to modify certain Process characteristics. This option is only valid for asynchronous local Processes. The date format is subject to the interpretation of the job currently running.

Moving an Nonexecuting Asynchronous Process

Hold (Option 3) allows you to move a nonexecuting asynchronous Process (WAIT or TIMER queue) to the HOLD queue. No additional screen is displayed.

Removing an Nonexecuting Asynchronous Process

Delete (Option 4) allows you to remove a nonexecuting asynchronous Process from the system. The Process is in any queue except ACTIVE or WAITQ when you delete it. When you delete a Process, a confirmation panel displays.

Displaying Process Details

Display (Option 5) provides you the option to display details about any Process in the system. A sample of the Process information follows.

Note: If Connect:Direct Secure+ Option is installed and you have proper authority, a **WRKCDPROC** screen containing Secure+ Option information displays after you press **Enter**. Refer to the *Connect:Direct Secure+ Option Implementation Guide* for additional information.

The following is an example of the **Display C:D Process** screen.

```

                                Display C:D Process

Process Name . . : CDSND                Queue . . . . : HOLDQ
Number . . . . : 00014895             Remote Node . : CDDV3500
Submitter . . . : LCLUSER              Priority . . . : 07
Frequency . . . : *NONE                 Retain . . . . : *NO
Submit Date . . : 03/16/04             Submit Time . : 11:59:28
Schedule Date . :                       Schedule Time :

----- Activity Details -----

Function . . . . :
From File . . . . :
From Member . . . :
To File . . . . :
To Member . . . . :
File Bytes . . . : 0
Transmitted . . . : 0
Compression % . . : 0.00
Check point . . . : *NO
% Complete . . . : N/A

F1=Help  F3=Exit  F5=Refresh  F12=Cancel  F21=Command line

```

Releasing a Process in the HOLD Queue

Release (Option 6) permits you to release a Process in the HOLD queue and move it to the WAIT queue. There it is available for execution. No additional screen displays.

Terminating and Flushing an Executing PNODE Process

End (Option 7) terminates and flushes any executing synchronous or asynchronous PNODE process from the system. A confirmation panel displays when you end a Process. The default for this option is *CNTRLD. The value *IMMED should not be used unless *CNTRLD has first been attempted.

Interrupting an Executing Asynchronous Process

Suspend (Option 8) allows you to interrupt any executing asynchronous Process. This option also allows you to move the Process to the HOLD queue (LOCAL). You can then release the (LOCAL) Process from the HOLD queue to resume execution or delete it. If the COPY operation was checkpointed, you can use suspend/release to interrupt the COPY and later resume it from the latest checkpoint.

Releasing or Holding Asynchronous Processes

RLSCDPROC and HLDCDPROC allow you to release all held Processes or all Processes currently in the Timer queue that meet the selection criteria identified when the command is entered. The commands can be used in either batch or interactive mode. Only local asynchronous Processes are considered for release. Following are sample RLSCDPROC and HLDCDPROC screens.

RLSCDPROC Screen

```
Release Held C:D Process (RLSCDPROC)

Type choices, press Enter.

Process Type . . . . . A          A
Process Queue . . . . . HOLDQ     HOLDQ
Process Name . . . . . *ALL       Character value
Process number . . . . . *ALL     Character value
Processing User . . . . . *ALL     Character value
Remote Node . . . . . *ALL

F1=Help  F3=Exit  F5=Refresh  F12=Cancel  F21=Command line
```

HLDCDPROC Screen

```
Hold Specified C:D Process (HLDCDPROC)

Type choices, press Enter.

Process Type . . . . . A          A
Process Queue . . . . . WAITQ     WAITQ, TIMERQ
Process Name . . . . . *ALL       Character value
Process number . . . . . *ALL     Character value
Processing User . . . . . *ALL     Character value
Remote Node . . . . . *ALL

F1=Help  F3=Exit  F5=Refresh  F12=Cancel  F21=Command line
```

Using Connect:Direct Statistics

Connect:Direct OS/400 logs statistics information for all Processes. Each component of Connect:Direct OS/400 generates statistics data to the statistics manager (STATMGR) job. The long-running STATMGR job formats the statistics information and writes it to the statistics file. You can view the results of the Processes by using the CDSELSTAT command. This chapter explains how to use the CDSELSTAT command, the command format, and the **CDSELSTAT** screens. For detailed information about the statistics facility, refer to the *Connect:Direct OS/400 Installation and Administration Guide*.

Selecting Statistics Information

Use the CDSELSTAT command to select statistics information for viewing or printing.

Specifying Selection Criteria

Specify several selection criteria to limit the records selected. The command selects records from either the active statistics file or a named statistics database file. Within the file, all members are available to CDSELSTAT and are viewed together as a single logical file.

CDSELSTAT Command Example

The following figure presents a sample CDSELSTAT command.

```
CDSELSTAT PERIOD('10:00:00' '11/13/98') PNAME(CDSND)
```

CDSELSTAT Command Format

The following table displays the command format for the CDSELSTAT command.

| Command | Parameters |
|-----------|--------------------------|
| CDSELSTAT | FILE(filename[*ACTIVE]) |
| | FORMAT(*SUMMARY *DETAIL) |
| | OUTPUT(␣ *PRINT) |

| Command | Parameters |
|---------|--|
| | PERIOD([start-time, end-time *NOON *MIDNIGHT *AVAIL] [start-date, end-date *TODAY *AVAIL]) |
| | PNUM(process-number *ALL) |
| | PNAME(process-name generic *ALL) |
| | PUSER(local-userid generic *ALL) |
| | RCDTPYE(record-type *ALL) |
| | RMTNODE(remote-node-name *ALL) |
| | TRACE(L,S,F,C,X,K,D,H,V,W,P *NONE *ALL *EXT *COMMON *INITPARMS *CURRENT) |

Required Parameters

The CDSELSTAT command has no required parameters.

Optional Parameters

The following parameters are optional for the CDSELSTAT command.

FILE(filename|*ACTIVE) allows you to specify the statistics database file to search.

filename specifies a statistics database file.

***ACTIVE** directs the command to search the file to which Connect:Direct is currently logging statistics.

FORMAT(*SUMMARY|*DETAIL) controls how the selection results are presented. Connect:Direct OS/400 presents the selected records in timestamp sequence regardless of the output format chosen. FORMAT allows you to select two formats.

***SUMMARY** specifies that the summary information for the selected record is presented as a single row in a scrollable list.

