Connect:Direct®

Problem Isolation Guide

Connect:Direct Problem Isolation Guide
Twentieth Edition

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Connect:Direct Problem Isolation Guide

Part I

General Information

Chapter 1

About Connect:Direct

Connect:Direct is peer-to-peer file-based integration middleware optimized for assured delivery, high-volume and secure data exchange within and between enterprises. It is optimized for high performance and moves files containing any type of data (text, structured such as EDI, binary, image, etc.) across multiple platforms, disparate file systems and disparate media (tape, disk, etc.)

The *Connect:Direct Problem Isolation Guide* is for users who manage and monitor Process status and data transfer with Connect:Direct for the following platforms:

❖ IBM OS/390

❖ IBM Virtual Machine/Enterprise System Architecture (VM/ESA)

❖ IBM Virtual Storage Extended/Enterprise System Architecture (VSE/ESA)

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

Problem Reporting Procedures

This chapter describes the following:

❖   Reporting problems

❖   Data to have available

❖   Problem resolution procedures

❖   Escalating problem resolution

Reporting the Problem

Report problems to IBM support at http://www.ibm.com/support/entry/portal/open_service_request.

Gathering Data to Isolate the Problem

To expedite the diagnostics process, prepare the following information for the Customer Support representative before calling Sterling Commerce:

❖   Version, release, maintenance level, and operating system for the Connect:Direct products being used on both nodes. For example, Connect:Direct OS/390 4.3.00 PUT4301 with Connect:Direct for Tandem NonStop Kernel 3.2.00.

❖   Details describing the complete scenario, including:

◆   Commands that are issued, with exact syntax and order.

◆   Files or devices that are involved. Note the file contents and the type of file (such as DCB file attributes, GDG, Tape, SMS, striped, compressed).

◆   Interface that you used, such as batch interface, IUI, or operator interface.

◆   Error messages for *both* nodes.

◆   System logs for *both* nodes, including any messages generated while the problem occurred. Check the SYSLOG for Connect:Direct OS/390 nodes. For Connect:Direct for VM/ESA nodes, review the VM/ESA console log from the Connect:Direct virtual machine. Examine the VSE/ESA console log (SYSLOG) for Connect:Direct for VSE/ESA nodes.

- Which side is PNODE/SNODE.
- The direction of the data transfer.
- What connection protocol you are using (LU0, LU6.2, IBM TCP/IP, TCPAccess).
- If a Connect:Direct OS/390 node is a Connect:Direct/Plex or stand alone server.
- Connect:Direct Process.
- Statistics information for both nodes.

> **Note:** Be prepared to recreate the problem. Problem recreation is the responsibility of the customer as Sterling Commerce cannot duplicate all customer environments.

Additional Supporting Data

Problem determination can be involved and can require extensive research. We ask you to gather some of the following supporting documentation to help analyze the problem. Not all of this information is applicable to all problems or all operating environments.

Session-related Problems

For session-related problems, supply the following:

- ❖ SYSLOGs
- ❖ Connect:Direct statistics for both nodes
- ❖ RPLERRCK output
- ❖ ESTAE output
- ❖ VTAM definitions
- ❖ APPLID definitions
- ❖ Logmode table entry
- ❖ Class of Service (COS) entry
- ❖ D NET VTAM display
- ❖ Connect:Direct traces
- ❖ Network map information

You can use your network management software or VTAM commands to isolate any session-related problems.

Abends or Hangs

For abends or hangs, supply the following:

- ❖ SVC dump
- ❖ SYSLOGs
- ❖ Connect:Direct Traces

Miscellaneous Problems

For other miscellaneous problems, supply the following:

- ❖ Detailed statistics from both nodes, including ALLOC information
- ❖ SYSLOGs, Connect:Direct Joblog
- ❖ Copy of the Connect:Direct Process

- ❖ File attributes for the FROM and TO files for both nodes
- ❖ Traces for both Connect:Direct and VTAM
- ❖ Connect:Direct initialization parameters
- ❖ ESTAE DD output
- ❖ I/O device types
- ❖ Statistics files
- ❖ Network map information
- ❖ Release levels of the software from both Connect:Direct nodes, operating system, VTAM, and other software involved

Resolving the Problem

If Sterling Commerce Customer Support cannot resolve the problem during your initial call, the problem is documented as a case in a problem-tracking system and is assigned a reference number. Refer to this number when forwarding any supporting documentation or calling for updates.

Security Level	Definition
Severity 1	Production system is down; requires immediate attention. For example, excessive abnormal termination.
Severity 2	A major problem or question; the product operates but is severely restricted. For example, an incorrect response from a frequently used command.
Severity 3	A non-critical issue is encountered with the product, but the majority of functions are still usable. For example, an incorrect response from an infrequently used command.
Severity 4	A minor problem or question that does not affect product function. For example, the text of a message is misspelled.

All cases are prioritized based on severity, as follows: During or immediately after the initial issue is reported, a Sterling Commerce Customer Support representative requests appropriate information needed to research your case. Every effort is made to minimize requests for more information. Trained resources research and resolve cases on a timely basis. You are informed of the resolution status at agreed-upon intervals while the case is still open.

When the problem is resolved and you have accepted the resolution, the case is closed. Brief service evaluation surveys are sent to you occasionally so that we can obtain your feedback.

Escalating a Problem Resolution

If our normal support cycle does not produce the results you require or your issue has changed in severity, you can escalate the case. To escalate a case, contact the technician responsible for your problem, state your concerns, and request that the case be escalated.

Connect:Direct Problem Isolation Guide

Chapter 3

Basic Troubleshooting Methods

This chapter describes the basic troubleshooting methods that you can use for problem isolation. Preliminary actions you can take to isolate the problem include:

❖ Reviewing Connect:Direct messages

❖ Examining output from Connect:Direct SELECT commands

❖ Verifying file attributes

❖ Overriding Connect:Direct initialization parameters

Reviewing Connect:Direct Messages

As you research a problem, note any messages issued by Connect:Direct. Look specifically for messages displayed by the API through the IUI or batch interface (DMBATCH). If an error occurred in a file transfer, look at messages for any Processes executing at that time for both nodes.

Also, check for messages in the JES log for OS/390, virtual machine's console log for VM/ESA, and hard copy file for VSE/ESA.

Connect:Direct messages contain short and long text to explain the error. Connect:Direct OS/390, VM/ESA, and VSE/ESA only display the short text when an event occurs. The following information is displayed for each message if you request the long text:

❖ Module issuing the message

❖ Short and long message texts

❖ System action as a result of the message situation

❖ User response to correct the situation

Note: For OS/390 or VM/ESA, press **PF1** to display the longer explanation if the message is an ISPF/PDF message.

Interactive Use of the Connect:Direct Message Facility

This section describes how you can display long-text messages for Connect:Direct OS/390, VM/ESA, and VSE/ESA.

Connect:Direct OS/390

For Connect:Direct OS/390, display the long text message through the IUI by either of the following methods:

❖   Use the SELECT MESSAGE command in the command line interface.

❖   Type **M** at the CMD prompt and press **Enter**.

❖   Access the PRIMARY OPTIONS MENU and type the MSG option at the CMD prompt.

❖   Type =**M** from any Connect:Direct screen at the CMD prompt in the ISPF Interface and press **Enter**. The long text for the current message is displayed.

> **Note:**   Installations with ISPF/PDF or TSS/PFD can modify the ISPF/PDF (or TSS/PFD) PRIMARY OPTION MENU to access the Connect:Direct message facility. Refer to the Connect:Direct installation guide applicable to your environment for instructions.

Connect:Direct for VM/ESA

For Connect:Direct for VM/ESA, display messages by using the SELECT MESSAGE command in the command line interface.

Connect:Direct for VSE/ESA

For Connect:Direct for VSE/ESA, display messages in long form on the console by entering the console reply number, **!m**, and the Connect:Direct message identifier at the command line.

Following is an example.

```
24 !m SVSG001I
```

Refer to the *Connect:Direct for VSE/ESA User's Guide* for use of the batch interface.

Abend Messages

Some user abend messages are stored in the Connect:Direct message file. To access them, insert the abend message ID in place of a Connect:Direct message ID.

For example, to display the description of user abend U0075 perform the following:

1.   Access the PRIMARY OPTIONS MENU in the IUI.

2.   Select the MSG option.

3.   Select option 1.

4. Type **U0075** on the message ID line and press **Enter**.

```
                   Connect:Direct (TM) MESSAGE DISPLAY
                                                            DATE=>  2003/05/06
  MESSAGE ID==>U0075                                        TIME=>  10:05
  MODULE  ==>DMINIT
  =========================================================================

  SHORT TEXT==> Connection services initialization failure.
  LONG TEXT:
    LINE 1 ==> An error has occurred while initializing VTAM connection
    LINE 2 ==> services.  ESTAE output should give a return code and error
    LINE 3 ==> flag.
    LINE 4 ==>
    LINE 5 ==> Verify the applid does not have a password associated with it
    LINE 6 ==> in the LOCAL.NODE definition of the Network Map.
    LINE 7  ==>
    LINE 8  ==>
    LINE 9 ==> SYSTEM ACTION:  ABEND the initialization of Connect:Direct.
    LINE 10 ==>
    LINE 11 ==> RESPONSE:  Verify that the applid is varied active and there is
    LINE 12 ==>                not a VTAM password specified in the Network Map.

  COMMAND  ===>_____    ENTER 'DIR' TO DISPLAY THE DIRECTORY
```

System abend messages appear in:

❖ the JES log for OS/390

❖ the virtual machine's console log for VM/ESA

❖ the hard copy file for VSE/ESA

They do not appear in the Connect:Direct message file. Refer to the appropriate operating system manuals if you require further details.