***DETAIL** specifies that the entire contents of information for the selected record is formatted into a spooled file. You can view this file at a display station, or you can queue the file to be printed. Each format is displayed or printed. When you use FORMAT(*SUMMARY) with OUTPUT(*), you can toggle between the two views.

OUTPUT(*|*PRINT) controls how the selection results are output. OUTPUT allows you to select two options.

***** specifies that the statistics information displays on the screen.

***PRINT** specifies that the statistics information is created as a spool file named CDSELSTAT.

PERIOD([start-time, end-time|*NOON|*MIDNIGHT|*AVAIL] [start-date, end-date|*TODAY|*AVAIL]) allows the search to be limited to a specific period of time rather than including the entire range available in the statistics file. The parameters for the PERIOD keyword are positional.

start-time and **end-time** specify the records being requested by giving the starting time and the ending time for statistics selection. Both start-time and end-time accept any one of the following subparameters:

hh:mm:ss XM indicates a beginning and/or an ending time to use as selection criteria for the requested records. Indicate the times as follows: hh specifies hours, mm specifies minutes, ss specifies seconds, XM specifies AM or PM. If you do not specify AM or PM, Connect:Direct assumes a 24-hour clock.

***NOON** specifies 12:00:00 for the time value

***MIDNIGHT** specifies 00:00:00 for the time value.

***AVAIL** specifies the earliest available time for the date specified.

start-date and **end-date** indicate the records being selected by date criteria for statistics selection. Both start-date and end-date accept one of the following formats:

mmddy, mm/dd/yy, mm.dd.yy.

Input dates are interpreted according to the date format of the current job (OS/400 job date format).

***TODAY** specifies the current date. The starting and ending date fields default to *TODAY.

***AVAIL** specifies the earliest and latest date in the file. The starting and ending time fields default to *AVAIL.

PNUM(process-number|*ALL) specifies the number of the Process to be selected.

PNAME(process-name|generic|*ALL) specifies the name of the Process to be selected. The PNAME parameter can contain 1 to 12 characters and allows generic selections.

PUSER(local-userid|generic|*ALL) specifies the local user ID of the Process to be selected. This parameter allows generic selections.

RCDTYPE(record-type|*ALL) specifies the record type of the Process to be selected.

RMTNODE(remote-node-name|*ALL) specifies the remote node name of the Process to be selected. This parameter allows generic selections.

TRACE

Trace Instructions

(L, S, F, C, X, K, D, H, V, W, P, |*NONE|*ALL|*EXT| *COMMON|*INITPARMS|*CURRENT)

specifies the trace bits that define functions to be traced by Connect:Direct OS/400. The following are valid options:

- ❖ **L** enables the main line logic trace for all components.
- ❖ **S** enables the Process step logic trace.
- ❖ **F** enables the file handler trace.
- ❖ **C** enables the communications logic trace.
- ❖ **X** enables the XDR trace.
- ❖ **K** enables the KQV logic trace.
- ❖ **D** enables the all-purpose data dump.
- ❖ **H** enables the FMH dump.
- ❖ **V** enables the XDR dump.
- ❖ **W** enables the communications dump.
- ❖ **P** enables the CIPC dump.
- ❖ ***NONE** turns off all traces.

- ❖ *ALL enables all product traces.(L, S, F, C, X, K, D, H, V, W and P)
- ❖ *EXT enables all product traces plus two system traces (TRCICF and TRCJOB).
- ❖ *COMMON enables the communications traces. (L, S, F, C, and H)

Using the CDSELSTAT Screens

Use the **CDSELSTAT** screen to select statistics information for viewing or printing. You can specify several selection criteria to limit the records selected or choose a summary of all records. In this section, two methods of displaying and printing both summary and detail statistics are shown.

Selecting and Displaying Summary Statistics

Complete the following steps to select and display summary statistics:

1. Access the **CDSELSTAT** screens by typing **CDSELSTAT** at the command line and pressing **F4** or by choosing the select statistics option (13) from the Connect:Direct main menu.
The following screen is a sample of the first screen in the **Connect:Direct OS/400 CDSELSTAT** screen flow.

```

                                Select C:D Statistics (CDSELSTAT)

Type choices, press Enter.

Input file name . . . . . *ACTIVE__ Name, *ACTIVE
Library . . . . . _____ Name, *LIBL
Time period for selection.:
  Period starting time . . . . . *AVAIL__ Time, *AVAIL
  Period starting date . . . . . *TODAY__ Date, *TODAY, *AVAIL
  Period ending time . . . . . *AVAIL__ Time, *AVAIL
  Period ending date . . . . . *TODAY__ Date, *TODAY, *AVAIL
Process number . . . . . *ALL__ Number, *ALL
Process name . . . . . *ALL__ Name, *ALL
User ID . . . . . *ALL__ Name, *ALL
Remote node name . . . . . *ALL__
Statistics record type . . . . . *ALL__ Record type, *ALL
      + for more values _____
Output destination . . . . . * __ * , *PRINT
Output format . . . . . *SUMMARY__ *SUMMARY, *DETAIL
Trace bits string . . . . . *NONE__ *NONE, trace string

                                                                Bottom
F3=Exit   F4=Prompt   F5=Refresh   F12=Cancel   F13=How to use this display
F24=More keys
  
```

2. To display summary information, press **Enter** (* is the default Output destination and *SUMMARY is the default Output format). The following screen, **Select C:D Statistics**, is displayed. The displayed summary information includes an option column where you can request to display or print detailed information about a particular statistics record. Type **5** in the option column for the Record type you want to review to

Selecting and Printing Detail Statistics

Complete the following steps to select and print detail statistics:

1. Access the **CDSELSTAT** screens by typing **CDSELSTAT** at the command line and pressing **F4** or by selecting the select statistics option from the Connect:Direct main menu.
The first CDSELSTAT screen is displayed.

```

                                Select C:D Statistics (CDSELSTAT)

Type choices, press Enter.

Input file name . . . . . *ACTIVE_____ Name, *ACTIVE
Library . . . . . _____ Name, *LIBL
Time period for selection.:
  Period starting time . . . . . *AVAIL_____ Time, *AVAIL
  Period starting date . . . . . *TODAY_____ Date, *TODAY, *AVAIL
  Period ending time . . . . . *AVAIL_____ Time, *AVAIL
  Period ending date . . . . . *TODAY_____ Date, *TODAY, *AVAIL
Process number . . . . . *ALL_____ Number, *ALL
Process name . . . . . *ALL_____ Name, *ALL
User ID . . . . . *ALL_____ Name, *ALL
Remote node name . . . . . *ALL_____
Statistics record type . . . . . *ALL_____ Record type, *ALL
      + for more values _____
Output destination . . . . . *PRINT_____ *, *PRINT
Output format . . . . . *DETAIL_____ *SUMMARY, *DETAIL
Trace bits string . . . . . *NONE_____ *NONE, trace string

                                                    Bottom
F3=Exit  F4=Prompt  F5=Refresh  F12=Cancel  F13=How to use this display
F24=More keys
    
```

2. To print a detail report of the CDSELSTAT file, change the Output destination to ***PRINT** and the Output format to ***DETAIL**, and then press **Enter**. Connect:Direct OS/400 creates a print version of the detail list and spools it for printing to the default output queue.

Note: The default output queue is named **CDOUT** and is located in the Connect:Direct library.

3. To display the list of spooled files in the output queue, at the command line, type **WRKOUTQ** *cdlib*/**CDOUT** where *cdlib* is the name of your Connect:Direct library.

```

                                Work with Output Queue

Queue: CDOUT           Library: CDLIB           Status: RLS

Type options, press Enter.
 1=Send  2=Change 3=Hold  4=Delete  5=Display  6=Release  7=Messages
 8=Attributes  9=Work with printing status

Opt  File           User           User Data  Sts  Pages  Copies  Form Type  Pty
--  ---           -
_   CDTRACE        CDDV3500      SMGR       RDY  159    1       *STD       5
_   CDLOG          CDDV3500              RDY    1     1       *STD       5
_   CDLOG          CDDV3500              RDY    1     1       *STD       5
_   CDLOG          CDDV3500              RDY    1     1       *STD       5
_   CDLOG          CDDV3500              RDY    1     1       *STD       5
_   CDTRACE        CDDV3500      RMTSYSTEM  RDY    5     1       *STD       5
_   CDLOG          CDDV3500              RDY    1     1       *STD       5
_   CDLOG          CDDV3500              RDY    1     1       *STD       5
5  CDSELSTAT      LCLUSER              RDY    27    1       *STD       5
                                           Bottom

Parameters for options 1, 2, 3 or command
====>
F3=Exit  F11=View 2  F12=Cancel  F20=Writers  F22=Printers
F24=More keys

```

4. In the Opt column, type **5** next to the CDSELSTAT spooled file and press **Enter** to go to the Display Spooled File screen. (If you have a lot of files in the output queue, you can press **F18** to quickly go to the bottom of the spooled file list.)

The following screen shows the results of using the display option, Output destination, (*PRINT).

```

                                Display Spooled File
File . . . . . : CDSELSTAT                               Page/Line  1/6
Control . . . . .
Columns      1 - 130
Find . . . . .

*...+...1...+...2...+...3...+...4...+...5...+...6...+...7...+...8...
+...9...+...0...+...1...+...2...+...3
C:D/400          Select Statistics (CDSELSTAT) Detail  03/18/04  15:45:05  Page 0001

-----
Event:          Job Submitted (JOBSUB)
Date/Time:     03/10/04    11:09:07
Job Name:      CDSMGR                               Job Number:  186005
Job Program:   SMMAIN

-----
Event:          General Message Event (GNMSG)
Date/Time:     03/10/04    11:09:07
Text:         C:D 400 Job submitted: CDSMGR.

-----
Event:          Job Started (JOBSTR)
Date/Time:     03/10/04    11:09:09
Job Name:      CDSMGR                               Job Number:  186005
Job Program:   SMMAIN

-----
Event:          General Message Event (GNMSG)
Date/Time:     03/10/04    11:09:10
Text:         Connect:Direct job started: 186005/CDDV3500/CDSMGR

More...
F3=Exit  F12=Cancel  F19=Left  F20=Right  F24=More keys
    
```

Compressing Files

This chapter describes the Connect:Direct Compress (CDCOMP) command and its function. This chapter also shows sample **CDCOMP** screens and describes the parameters used with the CDCOMP command.

Using the CDCOMP Command

Use the CDCOMP command to compress a file on the OS/400 node before sending it to a remote node.

Note: When you send a precompressed file to a remote node, specify the PRECMPR(*YES) in the FMSYSOPTS of the CDSND command to have the remote node decompress the file. See Chapter 3, *Sending a File*, for information on using the PRECMPR parameter with the Send operation. Tuning parameters are not supported with the CDCOMP command. If Secure+ Option is installed, PRECMPR(*YES) or DECMR(*NO) options cannot be specified.

Required CDCOMP Tasks

You must *always* complete one of the following activities when you use the CDCOMP command:

- ❖ Compress members into a newly created file. You can create the file manually, or you can allow CDCOMP to create the file.
- ❖ Ensure that the output file contains no members before you execute CDCOMP.
- ❖ Ensure that the output file is a physical data file with a record length of at least 256 bytes.

CDCOMP Command Example

The following command is an example of how to code the CDCOMP command.

```
CDCOMP INFILE(TESTLIB/FILE1) OUTFILE(TESTLIB/CMP_FILE)
      REPLACE(*YES) SELMBR((TEST1 TEST2)) EXCMR((M1 M2))
```

CDCOMP Command Format

The following table shows the format for the CDCOMP command.

| Command | Parameters |
|---------|--|
| CDCOMP | INFILE(library-name/file-name) |
| | OUTFILE(library-name/file-name) |
| | CKPTINV(n) |
| | EXCMBR(start-mbr end-mbr) |
| | REPLACE(*NO *YES) |
| | SELMBR(start-mbr end-mbr new-mbr) |

Required Parameters

The CDCOMP command has the following required parameters.

INFILE (library-name/file-name)

specifies the name and library of the file to be compressed. The input file is a database or a save file.

library-name specifies the name of the library to be used.

***LIBL** specifies that the library list is used to locate the input file.

***CURLIB** specifies that the current library for the job is used to locate the input file.

file-name specifies the name of the file to be compressed.

OUTFILE (library-name/file-name)

specifies the name and library of the database file to receive the compressed data. If the output file does not exist, it is created. The default value for library is *CURLIB.

library-name specifies the name of the library to be used.

***CURLIB** specifies that the current library for the job is used to locate the output file.

file-name specifies the name of the file to receive the compressed data.

Optional Parameters

The optional parameters, listed alphabetically, are as follows. Unless otherwise noted, the parameters apply to all remote node environments.