Examining Output from Connect:Direct Select Commands

Problem determination and resolution is often as simple as gathering output from the Connect:Direct SELECT commands and examining the output for obvious errors. A description of the commands follows:

Command	Description
SELECT NETMAP	Displays or prints the definitions of nodes with which Connect:Direct can communicate.
SELECT PROCESS	Displays or prints information about Connect:Direct Processes in the TCQ. You can use this command before or during Connect:Direct Process execution.
SELECT STATISTICS	Displays or prints statistics from the statistics log. Use this command only after executing a Connect:Direct Process.
SELECT TASK	Selects, displays, or prints the list of all active users, Processes, and tasks within Connect:Direct.
SELECT TYPE	Displays or prints type records from the Type file.

All of the Connect:Direct SELECT commands are documented in the *Connect:Direct User's Guide* appropriate to your platform.

SELECT STATISTICS Command

The SELECT STATISTICS command is one of the most useful commands for problem determination. This section provides a brief overview of the SELECT STATISTICS command. For more detailed information, refer to the *Connect:Direct User's Guide* for your platform.

If an error occurred during a file transfer, issue the SELECT STATISTICS command on both the PNODE and SNODE to review the statistics for the Process. Process statistics are stored in the Connect:Direct statistics log. You can request them by either using the IUI Select Statistics (SS) screen, if applicable, or issuing the Connect:Direct SELECT STATISTICS command.

The statistics log records the following types of information for Connect:Direct Processes:

❖ Function requested (COPY, RUN TASK, RUN JOB, SUBMIT)

❖ Process name and number

❖ Start and stop times, and date of the function

❖ Completion code

❖ Messages associated with the Process

❖ Location and ID of the user requesting Connect:Direct services

❖ Sending and receiving file names

❖ Amount of data sent and received

❖ Security violations

❖ All Connect:Direct WTO messages, allocation information, and mount requests

---

Note: WTO messages are created during Connect:Direct Process execution to document the execution steps and are stored in the Connect:Direct statistics file. This type of message is an excellent debugging tool for determining a Connect:Direct execution failure.

The optional parameters associated with the SELECT STATISTICS command enable you to define the search criteria and the form in which the report is presented.

Connect:Direct IUI Select Statistics Screen for OS/390

The Select Statistics screen provides a convenient, easy method for issuing the SELECT STATISTICS command. Use the fields to specify statistics selection criteria. The selection criteria enable you to determine what records to select from the statistics log, limit the statistics to a certain period of time, or limit the statistics to a certain Process. The selection criteria also allow Connect:Direct to select the requested statistics from the file more efficiently.

The SELECT STATISTICS screen displays general Connect:Direct Process information.

❖ To display the requested information in a formatted report, type a D in the CMD field and press Enter.

❖ To print the formatted report, type a P in the CMD field and press Enter. The output is sent to your TSO sysout.

❖ For a summary report display, type an S in the CMD field and press Enter.

❖ To view your statistics file in an unformatted display, type FIL or F in the CMD field and press Enter.

❖ The SELECT STATISTICS screen also enables you to exclude certain types of information from being displayed. Type a Y in any of the following fields and press Enter.

 ◆ **MEMBERS** - Statistics generated for each partitioned data set (PDS) member

 ◆ **WTO** - WTO (Write to Operator) messages

 ◆ ¬**WTO** - All statistics other than WTO messages

When statistics are requested by Sterling Commerce Customer Support, do not exclude any information. Set all the fields listed to **N**. Customer Support must receive all the information available to solve the problem.

Verifying File Attributes

If a problem occurs during a file transfer, verifying the accuracy of the file attributes can often resolve the problem. Review the following file attribute parameters for the file being transmitted when the error occurred. Check both the input and output files specified in your Connect:Direct Processes:

- ❖ Logical record length (LRECL)
- ❖ Block size (BLKSIZE)
- ❖ Record format (RECFM)
- ❖ File organization (DSORG)
- ❖ File disposition (DISP)
- ❖ Unit containing the file (UNIT)
- ❖ Volume serial number (VOLSER)
- ❖ Storage for allocating new files (SPACE)
- ❖ Optional processing code (OPTCD)
- ❖ Length of keys used in file (KEYLEN)
- ❖ Number of blocks or tracks to search for available space (LIMCT)

For a detailed description of these parameters, see the Connect:Direct Processes Web site at http://www.sterlingcommerce.com/Documentation/processes/processhome.html.

Overriding Connect:Direct Initialization Parameters

Initialization parameters are set up during installation. When an error occurs, it may be necessary to alter these initialization parameters. For example, refresh the TCQ if Processes are hanging and the queue becomes corrupted. This section describes methods for overriding Connect:Direct initialization parameters for Connect:Direct OS/390, VM/ESA, and VSE/ESA.

Overriding Connect:Direct OS/390 Initialization Parameters

You can override individual initialization parameters for Connect:Direct OS/390 by specifying the override on the EXEC statement in the startup job stream as shown in the following figure.

Note: **Connect:Direct OS/390 only:** In a Connect:Direct/Plex, you can only override initialization parameters allowed in the local initialization parameters file. Use the PARM= keyword in the EXEC statement at system startup.

In a Connect:Direct/Stand-alone Server environment, however, you can override global initialization parameters with the PARM= keyword in the EXEC statement.

In this example, the startup job is specifying a cold start of the Connect:Direct TCQ (TCQ=COLD), overriding the TCQ= value specified in the initialization parameters file.

```
//JOBNAME  JOB  (ACCT),NAME,CLASS=M,NOTIFY=TSOID,MSGCLASS=X,TIME=1440
//*
//* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * */
//* Connect:Direct                                             */
//* THIS JOB STREAM WILL INVOKE THE CONNECT:DIRECT DTF.        */
//* CHANGE $CD TO YOUR HIGH-LEVEL PREFIX FOR CONNECT:DIRECT.   */
//*                                                            */
//* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * */
//*
//CDITST  PROC CDPREF=,PARMMEM=
//CDITST  EXEC PGM=DMINIT,
//             PARM=('&CDPREF..PARMLIB(&PARMMEM),',
//             'TCQ=COLD'),
//             REGION=3000K
//SYSUDUMP DD   SYSOUT=*
//STEPLIB  DD   DSN=&CDPREF..LINKLIB,
//             DISP=SHR
//DMPUBLIB DD   DSN=&CDPREF..PROCESS,
//             DISP=SHR
//ESTAE    DD   SYSOUT=*
//RPLERRCK DD   SYSOUT=*
//        PEND
//*
//CDITST  EXEC CDITST,CDPREF=$CD,PARMMEM=CDINT01
```

Overriding Connect:Direct for VM/ESA Initialization Parameters

You can override individual initialization parameters for Connect:Direct for VM/ESA by specifying the override on the PARM statement of the OSRUN command as shown in the following figure. For more information about initialization parameters, refer to the *Connect:Direct for VM/ESA Installation and Administration Guide*.

In the following example, QUIESCE=YES is the override.

```
OSRUN DMINIT PARM='USER INITPARM A  QUIESCE=YES'
```

Overriding Connect:Direct for VSE/ESA Initialization Parameters

You can override individual initialization parameters for Connect:Direct for VSE/ESA by specifying the override on the PARM= keyword as shown in the following figure. For more information about initialization parameters, refer to the *Connect:Direct for VSE/ESA Installation and Administration Guide*.

In the following example, QUIESCE=YES is the override.

```
// EXEC DMINIT,SIZE=(DMINIT,256K),
              PARM='N(CDINIT) QUIESCE=YES',
              DSPACE=4M
```

Part II

Common Errors

Initialization Errors

This chapter describes the causes of common errors associated with initialization of Connect:Direct.

Determining Initialization Errors

While Connect:Direct is initializing, you see the following series of messages that show the sequence of events during initialization. If an initialization error occurs, note the last message issued. The problem most likely occurred during the step indicated by the last message or on the step indicated by the next message that should have been issued.

```
SITA001I Connect:Direct initialization begun
SITA002I Connect:Direct parameter file allocated and open
SITA120I Keyword INITPARM Value Overridden:UPPER.CASE[1]
SITA120I Keyword INITPARM Value Overridden:DEBUG[1]
SITA022I Loading Connect:Direct modules
SITA601I The TCP server modules are loaded[2]
SITA067I MESSAGE file is open
SITA628I SNMP Trap Agent Initialization Complete[3]
SITA023I Initializing Connect:Direct storage
SITA024I Building the TCA chain
SITA026I Creating the system tasks (master and timer)
SITA025I Building the ECB address list
SITA027I Building the DDN table
SITA068I AUTHORIZATION file is open
SITA134I TYPE DEFAULTS file is open
SITA069I NETWORK MAP file is open
SITA074I CHECK POINT file is open
SITA030I PCQ/TCQ being built
SITA068I AUTHORIZATION file is open
SITA134I TYPE DEFAULTS file is open
SITA069I NETWORK MAP file is open
SITA074I CHECK POINT file is open
SITA030I PCQ/TCQ being built
```

Continued

```
     SITA400I Enqueueing TCX for ESF processing
     SITA401I Dequeueing TCX for ESF processing
     SITA029I Statistics facility being initiated
     SSTL026I Statistics File Pair 03 is now active
     SSTL019I Statistics facility successfully initialized
     SITA034I VTAM services being initiated APPLID = M1CDD729
     SITA035I ABEND/ESTAE exit being initialized
     SITA036I Connect:Direct v.r.mm for OS/390 PUT 0000 Initialization Complete
     STCP021I TCP/IP IUCV INTERFACE INITIALIZED[2]
     STCP025I TCP/IP HOST IDENTIFICATION IS nnn.n.n.n[2]
     STCP001I ISSUING TCP/IP SOCKET CALL[2]
     STCP002I ISSUING TCP/IP BIND SOCKET[2]
     STCP018I TCP/IP PORT NUMBER IS 7224[2]
     STCP003I Connect:Direct NOW LISTENING FOR CONNECTIONS[2]
     SSNS001I SNS TCP/IP interface initializing[4]
     SSNS002I SNS TCP/IP issuing AOPEN for SNS Subsystem ID ACSS[4]
     SSNS003I SNS TCP/IP port number is 1370[4]
     SSNS004I SNS TCP/IP Issuing TBIND for port[4]
     SSNS005I SNS TCP/IP Connect:Direct now listening for connections[4]
     STCO009I IBM OES TCP/IP Server Subtask Attached[5]
     STCO010I IBM OES TCP/IP Interface Initializing[5]
     STCO001I IBM OES TCP/IP Issuing SOCKET Call[5]
     STCO002I IBM OES TCP/IP Issuing BIND SOCKET Call[5]
     STCO014I IBM OES TCP/IP Port Number is 4199[5]
     STCO003I IBM OES TCP/IP Issuing LISTEN SOCKET Call[5]
     STCA009I IBM OES TCP/IP API Server Subtask Attached[6]
     STCA010I IBM OES TCP/IP API Interface Initializing[6]
     STCA001I IBM OES TCP/IP API Issuing SOCKET Call[6]
     STCA002I IBM OES TCP/IP API Issuing BIND Socket Call[6]
     STCA014I IBM OES TCP/IP API Port Number is 4198[6]
     STCA003I IBM OES TCP/IP API Issuing LISTEN Socket Call[6]
     SITA028I Secure+ Initialization Complete[7]
     SITA046I Secure+ Initialization Complete[8]
```

[1]   This message is displayed only if an initialization parameter value is overridden in the startup JCL.
[2]   This message is displayed only if IBM TCP/IP is used.
[3]   This message is displayed only if SNMP=YES.
[4]   This message is displayed only if SNS Interlink TCPAccess is used.
[5]   This message is displayed only if IBM TCP/IP Open Edition Sockets Interface (OES) is used.
[6]   This message is displayed only if IBM TCP/IP API OES is used.
[7]   This message is displayed only if the limited export version of Secure+ is installed and active.
[8]   This message is displayed only if the export version of Secure+ is installed and active.

Note: In addition to the initialization errors described in this chapter, you may see two different error
messages in traces, which are also related to initialization:

- ❖ If you receive a return code of **4** when you stop Connect:Direct, be sure to review the
  NDMLOG for SITA995I messages indicating obsolete parameters. Once you remove the
  parameters, these messages no longer appear in the NDMLOG trace.

- ❖ If you receive a return code of **8A** in the RPLERRCK trace when you start Connect:Direct and
  you have multiple TCP/IP stacks defined, the message, *No such device or address* (STCO999E),
  appears in the trace. If you have only one TCP/IP stack defined, this is normal and no cause for
  alarm. If you are in an environment where multiple TCP/IP stacks are defined, you will want to
  investigate the situation and make sure the correct TCP stack is specified.

Possible Error Messages

Abend S0Cn

Probable Cause

One or more NSSs (Named Saved Segments and Named Saved Systems) for VSAM, GCS, and VTAM overlap their page ranges.

Action to Take

Relocate VSAM, GCS, or VTAM segments as needed so that no overlaps exist among these NSSs.

Data to Collect

Collect the following data:

❖ NSS display

To display NSS information, you must have a privilege class of E (systems programmer). Type the following command to display all NSSs.

```
QUERY NSS ALL MAP
```

Type the following command to display a single NSS.

```
QUERY NSS NAME segment MAP
```

CONDITION: **Connect:Direct does not initialize because of inadequate storage (GETMAIN/GETVIS or FREEMAIN/FREEVIS request failed).**

Possible Error Messages

SITA037I	**SITA042I**	**SITA043I**	**SITA044I**	**SITA045I**	**SITA047I**
SITA049I	**SITA050I**	**SITA078I**	**SITA080I**	**SITA096I**	**SITA097I**
SITA098I	**SITA099I**	**SITA122I**			

Probable Cause

Inadequate address space is allocated to the Connect:Direct DTF region.

Action to Take

Review both the short text and long text Connect:Direct messages. Check the Connect:Direct startup job stream and the amount of storage allocated to the Connect:Direct region by checking the region parameter on the job card for Connect:Direct OS/390.

For Connect:Direct for VM/ESA, issue a CP QUERY VIRTUAL STORAGE command to determine the size of your virtual storage.

For Connect:Direct OS/390 and VM/ESA, increase the storage for the Connect:Direct address space. (In some cases, system exits can limit availability of above-the-line storage. Check with your internal Technical Support group about storage limits.)

For Connect:Direct for VSE/ESA, issue a GETVIS *xx* command, where *xx* is the partition identifier for the partition in which Connect:Direct is running.

Data to Collect

Collect the following data:

❖ Connect:Direct error message

❖ Region/partition size

CONDITION: **An error occurs while allocating or opening the Connect:Direct initialization parameters file.**

Possible Error Messages

SITA063I	SITA070I	SITA121I	SITA123I	SITA291I	SITA292I
SITA293I	SITA294I	SITA501I	SITA502I	SITA505I	

Probable Cause

The Connect:Direct initialization parameters file does not exist, or the parameter on the EXEC statement is specified incorrectly.

Action to Take

Review both the short text and long text Connect:Direct messages. For Connect:Direct OS/390, look at the Connect:Direct startup JCL for the EXEC statement. Ensure that the specified initialization parameters data set exists and is correct.

For Connect:Direct for VM/ESA, the initialization parameters file is on the OSRUN parameter. Check the DMGCSMAP STARTUP file for Connect:Direct for VM/ESA.

For Connect:Direct for VSE/ESA, the input parameters are usually stored as SYSIPT in the job stream after the JCL.

Data to Collect

Collect the following data:

❖   Connect:Direct startup JCL

❖   DMGSCMAP STARTUP file

CONDITION: Connect:Direct does not initialize because of initialization parameter errors.

Possible Error Messages

SITA003I	SITA014I	SITA018I	SITA021I	SITA038I	SITA039I
SITA040I	SITA041I	SITA063I	SITA071I	SITA072I	SITA073I
SITA079I	SITA082I	SITA083I	SITA084I	SITA085I	SITA086I
SITA087I	SITA088I	SITA089I	SITA091I	SITA092I	SITA093I
SITA094I	SITA095I	SITA104I	SITA105I	SITA106I	SITA148I
SITA201I	SITA202I	SITA213I	SITA214I	SITA215I	SITA216I
SITA217I	SITA220I	SITA221I	SITA222I	SITA223I	SITA224I
SITA225I	SITA226I	SITA227I	SITA228I	SITA230I	SITA231I
SITA232I	SITA233I	SITA234I	SITA242I	SITA250I	SITA251I
SITA252I	SITA253I	SITA254I	SITA260I	SITA261I	SITA262I
SITA263I	SITA270I	SITA271I	SITA272I	SITA273I	SITA280I
SITA281I	SITA282I	SITA283I	SITA285I	SITA286I	SITA287I
SITA300I	SITA506I	SITA507I	SITA508I	SITA509I	SITA510I
SITA511I	SITA512I	SITA513I	SITA514I	SITA515I	SITA516I
SITA517I	SITA518I	SITA540I			

Probable Cause

Syntax errors or errors in the values specified exist for one or more Connect:Direct initialization parameters.

Action to Take

Review both the short text and long text Connect:Direct messages. Note the Connect:Direct messages that you see on the console during initialization. There is a message to indicate the reason for the error. Verify that any comments preceding parameters are closed out. Refer to the appropriate Connect:Direct installation guide for the valid parameter values. Correct the parameter in the Connect:Direct initialization parameters file, and restart Connect:Direct.

Data to Collect

Collect the following data:

❖ Connect:Direct error message

❖ Initialization parameters file

CONDITION: **Connect:Direct does not initialize because of an error with one of the Connect:Direct VSAM files: the message file, authorization file, type file, network map file, statistics file, checkpoint file, or TCQ file.**

Possible Error Messages

SITA055I	**SITA056I**	**SITA057I**	**SITA059I**	**SITA060I**	**SITA061I**
SITA062I	**SITA064I**	**SITA065I**	**SITA066I**	**SITA075I**	**SITA076I**
SITA077I	**SITA100I**	**SITA101I**	**SITA102I**	**SITA103I**	**SITA110I**
SITA111I	**SITA112I**	**SITA113I**	**SITA130I**	**SITA131I**	**SITA132I**
SITA133I	**SITA160I**				

Probable Cause

An error occurred while opening the file, or VSAM encountered a physical or logical error. The VSAM file cannot be defined and loaded correctly, the name of the file might be specified incorrectly, or the file might be corrupted.

Action to Take

Review both the short text and long text Connect:Direct messages. Verify that the name of the file is specified correctly in the initialization parameters file. Also, verify that the file is defined correctly to VSAM and loaded as described in the appropriate Connect:Direct installation guide.

Data to Collect

Collect the following data:

❖ Connect:Direct messages
❖ Any messages issued by the VSAM AMS Interface Program (IDCAMS for OS/390 and VSE/ESA; AMSERV for VM/ESA) when the Connect:Direct VSAM file was defined and loaded

CONDITION: Connect:Direct does not initialize because of errors with VTAM initialization.

Possible Error Messages

SITA004I   SITA005I   SITA048I   SITA051I   SITA052I   SITA053I

SITA054I   SITA090I   user abend U0075

Probable Cause

The Connect:Direct DTF APPLID is defined incorrectly, the APPLID logmode table is incorrect or is not found, the DTF APPLID has a VTAM password associated with it, or the Connect:Direct DTF APPLID is not active.

Action to Take

Review both the short text and long text Connect:Direct messages. Ensure that the DTF APPLID is active. Ensure that the APPLID specified in the LOCAL.NODE entry of the network map is correctly specified and is defined to VTAM. Check the ESTAE output for additional error information. If a VTAM password is associated with the Connect:Direct APPLID, remove it, and do not refer to it in the Connect:Direct network map.

Data to Collect

Collect the following data:

- ❖ ESTAE output
- ❖ Connect:Direct network map
- ❖ APPLID definition
- ❖ Logmode table entry

CONDITION: Security Environment Invalid for Connect:Direct.

Possible Error Messages

SITA997I

Probable Cause

The thread-level security is not valid between Connect:Direct and UNIX System Services.