CKPTINV(n)

specifies the number of bytes, from 0–2 gigabytes, to send before taking a checkpoint. The format is *nnnnnnn*, *nnnnnnK*, or *nnnnnnM*, where **K** specifies thousands of bytes and **M** specifies millions of bytes. A value of **0** specifies no checkpoint/restart. Connect:Direct OS/400 uses the value you specify, rounded up to the nearest record boundary, to determine when to take a checkpoint.

The value specified here is later used as the checkpoint interval for subsequent transfers.

EXCMBR(start-mbr end-mbr)

specifies criteria by which file members are excluded from compression. In any case where a member meets the criteria of both the SELMBR and EXCMBR parameters, the EXCMBR specification overrides the selection of the member.

You can type in multiple sets of values for this parameter.

start-mbr specifies the name of the member to be excluded from compression or the first name in a range of members to be excluded. If no members are to be excluded, this field should be left blank.

Possible values are:

member-name specifies the name of the file member to be excluded from compression.

generic*-member-name specifies a generic member name to exclude all members whose names begin with the specified characters.

start-range specifies the first name in an alphanumeric range of members. Although member names in a range are treated as generics, they cannot be used with an asterisk (*). The first and last members specified in the range, as well as all members between, are excluded from compression.

end-mbr specifies the last name in a range of members to be excluded from compression. Possible values are:

***STARTMBR** specifies that the name of the last member in the range is the same as the first member in the range, limiting the range to a single member. You should also use this value if you specified a generic in the starting member name (start-mbr) field. This is the default.

end-range specifies the last name in an alphanumeric range of members. Although member names in a range are treated as generics, they cannot be used with an asterisk (*). The first and last members specified in the range, as well as all members between, are excluded from compression.

REPLACE (*NO|*YES)

specifies whether to replace the output member if it exists. This parameter applies to all members.

Possible values are:

***NO** specifies that the member is not replaced if it exists. *NO is the default.

***YES** specifies that the member is replaced if it exists.

SELMBR(start-mbr end-mbr new-mbr)

specifies criteria by which file members are selected for compression. In any case where a member meets the criteria of both the SELMBR and EXCMBR parameters, the EXCMBR specification overrides the selection of the member.

You can type in multiple sets of values for this parameter.

start-mbr specifies the name of the member to be compressed or the first name in a range of members to be compressed. Possible values are:

***INFILE** specifies the name of the member is the same as the name of the input file. *INFILE is the default.

***ALL** indicates all members in the input file is selected for compression.

member-name specifies the name of the file member to be compressed.

generic*-member-name specifies a generic member name to select all members whose names begin with the specified characters.

start-range specifies the first name in an alphanumeric range of members. Although member names in a range are treated as generics, they cannot be used with an asterisk (*). The first and last members specified in the range, as well as all members between, are compressed.

end-mbr specifies the last name in a range of members to be compressed. The possible values are:

***STARTMBR** indicates that the last member in the range is the same as the first member in the range, limiting the range to a single member. You should also use this value if you specified a generic in the Starting member name (start-mbr) field. ***STARTMBR** is the default.

end-range specifies the last name in an alphanumeric range of members. Although member names in a range are treated as generics, they cannot be used with an asterisk (*). The first and last members specified in the range, as well as all members between, are compressed.

new-mbr specifies a new name for the member specified in the start-mbr field. If ***ALL**, a generic*, or a range has been specified for member selection, this parameter must contain the ***NONE** value. Possible values are:

***NONE** indicates the name of the output member is the same as the name of the input member. ***NONE** is the default.

newname specifies the new name for the output member.

Using the CDCOMP Screen

Use the **Connect:Direct Compress File (CDCOMP)** screen to compress a file on the OS/400 node before sending it to a remote node.

Compressing a File Prior to Sending

Complete the following steps to compress a file before sending it to a remote node:

1. Access the **CDCOMP** screen by typing **CDCOMP** at the command line and pressing **F4** or by selecting the Compress file option from the main menu.
2. Type values for parameters as appropriate and press **Enter**.

If you need additional entry fields for the fields that allow multiple sets of values, type a plus sign (+) in the field labeled + for more values and press **Enter**.

The following figure is a sample **Connect:Direct Compress File (CDCOMP)** screen.

```

Connect:Direct Compress File (CDCOMP)

Type choices, press Enter.

Input file name . . . . . _____ Name
  Library . . . . . *LIBL Name, *LIBL
Output file name . . . . . _____ Name
  Library . . . . . *CURLIB Name, *CURLIB
File Members Selection List:
  Starting member name . . . . . *INFILE Name, generic*, *INFILE, *ALL
  Ending member name . . . . . *STARTMBR Name, *STARTMBR
  New member name . . . . . *NONE Name, *NONE
    + for more values
Replace members . . . . . *NO *NO, *YES
File Members Exclusion List:
  Starting member name . . . . . _____ Name, generic*
  Ending member name . . . . . *STARTMBR Name, *STARTMBR
    + for more values
Checkpoint Interval . . . . . *INITPARMS 0-9999999, *INITPARMS

Bottom
F3=Exit F4=Prompt F5=Refresh F12=Cancel F13=How to use this display
F24=More keys

```

Decompressing Files

This chapter describes the Connect:Direct decompress (CDDECOMP) command and its function. This chapter also shows sample **CDDECOMP** screens and describes the parameters used for the CDDECOMP command.

Using the CDDECOMP Command

Files are received from another node and archived on the OS/400 node as compressed files. Use the CDDECOMP command to decompress these files.

Note: Tuning parameters are not supported with the CDDECOMP command when sending a file.

CDDECOMP Command Example

The following command is an example of how to code the CDDECOMP command.

```
CDDECOMP INFILE(TESTLIB/CMP_FILE1) OUTFILE(TESTLIB/FILE2)
REPLACE(*YES)
```

CDDECOMP Command Format

The following are the parameters for the CDDECOMP command:

| Command | Parameters |
|----------|---|
| CDDECOMP | INFILE(library-name/file-name) |
| | OUTFILE(library-name/file-name) |
| | NEWNAME(current-member-name, new-member-name) |
| | REPLACE(*NO *YES) |

Required Parameters

The CDDECOMP command has two required parameters.

INFILE(library-name/file-name)

specifies the name and library of the file to be decompressed. The default for library is *LIBL.

library-name specifies the name of the library to be used.

*LIBL specifies that the library list is used to locate the input file.

*CURLIB specifies that the current library for the job is used to locate the input file.

file-name specifies the name of the file to be decompressed.

OUTFILE(library-name/file-name)

specifies the name and library of the file to receive the uncompressed data. If the output file does not exist, it is created. The default value for library is *CURLIB.

library-name specifies the name of the library to be used.