Action to Take

If your installation implemented Program Access to Datasets (PADS) functionality within your security system (such as RACF, TSS, ACF2), include the Connect:Direct datasets in your Program Control List (PCL).

CONDITION: Connect:Direct does not initialize because of an error in the statistics log.

Possible Error Messages

SSTI004I	SSTI005I	SSTI006I	SSTI007I	SSTI008I
SSTI009I	SSTI010I	SSTI011I	SSTI012I	SSTI013I
SSTI014I	SSTI015I	SSTI016I	SSTI017I	SSTI018I
SSTI019I	SSTI020I	SSTI021I	SSTI022I	

SITA059I and user abend U0070 follow one of the previous error messages.

Probable Cause and Action to Take

The cause and necessary action to take depend on the SSTIxxxI message as explained in the following sections.

SSTI004I

File pair ESDS data set has invalid CI SIZE.

Probable Cause

The ESDS CI SIZE is less than 2048. The minimum acceptable CI SIZE for this data set is 2048.

Action to Take

Review both the short text and long text Connect:Direct messages. Delete and redefine the file pair ESDS data set and ensure a CI SIZE that is greater than or equal to 2048.

SSTI005I

Invalid KSDS data set type in file pair.

Probable Cause

Review both the short text and long text Connect:Direct messages. While verifying the KSDS data set, it was found that the data set type was not KSDS.

Action to Take

Verify that the statistics file pair KSDS data set is correctly allocated. If no allocation is correct, delete and redefine the KSDS data set.

SSTI006I

Invalid KSDS data set key length.

Probable Cause

The key length of the file pair KSDS data set is invalid.

Action to Take

Review both the short text and long text Connect:Direct messages. Refer to the platform-specific Connect:Direct installation and administration guide for the correct length.

SSTI007I

Invalid file pair KSDS data set key offset.

Probable Cause

The key offset for the KSDS data set is not 0.

Action to Take

Review both the short text and long text Connect:Direct messages. Delete and redefine the KSDS with the correct key offset.

SSTI008I

File pair has empty ESDS but non-empty KSDS.

Probable Cause

The ESDS data set is empty, but the KSDS data set has data in it. One possible reason is that the ESDS data set was reset, but the KSDS was not.

Action to Take

Review both the short text and long text Connect:Direct messages. The ESDS and KSDS data sets must both be empty or must both contain data. Either delete and redefine the KSDS data set, restore the ESDS data set, or specify STAT.INIT=COLD. Connect:Direct opens both data sets with reset at initialization time.

SSTI009I

File pair has empty KSDS but non-empty ESDS.

Probable Cause

The KSDS data set is empty, but the ESDS data set has data in it. One possible reason is that the KSDS data set was reset, but the ESDS was not.

Action to Take

Review both the short text and long text Connect:Direct messages. Both KSDS and ESDS data sets must be empty or contain data. Either delete and redefine the ESDS data set, restore the KSDS data set, run batch utility DMSTBKEY to rebuild the KSDS data set, or specify STAT.INIT=COLD. Connect:Direct then opens both data sets with reset at initialization time.

SSTI010I

Error reading the file pair KSDS control record.

Probable Cause

While attempting to read the KSDS control record, an error code was returned.

Action to Take

Review both the short text and long text Connect:Direct messages. Verify that the KSDS data set is correctly defined. Register 15 contains the VSAM GET return code. To reuse the data set, specify STAT.INIT=COLD in the Connect:Direct initialization parameters and restart Connect:Direct.

SSTI011I

KSDS control record ESDS name does not match.

Probable Cause

The KSDS control record contains the name of the matching or paired ESDS data set. When the KSDS and ESDS data set names are built by Connect:Direct at initialization time based on STAT.DSN.BASE, the ESDS data set name that the system built did not match the ESDS data set name in the KSDS control record.

Action to Take

Review both the short text and long text Connect:Direct messages. Do one of the following:

❖ Run batch utility DMSTBKEY to rebuild the KSDS data set control record

❖ Delete and redefine both KSDS and ESDS data sets

❖ Specify STAT.INIT=COLD (Connect:Direct opens all file pairs with RESET.)

SSTI012I

KSDS control record ESDS CI SIZE do not match.

Probable Cause

The KSDS control record contains the CI SIZE of the matching or paired ESDS data set. The CI SIZE from the KSDS control record is not equal to the CI SIZE of the paired ESDS data set that is opened.

Action to Take

Review both the short text and long text Connect:Direct messages. Verify that the statistics file pair is correctly identified with the STAT.DSN.BASE and STAT.FILE.PAIRS initialization parameters. If the CI SIZE of the ESDS file has changed, you must run the DMSTBKEY batch utility to rebuild the information in the key-sequenced cluster.

SSTI013I

Error reading the ESDS control record.

Probable Cause

While attempting to read the ESDS control record, an error code was returned.

Action to Take

Review both the short text and long text Connect:Direct messages. Verify that the ESDS data set is correctly defined. Register 15 contains the VSAM GET return code. To reuse the data set, specify STAT.INIT=COLD in the Connect:Direct initialization parameters and restart Connect:Direct.

SSTI014I

Invalid ESDS control record.

Probable Cause

Connect:Direct read the first record in the ESDS data set; however, it was not the control record. Either the file is not a Connect:Direct statistics file, or the file was corrupted after being written by Connect:Direct.

Action to Take

Review both the short text and long text Connect:Direct messages. Verify that the statistics file pair is correctly defined using the STAT.DSN.BASE and STAT.FILE.PAIRS initialization parameters. If the file was corrupted and it is the KSDS cluster of the pair, then the information can be rebuilt by running the DMSTBKEY batch utility for the file pair. If the file was corrupted and it is the ESDS cluster of the pair, then the statistics information in the file pair is lost. In this case, both files of the pair must be empty before Connect:Direct initializes successfully. Specify STAT.INIT=COLD in the initialization parameters to initialize successfully.

SSTI015I

Invalid file pair sequence.

Probable Cause

The files that comprise the statistics file pair list are not arranged in chronological order. Connect:Direct requires that all non-empty statistics file pairs be ordered chronologically based on the date and time of the oldest data in each pair.

> **Note:** Although Connect:Direct processes the statistics file pair list in a circular or *wrap around* method, the first file pair in the list does not always contain the oldest data.

Connect:Direct verifies the order using the following steps:

1. Connect:Direct locates the file pair containing the oldest data.

2. From that point, Connect:Direct examines each non-empty file pair in the list. If the oldest data is not located in the first file pair, when the search reaches the last file pair in the list, it wraps to the beginning of the list. Each successive non-empty file pair must have a later date than the previous pair.

Connect:Direct always maintains statistics records in strict chronological order. If the records are not in chronological order at initialization, Connect:Direct assumes that the list or the files are incorrectly altered since Connect:Direct last wrote them.

Action to Take

Review both the short text and long text Connect:Direct messages. Verify that the statistics file pair list is correctly defined using the STAT.DSN.BASE and STAT.FILE.PAIRS initialization parameters. If the reason for the problem is not apparent, it might be necessary to archive or copy all ESDS file pairs to preserve the current statistics data. Then delete and redefine all statistics file pair clusters.

SSTI016I

WARNING: KSDS of file pair may be too small.

Probable Cause

The size of the key-sequenced cluster of the file pair named is less than 10% of the size of the associated entry sequenced cluster. This condition can lead to premature filling of the key-sequenced cluster and wasted space in the entry-sequenced cluster.

Action to Take

Review both the short text and long text Connect:Direct messages. Examine the SSTS005I message issued when the file pair fills to determine the amount of the file Connect:Direct was able to use. Set the key-sequenced cluster to 15% of the size of the entry-sequenced cluster.

SSTI017I

WARNING: KSDS of file pair may be too large.

Probable Cause

The size of the key-sequenced cluster of the file pair named is more than 30% of the size of the associated entry-sequenced cluster. This condition can lead to premature filling of the entry-sequenced cluster and wasted space in the key-sequenced cluster.

Action to Take

Review both the short text and long text Connect:Direct messages. Examine the SSTS005I message issued when the file pair fills to determine the amount of the file Connect:Direct was able to use. Set the key-sequenced cluster to 15% of the size of the entry-sequenced cluster.

SSTI018I

File pair WHERE condition found.

Probable Cause

During statistics initialization, a warning may have been issued specifying the KSDS dataset is either too small or too large. This message contains the FILE PAIR where this situation occurred.

Action to Take

None.

SSTI019I

No active file pair found.

Probable Cause

Statistics initialization could not determine which of the statistics file pairs was the active pair. The ESDS of each pair contains a status flag that indicates which pair is active. The active flag was not found in any of the ESDS clusters.

Action to Take

Review both the short text and long text Connect:Direct messages. Archive or copy all ESDS file pairs to preserve the current statistics data. Then delete and redefine all statistics file pair clusters.

SSTI020I

More than one file pair active.

Probable Cause

For any given sequence of statistics file pairs, only one set can be active at a time. During Connect:Direct statistics initialization, more than one set was found to be active. This condition occurs when mixing old file pairs with current ones.

Action to Take

Review both the short text and long text Connect:Direct messages. Empty the files by deleting and redefining the file pairs. None of the file pairs are active. Another alternative is to set STAT.INIT=COLD forcing Connect:Direct to open each set of file pairs with RESET at initialization time. If you are interested in retaining the data in the files, archive them first, then continue with one of the previous two methods.

SSTI021I

More than one file pair is both not complete and not empty.

Probable Cause

The mixing of old file pair data sets with current file pairs can cause this result. Another cause is incorrect modification of file pairs between executions of Connect:Direct.

Action to Take

Review both the short text and long text Connect:Direct messages. Verify that the statistics file pair list is correctly defined using the STAT.DSN.BASE and STAT.FILE.PAIRS initialization parameters, and restart Connect:Direct. You can also use the STAT.INIT=COLD startup parameter.

SSTI022I

Invalid ESDS data set type in file pair.

Probable Cause

While verifying the ESDS data set, it was determined that the data set type was not ESDS.