*LIBL specifies that the library list is used to locate the input file.

*CURLIB specifies that the current library for the job is used to locate the output file.

file-name specifies the name of the file to receive the decompressed data.

Optional Parameters

The optional parameters are listed alphabetically. Unless otherwise noted, the parameters apply to all remote node environments.

NEWNAME(current-member-name, new-member-name)

specifies whether to rename selected member(s) when decompressed. You can type in multiple sets of values for this parameter.

current-member-name specifies the name of the compressed member to be renamed.

new-member-name specifies the new name to be given to the member when it is decompressed.

REPLACE(*NO|*YES)

specifies whether to replace the output member if it exists. This parameter applies to all members.

*NO is the default. Possible values are:

*NO specifies that the member is not replaced if it exists.

*YES specifies that the member is replaced if it exists.

Using the CDDECOMP Screen

Use the CDDECOMP screen to decompress a file on the OS/400 node after receiving it from a remote node.

Decompressing a File

Complete the following steps to decompress a file after receiving it from a remote node:

1. Access the CDDECOMP screen by typing **CDDECOMP** at the command line and pressing **F4** or by selecting the Decompress option from the main menu.
2. Type values for parameters as appropriate and press **Enter**.

If you need additional entry fields for multiple sets of values, type a plus sign (+) in the field labeled + for more values and press **Enter**.

The following figure shows a sample **Connect:Direct Decompress File (CDDECOMP)** screen:

```

                                Connect:Direct Decompress File (CDDECOMP)

Type choices, press Enter.

Input file name . . . . . _____ Name
  Library . . . . . _____ *LIBL_____ Name, *LIBL
Output file name . . . . . _____ Name
  Library . . . . . _____ *CURLIB_____ Name, *CURLIB
Replace members . . . . . _____ *NO_____ *NO, *YES
Rename members:
  Current member name . . . . . _____ Character value
  New member name . . . . . _____ Character value
      + for more values _

                                                                Bottom
F3=Exit   F4=Prompt   F5=Refresh   F12=Cancel   F13=How to use this display
F24=More keys

```

Displaying Connect:Direct Message Descriptions

Connect:Direct OS/400 generates messages that detail aspects of the Connect:Direct OS/400 operation. Connect:Direct OS/400 routes two types of messages during operations:

- ❖ Connect:Direct messages that are routed to the Connect:Direct log file
- ❖ Status messages that are routed to a single user ID identified in the Connect:Direct initialization parameters file during installation

You can send Connect:Direct messages to the Connect:Direct user ID or the QSYSOPR message queues. You can also use the Connect:Direct OS/400 command Display Connect:Direct Message File (DSPCDMSGD) to display the message text for Connect:Direct messages.

Specifying Recipient of Status Messages

Complete the following steps to specify the user who receives status messages:

1. Access the **Change Connect:Direct Parameters (CHGCDPARM)** screen by typing **CHGCDPARM** at the command line and pressing **F4** or by choosing the Change Connect:Direct parameters option from the main administration menu.
2. Specify the user ID in the User to Receive Connect:Direct Messages (TOUSR) parameter on the **Change Connect:Direct Parameters (CHGCDPARM)** screen and press **Enter**. This is the user profile that receives Connect:Direct status messages.

Refer to the *Connect:Direct OS/400 Installation and Administration Guide* for details on providing user profile information.

Using the DSPCDMSGD Command

Use the DSPCDMSGD command to display the text associated with a specified Connect:Direct message ID.

DSPCDMSGD Command Example

The following figures illustrate two ways of accessing a Connect:Direct message.

```
DSPCDMSGD CDMSGID(AFLH001I)
```

```
DSPCDMSGD AFLH001I
```

DSPCDMSGD Command Format

The following is the parameter for the DSPCDMSGD command:

| Command | Parameters |
|-----------|----------------|
| DSPCDMSGD | CDMSGID(msgid) |

Required Parameter

The DSPCDMSGD command has one required parameter.

CDMSGID(msgid)
specifies an eight-character Connect:Direct message ID.

Optional Parameters

There are no optional parameters for the DSPCDMSGD command.

Using the DSPCDMSGD Screen

Use the **Display Connect:Direct Message (DSPCDMSGD)** screen to display the text for Connect:Direct message IDs that are returned in the Connect:Direct log file and statistics file for each operation.

Displaying Connect:Direct Message Text

Complete the following steps to display the text for Connect:Direct messages IDs:

1. Access the **DSPCDMSGD** screen by typing **DSPCDMSGD** at the command line and pressing **F4** or by choosing the display message option from the main menu.
2. Type the Connect:Direct message ID and press **Enter**. A screen is displayed with the message text for the specified message ID.

The following screen is an example of the screen associated with the DSPCDMSGD command.

```

                                Display Connect:Direct Message (DSPCDMSGD)

Type choices, press Enter.

Connect:Direct Message ID . . .   SCPA000I           Character value

                                                                 Bottom
F3=Exit   F4=Prompt   F5=Refresh   F12=Cancel   F13=How to use this display
F24=More keys

```

Sample Message Description

The following figure shows a sample message description.

```

                                Display C:D Message Description
                                System :   FRAN

Message ID . . . . . : SCPA000I
Issuing module . . . . . : DMCOPYRT

Copy step successful.

The process copy step successfully completed.
The Return-code may be 4, in which case a "Level-4"
error has occurred in transmitting a PDS. A Level-4
error indicates that an error was found, but was not
sufficient to cause termination of the COPY step.

SYSTEM ACTION: The process continues executing.

RESPONSE: See the specific member entry in the Connect:Direct
STAT file for the detailed message id for a Level-
4 error.

Press Enter to continue.

F3=Exit

```


Appendix A

CL Program Examples

The tables in this appendix provide examples of OS/400 CL Programs using various features of Connect:Direct. These examples are stored in a Physical Source File that is restored to the system during installation.

If PDM is installed, you can then use the WRKMBRPDM command to browse the members.