Action to Take

Review both the short text and long text Connect:Direct messages. Verify that the statistics file pair ESDS data set is correctly allocated. If the data set is not correctly allocated, delete and redefine the ESDS data set

CONDITION: **TCQ.THRESHOLD parameter not defined**

Possible Error Messages

SITA186I   **TCQ.THRESHOLD Parameter Error**

Probable Cause

If you receive these messages during initialization, the TCQ.THRESHOLD parameter is not specified.

Action to Take

Specify the TCQ.THRESHOLD parameter as YES, NO or a defined percentage value in the range 0-99.

Data to Collect

None

Chapter 5

Asset Protection Errors

This chapter lists possible asset protection errors, error messages, probable causes, actions to take, and data to collect.

Determining License Violations

Asset protection verification occurs at initialization and periodically throughout the day. Possible error messages are listed in the sections that follow.

CONDITION: **Connect:Direct initialization terminates with a message indicating the APDSN is not specified.**

Possible Error Message

SITA337I

Probable Cause

The required initialization parameter APDSN is not specified in the initialization parameter file.

Action to Take

Update your initialization parameter file with the APDSN parameter and specify the data set name of your Asset Protection Key (APKey) file. If you do not have an APKey file, go to Customer Support on the Sterling Commerce Web site at www.st erlingcommerce.com and request one.

Data to Collect

Collect the following data:

❖   Display of the Connect:Direct initialization parameter

❖   APKey data set name

CONDITION: **Connect:Direct initialization terminates with a message indicating an Asset Protection Failure.**

Possible Error Message

SITA338I

Probable Cause

An asset protection error occurred during initialization. Another asset protection message is issued with the details of the error.

Action to Take

View the other message issued, and take the appropriate action for that message.

Data to Collect

Collect the following data:

❖   Asset Protection error message

**CONDITION: Connect:Direct initialization terminates with a message
indicating the number of licensed copies is exceeded.**

Possible Error Message

SITA339I

Probable Cause

The asset protection system determined that initialization of Connect:Direct exceeds the number of servers
licensed by the APKey file named in the initialization parameter file.

Action to Take

View the APKey file to determine the number of servers that can be initialized. If this number needs to be
increased, contact Sterling Commerce for a new APKey file that increases the number of servers.

Data to Collect

Collect the following data:

❖   Number of servers from the APKey file
❖   Display of the APKey file

CONDITION: **Connect:Direct initialization terminates with a message indicating that storage allocation failed.**

Possible Error Message

SITA340I   **SITA341I**   **SITA342I**

Probable Cause

The asset protection system was not able to allocate required storage and cannot continue.

Action to Take

Increase the storage size defined to the Connect:Direct region. Contact Sterling Commerce if the problem persists.

Data to Collect

Collect the following data:

❖   Connect:Direct Initialization JCL

CONDITION: **Connect:Direct initialization message indicating the number of servers was exceeded but the initialization continues.**

Possible Error Message

SITA343I

Probable Cause

The number of servers defined by the APKey file exceeds the maximum that Connect:Direct can manage. The number of servers is set to the maximum of 32 servers.

Action to Take

Contact Sterling Commerce for a corrected or new APKey file.

Data to Collect

Collect the following data:

❖   Display of the APKey file

CONDITION: **Connect:Direct message indicating the APKEY file was refreshed.**

Possible Error Message

SITA344I

Probable Cause

A MODIFY INITPARM command was issued, and, as a result, the asset protection system has processed the APDSN specified in the initialization parameter file.

Action to Take

None

Data to Collect

Collect the following data:

❖   None

CONDITION: **Connect:Direct initialization terminates with a message indicating that Secure+ is not allowed.**

Possible Error Message

SITA345I

Probable Cause

The SECURE.DSN initialization parameter is specified, but the APKey file does not support Secure+.

Action to Take

Correct your initialization parameter file or contact Sterling Commerce for an APKey that enables Secure+.

Data to Collect

Collect the following data:

❖   Display of the APKey file

CONDITION: **Connect:Direct initialization message indicating that MAXPROCESS was restricted by asset protection.**

Possible Error Message

SITA346I

Probable Cause

The APKey file indicates that the copy of Connect:Direct being used is a limited-use license and is restricting the number of concurrent Processes.

Action to Take

Contact Sterling Commerce if this message is received in error.

Data to Collect

Collect the following data:

❖ Connect:Direct initialization messages

❖ Display of the APKey file

CONDITION: **Connect:Direct initialization terminates with a message indicating an invalid keyword.**

Possible Error Message

SITA347I

Probable Cause

The CONCURRENT-SESSIONS keyword in the APKey does not specify a valid value.

Action to Take

Contact Sterling Commerce for a corrected APKey file.

Data to Collect

Collect the following data:

❖ Display of the Connect:Direct initialization parameter file

❖ Display of the APKey file

CONDITION: Connect:Direct initialization terminates with a message indicating unauthorized program modifications have occurred.

Possible Error Message

APSM000E

Probable Cause

The asset protection system has determined that possible tampering of the asset protection system occurred.

Action to Take

Contact Sterling Commerce if you feel this message is issued incorrectly.

Data to Collect

Collect the following data:

- ❖ Display of the Connect:Direct initialization parameter file
- ❖ Display of the APKey file

CONDITION: **Connect:Direct initialization terminates with a message indicating the APKey file is not for this system.**

Possible Error Message

APSM001E

Probable Cause

The asset protection keyword identified in the text of the message is not valid for this Connect:Direct or is being executed on an unauthorized CPU.

The APKey file was generated with a CPUID that has an LPAR indicator that is not 00.

Action to Take

Contact Sterling Commerce if you feel this message is issued incorrectly or for a corrected APKey file.

Data to Collect

Collect the following data:

❖ Display of the Connect:Direct initialization parameter file

❖ Display of the APKey file

CONDITION: Connect:Direct initialization terminates with a message indicating the APKey is not valid for a specified number of days.

Possible Error Message

APSM002E

Probable Cause

The APKey file contains an ACTIVATION-DATE keyword, and this APKey file is not valid until that date.

Action to Take

Contact Sterling Commerce if you feel this message was issued in error.

Data to Collect

Collect the following data:

❖ Display of the Connect:Direct initialization parameter file

❖ Display of the APKey file

CONDITION: Connect:Direct initialization terminates with a message indicating the APKey is not valid.

Possible Error Message

APSM008E

Probable Cause

The digital signature in the APKey is not valid.

Action to Take

Contact Sterling Commerce for a corrected APKey file.

Data to Collect

Collect the following data:

❖ Display of the Connect:Direct initialization parameter file

❖ Display of the APKey file

CONDITION: **Connect:Direct initialization terminates with a message indicating the APKey has expired.**

Possible Error Message

APSM009E

Probable Cause

The asset protection system determined that the APKey is expired.

Action to Take

Contact Sterling Commerce for a new APKey file.

Data to Collect

Collect the following data:

❖ Display of the Connect:Direct initialization parameter file

❖ Display of the APKey file

CONDITION: Connect:Direct initialization warning message that the APKey file is expired.

Possible Error Message

APSM010E

Probable Cause

The asset protection system has determined that the APKey is expired.

Action to Take

Contact Sterling Commerce if you feel this message was issued in error or to get a new APKey file.

Data to Collect

Collect the following data:

❖   Display of the Connect:Direct initialization parameter file

❖   Display of the APKey file

CONDITION: **Connect:Direct initialization warning message that the APKey file will expire.**

Possible Error Message

APSM011E

Probable Cause

The asset protection system has determined the APKey expires within 30 days. This message is issued three times a day starting 30 days before the expiration date specified in the APKey file.

Action to Take

Contact Sterling Commerce if you feel this message is issued incorrectly or to get a new APKey file.

Data to Collect

Collect the following data:

❖   Display of the Connect:Direct initialization parameter file

❖   Display of the APKey file

CONDITION: Connect:Direct message indicating the APKey file is not valid.

Possible Error Message

APSM015E

Probable Cause

While processing a refresh of the APKey file from a MODIFY INITPARMS command, the asset protection system determined the AP keyword or the APKey file is not valid. The previous AP settings are retained, but the APKey file is not refreshed. Connect:Direct continues to function.

Action to Take

Contact Sterling Commerce if you feel this message was issued in error.

Data to Collect

Collect the following data:

❖   Display of the Connect:Direct initialization parameter file

❖   Display of the APKey file

CONDITION: **Connect:Direct initialization warning message that indicates initialization used an emergency key.**

Possible Error Message

APSM998I

Probable Cause

The APKey file contains an EMERGNCY-KEY keyword. The emergency key expires within a very short time.

Action to Take

Contact Sterling Commerce if you feel this message was issued in error or if you need to get a new APKey file.

Data to Collect

Collect the following data:

❖ Display of the Connect:Direct initialization parameter file
❖ Display of the APKey file

Chapter 6

Signon and IUI/API Errors

This chapter provides information that can help you to determine the cause of signon and IUI/API errors.

Determining Signon Errors

Signon errors keep you from accessing Connect:Direct. IUI/API problems prevent you from successfully submitting a Process or executing a command.

This chapter describes the following types of signon and IUI/API errors:

❖ ISPF/PDF or TSS/PFD signon failures can be caused by a variety of problems. Errors signing onto the IUI through the ISPF or TSS interface can include VTAM problems, security problems, or ISPF or TSS problems. Refer to Chapter 7, *Security Errors* for a description of common security errors.

❖ IUI/API Connect:Direct session failures occur when the IUI/API cannot establish a session with the DTF. A session failure usually means you will be unable to sign on to Connect:Direct.

❖ SELECT command errors occur while issuing SELECT STATISTICS, SELECT PROCESS, SELECT NETMAP, SELECT USER, SELECT TYPE, and SELECT TASK commands from the IUI, batch, or operator interface.

Note: You can diagnose most IUI/API problems by running an API-to-DTF session trace. See Chapter 14, *Connect:Direct Traces* for information on how to run this trace.