OS/400 Compress/Decompress Examples

| Member Name | Description |
|-------------|--------------------------------------|
| ACMPPDS01 | CDCOMP/CDDECOMP Example Using Selmbr |
| ACMPPDS02 | CDCOMP/CDDECOMP Example Using Excmb |
| AAPROCS | Readme file |

OS/400 Block Mode Transfer Examples

| Member Name | Description |
|-------------|---|
| ASNDBTBI1 | CDSND Block Mode Transfers Using Integrated File System Binary File |
| ASNDBTBN1 | CDSND Block Mode Transfers Using Native File System |
| ASNDBTP31 | CDSND Block Mode Transfer to SPLF |
| ASNDBTSN1 | CDSND Block Mode Transfer to Save File |
| ASNDBTTN1 | CDSND Block Mode Transfer Using Native File System to Text File |
| ARCVBTBI1 | CDRCV Block Mode Transfers Using Integrated File System Binary File |
| ARCVBTPN1 | CDRCV Block Mode Transfer to SPLF |
| ARCVBTP31 | CDRCV Block Mode Transfer to SPLF |
| ARCVBTSN1 | CDRCV Block Mode Transfer to Save File |
| ARCVBTTN1 | CDRCV Block Mode Transfer Using Native File System to Text File |
| ASPLBTTN1 | CDSNDSPL Block Mode Transfer Using Native File System |

OS/400 Run Task Example

| Member Name | Description |
|-------------|-------------------|
| ARNJDS01 | CDRUNTASK Example |

OS/400 Send Example Using Send File Field Description

| Member Name | Description |
|-------------|------------------------------|
| ASNDCF1A | CDSND Using SNDFFD Parameter |

OS/400 Send and Receive Examples Using Native File System

| Member Name | Description |
|---------------------------|--|
| ASNDCR1A ASNDCRIA.\$ | CDSND Physical Source File |
| ASNDCR1B | CDSND Physical Data File |
| ASNDCR1D ASNDCRID.T | CDSND Physical Source File to Physical Data File (PDS) |
| ASNDCR1E | CDSND Multiple Members of Physical Source File |
| ASNDCR1F ASNDCRIF.1 | CDSND Physical Source File to Spool File Spool File (B G) |
| ASNDCR1G1 | CDSND Physical Data File to Spool File |
| ASNDCR1N | CDSND Save File to Save File |
| ASNDCR2A | CDSND Precompressed File |
| ASNDCR2E 4D, 4E | CDSND Multiple Member Precompressed File EXO1 |
| ARCVCR1A ARCVCRIA.S | CDRCV Physical Source File |
| ARCVCR1B | CDRCV Physical Data File |
| ARCVCR1D ARCVCRID.1, 3 | CDRCV Physical Source File to Physical Data File |
| ARCVCR1E | CDRCV Multiple Members of Physical Source File |
| ARCVCR1F | CDRCV Physical Source File to Spool File |
| ARCVCR1G1 | CDRCV Physical Data File to Spool File |
| ARCVCR1N | CDRCV Save File to Save File |
| ARCVCR2A | CDRCV Precompressed File |
| ARCVCR4A | CDRCV Multiple Member Precompressed File |

OS/400 Send and Receive Examples Using Integrated File System

| Member Name | Description |
|------------------------|---|
| ASNDIF1A | CDSND /QSYS Text |
| ASNDIF1B ASNDIF1B.D | CDSND /QSYS Binary |
| ASNDIF1J ASNDIF1J.D | CDSND /QOpenSys |
| ASNDIF1K | CDSND /root |
| ASNDIF1KB | CDSND /root and block size specified |
| ASNDIF1L | CDSND Binary to Text File |
| ASNDIFN1A | CDSND Integrated File System to Native /QSYS |
| ASNDIFN1J | CDSND Integrated File System to Native /QOpenSys |
| ASNDIFN1JB | CDSND Integrated File System to Native /QOpenSys, Using Blocksize |
| ASNDIFN1KB | CDSND Integrated File System to Native /root, Using Blocksize |
| ASNDIFN1M | CDSND Integrated File System to Native /root Binary File to Binary File |
| ASNDIFN1N | CDSND Integrated File System to Native /QOpenSys |
| ASNDIFN1P | CDSND Integrated File System to Native /QDLS |
| ASNDIFS1C | CDSND Integrated File System /QSYS to SPLF |
| ASNDIFS1J | CDSND Integrated File System /QOpenSYS to SPLF |
| ASNDIFS1K | CDSND Integrated File System /root to SPLF |
| ASNDIFS1P | CDSND Integrated File System /QDLS to SPLF |
| ASNDIF01A | CDSND NATIVE File System to Integrated File System /QSYS |
| ASNDIF01J | CDSND Native File System to Integrated File System /QOpenSys |
| ASNDIF01K | CDSND Native File System to Integrated File System /root |
| ASNDIF01L | CDSND Native File System to Integrated File System /QDLS |
| ARCVIF1A | CDSND /QSYS Text |
| ARCVIF1B | CDSND /QSYS Binary |
| ARCVIF1J | CDSND /QOpenSys |
| ARCVIF1K | CDSND /root |
| ARCVIF1KB | CDSND /root and Blocksize Specified |
| ARCVIF1L | CDSND /QDLS Binary to Text File |
| ARCVIFN1A | CDSND Integrated File System to Native /QSYS |
| ARCVIFN1J | CDSND Integrated File System to Native /QOpenSys |
| ARCVIFN1JB | CDSND Integrated File System to Native /QOpenSys, Using Blocksize |
| ARCVIFN1KB | CDSND Integrated File System to Native /root, Using Blocksize |

| Member Name | Description |
|-------------|---|
| ARCVIFN1M | CDSND Integrated File System to Native /root Binary File to Binary File |
| ARCVIFN1N | CDSND Integrated File System to Native /QOpenSys |
| ARCVIFN1P | CDSND Integrated File System to Native /QDLS |
| ARCVIFS1C | CDSND Integrated File System /QSYS to SPLF |
| ARCVIFS1J | CDSND Integrated File System /QOpenSYS to SPLF |
| ARCVIFS1K | CDSND Integrated File System /root to SPLF |
| ARCVIFS1P | CDSND Integrated File System /QDLS to SPLF |
| ARCVIF01A | CDSND NATIVE File System to Integrated File System /QSYS |
| ARCVIF01J | CDSND Native File System to Integrated File System /QOpenSys |
| ARCVIF01K | CDSND Native File System to Integrated File System /root |
| ARCVIF01L | CDSND Native File System to Integrated File System /QDLS |
| ASPLIF0SC | CDSNDSPL to Integrated File System /QSYS |
| ASPLIF0SJ | CDSNDSPL to Integrated File System /QOpenSys |
| ASPLIF0SK | CDSNDSPL to Integrated File System /root |
| ASPLIF0SP | CDSNDSPL to Integrated File System /QDLS |

OS/400–OS/390 Send and Receive Examples

| Member Name | Description |
|-------------|---|
| MRCVCFGDG | CDRCV GDG Files from OS/390 |
| MRCVCFPDS1 | CDRCV PDS File |
| MRCVCRKFD1 | CDRCV KSDS File |
| MRCVCRKFD5 | CDRCV KSDS File Using Blocksize |
| MRCVCRKF14 | CDRCV Using Integrated File System |
| MRCVCRKFP4 | CDRCV KSDS to SPLF |
| MRCVCRKVS1 | CDRCV KSDS VB File to Physical Source File (Records are padded) |
| MRCVCRSAVF | CDRCV Save File |
| MRCVCRSF12 | CDRCV Using Integrated File System /root |
| MRCVCRSVI2 | CDRCV Using Integrated File System /root |
| MRCVEBCX1 | CDRCV Extended Translation to Integrated File System |
| MSNDCFGDG | CDSND to OS/390 GDG |
| MSNDCFPDS1 | CDSND to OS/390 PDS |
| MSNDCF01D | CDSND of Physical Source File |

| Member Name | Description |
|-------------|---|
| MSNDCRKFB1 | CDSND of Physical Data Binary File to KSDS |
| MSNDCRKFD5 | CDSND of Physical Data File to KSDS Using Blocksize Parameter |
| MSNDCRKFI6 | CDSND Using Integrated File System /root |
| MSNDCRKVS1 | CDSND to VB KSDS |
| MSNDCRSAVF | CDSND Save File to Save File |
| MSNDCRSFI2 | CDSND to VB File from Integrated File System /root |
| MSNDCRSFS1 | CDSND from Physical Source to OS/390 Physical Sequential CLP |
| MSNDDBCS01 | CDSND DBCS File |
| MSNDIF01K | CDSND from Integrated File System /root |
| MSNDRCVPS3 | CDSND/CDRCV with *EXT Compression |
| MSNDRDR | CDSND JCL to OS/390 READER Using SPOOL TRANSFER OPTION |
| MSPLCRKFP4 | CDSNDSPL to OS/390 KSDS |

OS/400–NT Send and Receive Examples

| Member Name | Description |
|-------------|--|
| NRCVCF01A | CDRCV into Physical Source File |
| NRCVCF01H | CDRCV Text File to Physical Data File |
| NRCVCF01I | CDRCV Binary File to Physical Data File |
| NRCVCF01J | CDRCV Binary File to Save File |
| NRCVIF01A | CDRCV to Integrated File System /QSYS |
| NRCVIF01B | CDRCV to Integrated File System /QSYS Physical Data File |
| NRCVIF01C | CDRCV of Binary File to Integrated File System /QSYS |
| NRCVIF01H | CDRCV of Text File to Integrated File System |
| NRCVIF01I | CDRCV of Binary File to Integrated File System |
| NRCVIF01J | CDRCV of File to Integrated File System /QOpenSys |
| NRCVIF01K | CDRCV to Integrated File System /root |
| NRCVIF01L | CDRCV of Binary File to Integrated File System /root |
| NRCVIF01M | CDRCV of Binary File to /QOpenSys |
| NRCVIF01N | CDRCV of Binary File to /QDLS |
| NRCVIF01P | CDRCV to Integrated File System /root |
| NRCVIF01Q | CDRCV to Integrated File System to /QDLS |
| NSNDCF01A | CDSND of Physical Source File Using Native File System |

| Member Name | Description |
|-------------|--|
| NSNDCF01H | CDSND of Physical Data to Text File Using Native File System |
| NSNDCF01I | CDSND of Physical Data File to Binary Using Native File System |
| NSNDIF01A | CDSND Using Integrated File system /QSYS |
| NSNDIF01C | CDSND Using Integrated File System /QSYS Physical Data File |
| NSNDIF01H | CDSND Using Integrated File System to Text File |
| NSNDIF01I | CDSND Using Integrated File System to Binary File |
| NSNDIF01J | CDSND Using Integrated File System /QOpenSys |
| NSNDIF01K | CDSND Using Integrated File System /root |
| NSNDIF01L | CDSND Using Integrated File System /QDLS |
| NSNDIF01M | CDSND Using Integrated File System /root and Binary File |
| NSNDIF01N | CDSND Using Integrated File System /QOpenSys and Binary File |
| NSNDIF01P | CDSND Using Integrated File System /QDLS and Binary File |

OS/400–Windows Run Job and Run Task Examples

| Member Name | Description |
|-------------|---|
| NRNJOB01A | CDRUNJOB Without Desktop Parameter, UNC names |
| NRNJOB01B | CDRUNJOB Without Desktop Parameter, C: names |
| NRNJOB01C | CDRUNJOB With Desktop Parameter, NT 1.3.00 |
| NRNTDL01A | CDRUNTASK to Delete Data Set |
| NSBMCF01A | CDSUBMIT an NT copy Process |

OS/400–UNIX Send and Receive Examples

| Member Name | Description |
|-------------|--|
| URCVCF01A | CDRCV Using Native File System into Physical Source File |
| URCVCF01B | CDRCV Using Native File System Binary File into save File |
| URCVCF01C | CDRCV Using Native File System Binary to Physical Data File |
| URCVCF01D | CDRCV Using Native File System Text File to Physical Data File |
| URCVIF01A | CDRCV Using Integrated File System /QSYS |
| URCVIF01C | CDRCV Using Integrated File System /QSYS and Binary File |
| URCVIF01D | CDRCV Using Integrated File System /QSYS and Text File |
| URCVIF01J | CDRCV Using Integrated File System /QOpenSys |

| Member Name | Description |
|--------------------|---|
| URCVIF01K | CDRCV Using Integrated File System /root |
| URCVIF01L | CDRCV Using Integrated File System /root and Binary File |
| URCVIF01M | CDRCV Using Integrated File System /QOpenSys and Binary File |
| URCVIF01N | CDRCV Using Integrated File System /QDLS and Binary File |
| URCVIF01Q | CDRCV Using Integrated File System and /QDLS |
| USNDCF01A | CDSND of Physical Source File |
| USNDCF01H | CDSND of Physical Data Text File |
| USNDCF01I | CDSND of Physical Data Binary File |
| USNDCF01S | CDSND of Save File |
| USNDIF01A | CDSND of Physical Source File Using Integrated File System /QSYS |
| USNDIF01H | CDSND of Physical Data File Using Integrated File System /QSYS |
| USNDIF01I | CDSND of Physical Data Binary File Using Integrated File System /QSYS |
| USNDIF01J | CDSND of Text File Using Integrated File System /QOpenSys |
| USNDIF01K | CDSND of Text File Using Integrated File System /root |
| USNDIF01L | CDSND of Text File Using Integrated File System/QDLS |
| USNDIF01M | CDSND of Binary File Using Integrated File System/root |
| USNDIF01N | CDSND of Binary File Using Integrated File System /QOpenSys |
| USNDIF01P | CDSND of Binary File Using Integrated |