CONDITION: **Signon to the IUI is denied, with message "Error during ACB open."**

Possible Error Messages

SVTB002I

Probable Cause

The interactive applid that Connect:Direct is trying to use for signon is not active, is in an unacceptable state, or is not correctly defined to VTAM.

Action to Take

Review both the short text and long text Connect:Direct messages. Allocate NDMCMDS to display error messages to your terminal. NDMCMDS shows all actual Connect:Direct commands issued to the DTF, including resolution of symbolics. It can be particularly helpful to debug Connect:Direct commands through the IUI or through DMBATCH if you are having signon problems, syntax errors, and so forth.

For Connect:Direct OS/390, type the following on your command line.

```
TSO ALLOC FI(NDMCMDS) DA(*)
```

For Connect:Direct for VM/ESA, type the following on your command line.

```
CMS FILEDEF NDMCMDS T
```

Retry the signon. The display echoed to your screen shows you the applid receiving the open failure. Use your network management software to display that applid and ensure its state is ACTIV or CONCT. If it is not, use a VTAM command to change it between inactive and active again.

If the applid is unknown to VTAM, check your network map to ensure the applid is named correctly.

Data to Collect

Collect the following data:

❖ NDMCMDS output

❖ Applid status display

❖ Applid definitions

❖ Network map

CONDITION: Signon to the IUI is denied, with no error messages.

Possible Error Messages

None

Probable Cause

Your TSO or TSS profile specifies the NOWTPMSG option, which inhibits some error output from being displayed to the terminal.

Action to Take

Review both the short text and long text Connect:Direct messages. For OS/390, change to the WTPMSG option by typing **TSO PROF WTPMSG**. With the WTPMSG option, error messages are displayed at the terminal. Retry the operation (sign on).

Data to Collect

None

CONDITION: Signon is denied, because Connect:Direct is not active.

Possible Error Messages

SVTB004I   SCIA011I

Probable Cause

The Connect:Direct you are attempting to sign on to is not active.

Action to Take

Review both the short text and long text Connect:Direct messages. Ensure that Connect:Direct has completed initialization before attempting a signon. Allocate NDMCMDS to display additional information about the session failure. NDMCMDS shows all actual Connect:Direct commands issued to the DTF, including resolution of symbolics. It can be particularly helpful to debug Connect:Direct commands through the IUI or through DMBATCH if you are having signon problems, syntax errors, and so forth.

For OS/390 check to see that the network map is specified correctly on the ISPF menu and that the network map is correctly loaded, as described in the installation guide for your product.

Try to sign on through the DMBATCH interface to isolate the problem.

Data to Collect

Collect the following data:

❖   NDMCMDS output

❖   Network map

❖   Connect:Direct initialization parameters

❖   For OS/390 the ISR@PRIM panel

Possible Error Messages

STAA004I

Probable Cause

The number of interactive users on Connect:Direct has reached the limit set in the MAXUSERS parameter.

Action to Take

Review both the short text and long text Connect:Direct messages. Check the MAXUSERS parameter in the Connect:Direct initialization parameters data set. If it is commented out, the default is six users. Report this error to your Connect:Direct administrator, and determine whether you need to increase the value of this parameter.

Data to Collect

Collect the following data:

❖   Connect:Direct initialization parameters

CONDITION: **The SELECT command is issued successfully and completes with a successful return code and message, but no output is produced.**

Possible Error Messages

SAFF000I	**SAFF014I**	**SAFK000I**	**SAFL000I**	**SAFL010I**	**SCBB000I**
SCBL000I	**SCBO000I**	**SCBP000I**	**SCBQ000I**	**SCBX000I**	**SOPA000I**
SOPA011I	**SOPE000I**	**SOPS001I**			

Probable Cause

It is likely that Connect:Direct is having trouble allocating the temporary data set that contains the output from the SELECT command. For Connect:Direct VM/ESA, the output is written to a file on your A-disk named NDMAPI LISTING.

Action to Take

Review both the short text and long text Connect:Direct messages. For Connect:Direct OS/390 specify a UNIT and VOLSER for the temporary data set, and SPACE information. You can specify UNIT and VOLSER on the SIGNON DEFAULTS panel of the IUI or use the TEMPDSN parameter on your signon command for batch. Note that a UNIT type of VIO is not acceptable.

For Connect:Direct VM/ESA, ensure your A-disk has enough space for the results of the SELECT command.

Data to Collect

Collect the following data:

❖ List of the SELECT commands that produce output and those not producing output

❖ Any error messages

CONDITION: Select commands return with no output and a message indicating no output was available from the command.

Possible Error Messages

SOPA010I   SOPB012I

Probable Cause

For the SELECT PROCESS and SELECT STATISTICS commands, it is likely that the userid issuing the command is defined as a *general user* by the stage 2 security exit, indicating that the user is only allowed to see the command output for Processes submitted by that same userid.

Action to Take

Review both the short text and long text Connect:Direct messages. Check to see that the userid is defined with the ability to select Process/statistics for Processes not submitted by that userid.

Data to Collect

Collect the following data:

❖   Authorization for the userid

❖   Statistics file

CONDITION: **Signon failed with the message "SRF must signon to the LOCAL node only."**

Possible Error Messages

   SCBA501I

Probable Cause

An SRF from a remote location attempted to logon to a node other than the defined local node in the SRF Network Map data set. This error only occurs within the Connect:Direct OS/390 Sysplex Requester Facility from a remote signon.

Action to Take

Review both the short text and long text Connect:Direct messages. Attempt the SIGNON command again by specifying the local node as the destination node.

Data to Collect

Collect the following data:

❖   Output from NDMCMDS
❖   Copy of the SRF Network Map

CONDITION: **Signon failed with a message "Signon failed. The DTF may be down or inactive."**

Possible Error Messages

SCBA502I

Probable Cause

A SIGNON command was attempted for an SRF from a remote location while the DTF is down or initializing. ESF signon is not possible in this situation.

Action to Take

Review both the short text and long text Connect:Direct messages. Attempt the SIGNON command again after the DTF is fully initialized.

Data to Collect

None

CONDITION: **Signon failed with a message "Signon failed. No more SRF signons available."**

Possible Error Messages

SCBA503I

Probable Cause

An SRF attempted to signon to Connect:Direct. This attempt exceeded the allowable number of concurrent SRFs.

Action to Take

Review both the short text and long text Connect:Direct messages. Attempt the SIGNON command again later. If this problem continues, contact Sterling Commerce to inquire about increasing the number of licensed SRFs.

Data to Collect

None

CONDITION: **Multi-session signon failed for a remote SRF.**

Possible Error Messages

SCIA002I

Probable Cause

A multi-signon attempt was made from a remote SRF. Multi-session signons are not possible from a remote SRF.

Action to Take

Do not attempt a multi-signon from a remote SRF.

Data to Collect

None

Security Errors

Security errors can show up at signon, at Process start, or at any step of a Process. In general, a return code of 8 means that the error occurred on the PNODE, and a return code of C means the error occurred on the SNODE. This chapter tells you how to determine the cause of security errors.

Determining Security Errors

Many Connect:Direct security-related messages begin with the prefix RACF. This fact does not mean that RACF was necessarily involved with the failure. It is merely a naming convention for Connect:Direct message identifiers.

Often, it is helpful to run a security trace to determine exactly where and why a security failure occurred. See Chapter 14, *Connect:Direct Traces* in this manual for information on security traces.

The following pages list possible security errors, error messages, probable causes, actions to take, and data to collect.

CONDITION: **At signon, from either batch or the IUI, you receive the Connect:Direct message RACF097I, "The Stage 1 Signon exit has failed." The signon is denied.**

Possible Error Messages

RACF097I

Probable Cause

The Stage 1 Signon exit, DMCXSIGN, cannot be found.

In the Connect:Direct OS/390 IUI, verify that DMCXSIGN is in the LINKLIST or in ISPLLIB of your signon CLIST and not in a STEPLIB.

For Connect:Direct VM/ESA, verify that the FILEDEF for the LOADLIB includes DMCXSIGN. You must specify the LOADLIB in a GLOBAL for your userid in order for Connect:Direct to find the Stage 1 Signon Exit.

Action to Take

Review both the short text and long text Connect:Direct messages. If you are receiving the message during signon to the IUI, run a batch job after verifying that DMCXSIGN is available to the job (through STEPLIBs, the linklist, or globals). For either batch or interactive signon, allocate SECURITY. See Chapter 14, *Connect:Direct Traces* for instructions. You will be able to view the progression of BLDLs, along with output showing where Connect:Direct looked for DMCXSIGN and the results from the search.

Data to Collect

Collect the following data:

❖ Output written to the SECURITY DD when you allocated SECURITY as described in Chapter 14, *Connect:Direct Traces*.

CONDITION: **You are unable to successfully link to a minidisk through Connect:Direct VM/ESA.**

Possible Error Messages

SDMK020E	SDMK022E	SDMK052E	SDMK053E	SDMK070E
SDMK071E	SDMK073E	SDMK078E	SDMK101E	SDMK102E
SDMK103E	SDMK104E	SDMK105E	SDMK106E	SDMK107E
SDMK108E	SDMK109E	SDMK110E	SDMK111E	SDMK112E
SDMK113E	SDMK114E	SDMK115E	SDMK116E	SDMK117E
SDMK118E	SDMK119E	SDMK137E	SDMK139E	SDMK153E
SDMK199E	SMDK298E	SDMK331E	*SDMKxxxE	*SHCPxxxE
*SRPIxxxE				

Probable Cause

The security subsystem on the VM/ESA node has refused the request to link to the disk. The SDMK-prefixed messages are the Connect:Direct translation of CP messages. For more information, type **Help** and the message ID. For example, type **HELP DMK020E** or **HELP HCP020E** from native CMS.

Action to Take

Review both the short text and long text Connect:Direct messages. Check your link mode in your Process. If you are using R, for example, try RR, which does not deny your link if another user is linked READ to the disk. Ensure that the userid you are using to make the link (the SNODEID, the ID on the PNODE, or the SECURITY ID in the Connect:Direct VM/ESA authorization file) is given authority to make the link.

If all seems correct, run a security trace on the Connect:Direct VM/ESA node to see that the userid and link password are correct. See Chapter 14, *Connect:Direct Traces* for information on security traces.

Data to Collect

Collect the following data:

❖ Output from the security trace

❖ A copy of the LINK parameter from your Process

CONDITION: **You attempt to perform a Connect:Direct function, and receive a message that says you are not authorized to perform that function.**

Possible Error Messages

SCBB001I	SCBC030I	SCBD001I	SCBE001I	SCBF001I	SCBF063I
SCBF064I	SCBG001I	SCBH001I	SCBI001I	SCBJ001I	SCBK005I
SCBL001I	SCBN001I	SCBO001I	SCBP001I	SCBR002I	SCBS001I
SCBT005I	SCBU003I	SCBV001I	SCBW001I	SCBX001I	SCBY001I
SCPA008I	SFIA002I	SFIA003I	SRJA014I	SRTA008I	SSUB100I

Probable Cause

If you are running a Stage 2 security exit, your userid is defined using an authorization bit mask that does not include the function you are attempting. A security trace will show you the general category of Connect:Direct user assigned to your userid (administrator, operator, or general user). See Chapter 14, *Connect:Direct Traces* for more information about how to initiate a security trace. If you are using the Connect:Direct authorization file, the functional authority of your userid does not include the function you are trying to perform.

Action to Take

Review both the short text and long text Connect:Direct messages. Have the Connect:Direct administrator at your site ensure that your userid has the authority necessary to perform the function, either by updating your userid record in the Connect:Direct authorization file or by assigning the authority within the Stage 2 security exit.

Data to Collect

Collect the following data:

❖ Output from a security trace showing the validation of your authority to perform the Connect:Direct function

CONDITION: **On a COPY step, you are denied access to a data set or file.**

Possible Error Messages

RACF095I

Probable Cause

The security subsystem either on your node (RC=8) or the remote node (RC=C) has denied your userid access to the data set.

Action to Take

Review both the short text and long text Connect:Direct messages. Ensure that your userid has the correct access to the data set. If you continue getting this message, run a security trace. See Chapter 14, *Connect:Direct Traces* for more information about how to initiate a security trace. It might be necessary to use a PNODEID or SNODEID statement to send a valid userid and password to the security system.

Data to Collect

Collect the following data:

❖   Output from a security trace

CONDITION:	**When signing on to Connect:Direct or submitting a Process to another node, you receive message SAFA002I, "The user record was not found in the Authorization Data Set."**

Possible Error Messages

SAFA002I

Probable Cause

If you are using the Connect:Direct authorization file for security, it is important to remember that the key to that file is a combination of userid and node name. For example, if you are signed on to node CDA with userid USERA and transmitting to node CDB (not using an SNODEID override), the authorization file on CDB must have an entry for the userid USERA and node CDA.

Action to Take

Review both the short text and long text Connect:Direct messages. Check the appropriate Connect:Direct authorization file and verify that the correct userid/node combination is specified. User records in the Connect:Direct authorization file can be added or modified with the Insert User or Update User commands.

Data to Collect

Collect the following data:

❖ Output from a security trace. See Chapter 14, *Connect:Direct Traces*.

Connect:Direct DTF Session-Establishment Errors

Connect:Direct DTF session-establishment errors prevent a successful connection between two Connect:Direct systems. This chapter explains the most common causes of DTF session-establishment errors, actions to take, and the types of data you need to collect to troubleshoot the error.

CONDITION:	An attempt to establish a session with another Connect:Direct session fails. (See the following four possible causes and associated actions.)

Possible Error Messages

SVTM026I   SVTM045I   SVTM053I   SVTM104I

Probable Cause

The links that connect the two Connect:Direct systems are not active, or an error has occurred on the links.

Action to Take

Review both the short text and long text Connect:Direct messages. Use your network management software to determine the status of the links used for system-to-system communication. Reactivate the links.

Data to Collect

Collect the following data:

❖   If you are unable to determine the problem, run a session manager, RPLOUT, and separate-trace-per-task trace. For information on these traces, refer to Chapter 14, *Connect:Direct Traces*.

———————— OR ————————

Possible Error Messages

SVTM026I

Probable Cause

The cross-domain resource definition for the remote Connect:Direct system is not active.
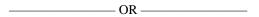
Action to Take

Review both the short text and long text Connect:Direct messages. Use your network management software to determine the status of the Connect:Direct cross-domain manager and cross-domain resource definitions used in communicating with other Connect:Direct locations. Reactivate the cross-domain resource manager or cross-domain resources.

Data to Collect

Collect the following data:

❖   If you are unable to determine the problem, run a session manager, RPLOUT, and separate-trace-per-task trace. For information on these traces, refer to Chapter 14, *Connect:Direct Traces*.

———————— OR ————————

Possible Error Messages

SNAS0801   SVTM026I

Probable Cause

The VTAM applid for the remote Connect:Direct system is not active.

Action to Take

Review both the short text and long text Connect:Direct messages. Use your network management software to determine the status of the applid for the remote Connect:Direct system. Ensure the remote Connect:Direct has initialized. Reactivate the VTAM applid, or initialize the remote Connect:Direct.

Data to Collect

Collect the following data:

❖ If you are unable to determine the problem, run a session manager, RPLOUT, and separate-trace-per-task trace. (For information on these traces, refer to Chapter 14, *Connect:Direct Traces*.

———————— OR ————————

Possible Error Messages

SCCS028I │ **STAA005I**

Probable Cause

The maximum number of secondary sessions is reached on the secondary Connect:Direct system.

Action to Take

Review both the short text and long text Connect:Direct messages. Determine the number of active VTAM sessions for the secondary location. Use your network management software to issue **D NET,ID=applid,E** (VTAM applid) at the secondary location site. Ensure that the maximum number of secondary sessions is sufficient for your requirements.

Data to Collect

Collect the following data:

❖ If you are unable to determine the problem, run a session manager, RPLOUT, and separate-trace-per-task trace. For information on these traces, refer to Chapter 14, *Connect:Direct Traces*.

Connect:Direct DTF Out-of-Storage Abends

DTF out-of-storage abends occur during heavy Connect:Direct activity or during phases when the DTF has run for a long period of time. This chapter explains the most common causes of DTF out-of-storage abends, actions to take, and the types of data to collect.

CONDITION: An out-of-storage abend occurs in the DTF. (See the following two possible causes and associated actions.)

Possible Error Messages

user abend U0500   user abend U0501   system abend SxOA   system abend Sx78

Probable Cause

If this condition occurs only during heavy Connect:Direct activity, you may need to modify the initialization parameters or the DTF REGION parameter.

Action to Take

Review both the short text and long text Connect:Direct messages. Limit the number of Processes that can run at one time using the MAXPRIMARY, MAXSECONDARY, and MAXPROCESS initialization parameters. Also, examine the MAXSTGIO initialization parameter to determine if it can be decreased. The REGION size in the DTF JCL may need to be increased to allow more concurrent Processes.

Data to Collect

Collect the following data:

❖ Try to determine which subpool is growing

❖ Dump taken after controlled tests when all DTF activity has ended

❖ The Connect:Direct log

❖ Connect:Direct initialization parameters

❖ Connect:Direct STC (started task) JCL

❖ Source for any user exits

———————— OR ————————

Probable Cause

If this condition appears to be a "storage creep" and occurs after the DTF is active for a long time (not necessarily running many Processes immediately), you can take several actions.

Action to Take
❖ Examine all RUNTASK programs and ensure that for every file opened, a CLOSE and a FREEPOOL is also done.

❖ Examine any user exits for GETMAIN macros and verify that FREEMAIN macros are issued for each of those areas.

❖ Examine any RUNTASK programs for GETMAIN macros and ensure FREEMAIN macros are issued for each area.

- ❖ Try to pinpoint the type of Processes or other DTF activity that causes the problem:

  - ◆ Does this occur only during a COPY?

  - ◆ Does this occur when a specific Process is run? What does the Process do?

  - ◆ Does this occur when a certain command is issued? What is the command?

- ❖ If you cannot determine a specific Process, command, or other activity that causes the storage creep, run a typical batch of processes/commands that runs when the abend occurs. Before the out-of-storage abend occurs, go to the ADMIN MD panel and QUIESCE Connect:Direct. For example, if the abend usually occurs after 10 hours of activity, quiesce after about eight hours.

- ❖ If you did determine that a certain Process or command causes the problem, submit that Process or issue the command several times (the number of times depends on how long it takes before you get to the abend). For example, if it occurs after the Process runs 100 times, run it 90 times in your tests. Get a dump of the DTF address space after all DTF activity is finished.

Data to Collect

Collect the following data:

- ❖ Dump taken after controlled tests after all DTF activity ended

- ❖ The Connect:Direct log

- ❖ Connect:Direct initialization parameters

- ❖ Connect:Direct STC JCL

- ❖ Source for any user exits

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Chapter 10

Allocation and Open Errors

Allocation and open errors involve the source or destination files. This chapter describes errors in which the allocation or opening of a file fails, and the action to take and types of data you need to collect to troubleshoot the error.

CONDITION: A failure occurs while trying to allocate a user file.

Possible Error Messages

SDAA001I   SDAA004I   SDAA005I   SDAA048I

Probable Cause

Connect:Direct received an error while doing the allocation of a file or data set.

Action to Take

Review both the short text and long text Connect:Direct messages. Check the SYSLOG, console, or Connect:Direct statistics for the text of the SDAA004I and SDAB005I messages. The SDAA004I message contains the allocation parameters used by Connect:Direct. If an error exists, the ERR=*nnnn* field of the SDAB005I message contains non-zeroes, and error text follows. Use the Connect:Direct message facility to look up the error, which has a format of SDE*nnnn*I, where *nnnn* is the number in the ERR field. The operating system dynamic allocation routine returns the ERR value.

Note: Connect:Direct initialization parameters (ALLOC.CODES and ALLOC.RETRIES) determine which allocation errors, if any, cause a Process that fails on an allocation error to be retried.