OS/400–UNIX Run Task and Run Job Examples

| Member Name | Description |
|-------------|------------------------------|
| URNJOB01A | CDRUNJOB to List Directory |
| URNTDL01A | CDRUNTASK to List Directory |
| URNTDL02A | CDRUNTASK to List Directory |
| USBMCF01A | CDSUBMIT a UNIX copy Process |

OS/400–UTIL Test Examples

| Member Name | Description |
|-------------|--------------------------------------|
| AABNDCL | Creates loopback test nodes |
| CD\$RETRO | cmd - execute several loopback tests |
| CD\$RETRO\$ | pgm - execute several loopback tests |

A

Adjacent Node

An adjacent node is an entry in the Network Map that defines a Connect:Direct node with which the local Connect:Direct node can communicate. The adjacent node is also referred to as a remote node.

Application Program Interface (API)

The Application Program Interface (API) is a Connect:Direct component that accepts commands and places them in an executable format.

Asynchronous

Asynchronous Process execution occurs when the system starts the job. The CDSUBPROC command execution is asynchronous.

C

Checkpoint Restart

The Checkpoint Restart feature eliminates the need to retransmit an entire file in the event of a transmission failure. If a copy procedure is interrupted, Connect:Direct restarts that copy at the last checkpoint.

Command Line Interface

The Command Line Interface is a Connect:Direct interface that allows users to submit Connect:Direct Processes and commands from their native command line environment.

Commands

Connect:Direct commands initiate and monitor activity within the Connect:Direct system.

I

Integrated File System

The integrated file system provides an integrated structure of all stored information. This file system provides stream files, directory structure accessed by path, and a user and application interface that accesses all information stored in the OS/400.

L

Local Node

The local node is the Connect:Direct server on which the Process is submitted. The local node may also be referred to as the primary node, controlling node or initiating node, but should not necessarily be interpreted as the sending node, since PNODE can be the receiver. In every Process, there is one local (PNODE) and one remote (SNODE) specified. The submitter of a Process is always the PNODE.

Local Process

A local Process is a Connect:Direct Process initiated on the local Connect:Direct OS/400 node.

N

Native File System

The native file system accepts the file name in the following formats: library-name/file-name and library-name/file-name(member-name).

Network Map (Netmap)

The Network Map (netmap) is a file that identifies all valid Connect:Direct nodes in the network. One Network Map is associated with each Connect:Direct local node. The netmap has one entry for each of the other Connect:Direct nodes to which the local Connect:Direct node communicates. The netmap entries also contain the rules or protocol that the nodes adhere to when communicating.

Node

A node is any site in a network from which information distribution can be initiated.

P

Permanent Session Managers

Permanent Session Managers are reusable session managers submitted when Connect:Direct is started or when the Connect:Direct administrator increases the number of permanent session managers.

Primary Node (PNODE)

The local node or primary node (PNODE) is the Connect:Direct node on which the Process is submitted. The primary node may also be referred to as the controlling node or initiating node, but should not necessarily be interpreted as the sending node, since PNODE can be the receiver. In every Process, there is one local (PNODE) and one remote (SNODE) specified. The submitter of a Process is always the PNODE.

Process

A Process is a series of statements that initiate Connect:Direct activity, such as copying files, running jobs, and so on.

Process Management Queue

The Process Management Queue (PMQ) holds information about Connect:Direct Processes that are currently executing or scheduled to execute in the future.

Process Manager (PMGR)

The Process Manager initiates and manages the Connect:Direct environment.

Process Statements

Process Statements are instructions for transferring files, running operating system jobs, executing programs, or submitting other Connect:Direct Processes. They are used to build a Connect:Direct Process.

Q**Queue Manager (QMGR)**

The Queue Manager is a fixed Connect:Direct OS/400 component. The Process Manager starts the Queue manager when it starts Connect:Direct, and the QMGR remains active while Connect:Direct is active. The Queue Manager has five logical queues: ACTIVQ, executing processes; WAITQ, processes waiting to run; HOLDQ, processes currently held; TIMERQ, processes waiting to be moved to the WAITQ; and STARTQ, asynchronous processes being activated.

R**Remote Node**

A remote node is an entry in the Network Map that defines a Connect:Direct node with which the local Connect:Direct node can communicate. The remote node is also referred to as an adjacent node.

Remote Process

A remote Process is a Connect:Direct Process initiated on the remote Connect:Direct node.

Retry Interval

The retry interval is the interval at which retries are performed as a part of the checkpoint-restart feature.

S

Secondary Node (SNODE)

The remote or secondary node (SNODE) is the Connect:Direct node that interacts with the primary node (PNODE) during Process execution. SNODE may also be referred to as the participating (non-controlling) or partner node. Every Process has one PNODE and one SNODE.

Session Manager (SMGR)

The session manager component executes the Connect:Direct Processes. You can set the initialization parameters to make the SMGR either fixed or dynamic.

Spool Monitor (CDSPLMON)

The Connect:Direct Spool Monitor (CDSPLMON) is a variable component of Connect:Direct OS/400. CDSPLMON uses Spool Monitor entries to associate output queues with destination Connect:Direct nodes. These entries also include default values used to transfer spooled files.

Statistics Facility

The Connect:Direct Statistics Facility records Connect:Direct activities.

Statistics File

The statistics file holds Connect:Direct statistics records that document the history of a Process.

Statistics Manager (STATMGR)

Connect:Direct OS/400 logs statistics information for all Connect:Direct Processes. Each component of Connect:Direct OS/400 generates statistics data to the statistics manager (STATMGR). The long-running STATMGR formats the statistics information and writes it to the statistics file.

Submitted Session Managers are session managers submitted by the Process Manager.

Synchronous

Synchronous Process execution occurs when you submit a Connect:Direct command. Processes such as CDSND and CDRCV are submitted by the user and they execute immediately.

T

TCP/IP Listener

The TCP/IP Listener component requests session managers from the Process Manager when it receives connection requests. The Process Manager starts and controls the TCPLIST component.

Timer Queue (TIMER)

This Connect:Direct OS/400 component provides timer services to the other components. The process manager submits and controls the TIMER. The TIMER is always present when Connect:Direct is active.

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