Data to Collect

Collect the following data:

❖   Connect:Direct allocation string (found in the WTO records in the statistics file)

❖   the Connect:Direct Process involved

❖   SDAA004I message output

❖   SDAB005I message output

CONDITION: **Connect:Direct for VM/ESA console receives message 4228I open error X'76'.**

Possible Error Messages

4228I   open error X'76'

Probable Cause

If you receive these messages during initialization and the files that receive the open errors are Connect:Direct files, it is likely that the last termination of Connect:Direct VM/ESA was abnormal and Connect:Direct was unable to properly close the files before it terminated. If you receive this message at user signon, you are attempting to open the network map file that is already open.

Action to Take

Review both the short text and long text Connect:Direct messages. These files verified automatically and opened, usually without user intervention. If they do not automatically open, then delete and redefine the files using the AMSERVs and LOAD EXECs provided with Connect:Direct VM/ESA. Receiving this message at user signon is normal and does not cause any problems.

Data to Collect

None

CONDITION: The TCQ file has reached the defined threshold value.

Possible Error Messages

SPQL003I   TCQ file is now below the defined threshold of &VAR.

Probable Cause

The number of VSAM file CIs used has reached the defined threshold.

Action to Take

Reduce the number of Processes in the TCQ, or increase the size of the TCQ. Refer to the *Global Initialization Parameters* section of the *Connect:Direct OS/390 Administration Guide* for more information.

Data to Collect

None

Chapter 11

Transmission Errors

Transmission errors include consistency problems within communication components that can occur during Process execution. The errors can occur within communication components such as VTAM, NETEX™, IBM Network Control Program (NCP), or links.

This chapter lists possible transmission errors, error messages, probable causes, actions to take, and data to collect to troubleshoot an error.

CONDITION: An error occurs during the Process execution initiation. (See the following two possible causes and associated actions.)

Possible Error Messages

SVTM041I (SNASYNC1: Session abnormally terminated)

Probable Cause

The session or link was lost before Process execution began.

Action to Take

Review both the short text and long text Connect:Direct messages. Use your network management software to determine the status of the link, cross-domain definitions, and applids used in the system-to-system communication. Activate the link, cross-domain definitions, or applids as required, and restart the Process.

Data to Collect

None

————————— OR —————————

Possible Error Messages

SVTM053I (Session acquire failure)

Probable Cause

A protocol error occurred within the Connect:Direct system.

Action to Take

Review both the short text and long text Connect:Direct messages. If the problem persists, use the VTAM buffer and I/O trace facility to gather problem determination data. Also, request a session manager trace and an RPL trace.

Data to Collect

Collect the following data:

- ❖ Output from session manager
- ❖ Output from RPL traces

CONDITION: **An unrecoverable error (send or receive error) occurs within the system-to-system session while a Process executes. (See the following three possible causes and associated actions.)**

Possible Error Messages

SVTM045I

Probable Cause

An I/O error within the primary or secondary node causes Connect:Direct to send a negative response to the other location.

Action to Take

Review both the short text and long text Connect:Direct messages. Accompanying Connect:Direct messages indicate the type of error that caused the send or receive session to fail. Check your network management software for VTAM sense codes, then find the reason the sense code was issued. Correct the problem if possible and retry the Process.

In some cases, you need a VTAM buffer or an I/O trace of the error. You may need a backup copy of the file if a file I/O error caused send or receive error. If the error is temporary, retrying the Process might clear up the difficulty.

Data to Collect

Collect the following data:

❖   Output from the VTAM buffer or I/O trace

———————————— OR ————————————

Possible Error Messages

SVTB020I, followed by a U4095 abend

Probable Cause

A Connect:Direct system shuts down with either the IMMEDIATE or FORCE parameter specified on the STOP CD command.

Action to Take

Review both the short text and long text Connect:Direct messages. Restart the Connect:Direct system

Data to Collect

None

———————————— OR ————————————

Possible Error Messages

SVTM042I	**SVTM043I**	**SVTM044I**	**SVTM045I**	**SVTM046I**
SVTM047I	**SVTM048I**	**SVTM049I**	**VTAM sense code 0870**	
			VTAM sense code 800A	

In some cases, you need a VTAM buffer or an I/O trace of the error. You may need a backup copy of the file if a file I/O error caused a send or receive error. If the error is temporary, retrying the Process might clear up the difficulty.

Probable Cause

An error occurs within one of the communication components (VTAM, NCP, or link).

Action to Take

Review both the short text and long text Connect:Direct messages. The communication component containing the error issues error messages. Various VTAM and NCP definitions are incompatible with Connect:Direct operations. Refer to the *Selecting RU Sizes* section in the appropriate Connect:Direct installation guide for more information.

Data to Collect

Collect the following data:

❖   VTAM definitions

❖   NCP definitions

Chapter 12

Operator Interface Errors

Operator interface errors occur while you are using the operator interface to issue commands to Connect:Direct. You can find more information on the operator interface in the *Connect:Direct Console Operator's Guide*.

This chapter lists possible operator interface errors, error messages, possible causes, actions to take, and data to collect to troubleshoot an error.

CONDITION: **When issuing operator interface commands, you get a "task busy" message.**

Possible Error Messages

IEE342I Modify rejected - task busy

Probable Cause

An error in the MCS.SIGNON parameter in the Connect:Direct initialization parameters.

Action to Take

Ensure that the MCS.SIGNON parameter reflects a valid userid-password combination with Connect:Direct operator authority and that the network map is correctly specified on the MCS.SIGNON parameter. Remove comments from this parameter.

Data to Collect

Collect the following data:

❖ Connect:Direct initialization parameters
❖ SYSLOG output

CONDITION: **When issuing operator interface commands, you get "user not authorized" messages.**

Possible Error Messages

SCBB001I	SCBC030I	SCBD001I	SCBE001I	SCBF001I	SCBF063I
SCBF064I	SCBG001I	SCBH001I	SCBI001I	SCBJ001I	SCBK005I
SCBL001I	SCBN001I	SCBO001I	SCBP001I	SCBR002I	SCBS001I
SCBT005I	SCBU003I	SCBV001I	SCBW001I	SCBX001I	SCBY001I
SCPA008I	SFIA002I	SFIA003I	SRJA014I	SRTA008I	SSUB100I

Probable Cause

The userid attempting to issue the operator interface commands is not authorized to issue them.

Action to Take

Review both the short text and long text Connect:Direct messages. Check the userid specified in the MCS.SIGNON parameter of the Connect:Direct initialization parameters file. Determine whether that userid has the authority to issue the command. If you believe it does, run a security trace to determine why the user cannot issue the command.

See Chapter 14, *Connect:Direct Traces* for information on how to run the trace.

Data to Collect

Collect the following data:

❖ Connect:Direct initialization parameters
❖ Security trace

Connect:Direct Problem Isolation Guide

Part III

Diagnostic Tools

Dumps

A Connect:Direct abend can occur when a system failure or system error exists or when the FORCE parameter is used with the STOP CD command.

When an abend is reported, Customer Support searches the problem tracking database for any similar problems. Often the abend is a known bug or a common error, and a solution is readily available. Otherwise, they need a full SVC dump for diagnosing abends.

Information Requested by Customer Support

When you call to report an abend, Sterling Commerce Customer Support attempts to determine the type of abend and locate the module in which the abend occurred. If support personnel cannot locate a reference to the abend, they might request the following to diagnose the abend:

❖ Send a complete dump, not a snap dump.

❖ If the abend is caused by a specific Connect:Direct Process, support personnel may request a copy of the Process and the statistics associated with that Process. If the Process has symbolics, include the symbolic substitution data. Also, ensure that the statistics records include WTO records.

> **Note:** Include statistics from both Connect:Direct nodes.

If the abend occurred while executing a Process that has previously executed successfully, determine what changes were made, either in the operating system or within Connect:Direct, since executing and do the following:

❖ Send console logs for both Connect:Direct nodes.

❖ Note whether the abend caused either Connect:Direct node to terminate.

❖ If the abend can be recreated, provide details.

❖ Send a copy of the system log and network error log for both operating systems, which can indicate any unusual situations occurring with the operating system or network at the time of the abend.

> **Note:** A system log is always required when analyzing an abend. It is preferable to review the log for both systems; however, it is essential for the system reporting the abend. When one of the nodes is not an OS/390, VM/ESA, or VSE/ESA, check the output files for Connect:Direct.

❖ Send RPLERRCK DD output to review I/O errors and other information.

❖ Send ESTAE DD output to review abend conditions and some special I/O conditions.

If several abends occur simultaneously, send the dump from the first abend. Usually, subsequent abends result from the original abend.

When sending a dump on tape, send the JCL that created the tape. DSN, VOLSER, LABEL, and DCB attributes are needed to facilitate tape unloading. If available, send a printout of the tape management product display of the VOLSER.

Note: If you are sending a tape with more than one file, ensure that the JCL that created the tape references the correct file in the LABEL= parameter. This reference ensures that a previous file is not inadvertently overlaid.

You can send dumps to Sterling Commerce on tape or over the Internet. To send dumps over the Internet, contact Sterling Commerce Customer Support for instructions.

The remainder of the chapter discusses the various dumps that might be requested by Sterling Commerce Customer Support for problem determination and resolution. Also provided are instructions for producing these dumps. Dumps described in this section include:

❖ Connect:Direct Data Transmission Facility dumps, which include SYSMDUMP, CDSVCDMP, and SYSABEND dumps, VM Group Control Services (GCS) address space dumps, and VSE PARTDUMP dumps.

❖ Connect:Direct Interactive User Interface dumps, which include OS/390 Time Sharing Option (TSO) address space dumps and VM Conversational Monitor System (CMS) address space dumps.

❖ SVC dumps

❖ Batch dumps

❖ IBM Virtual Storage Access Method file dumps

❖ DTF Snap Dump Facility

Connect:Direct Data Transmission Facility (DTF) Dumps

A Connect:Direct Data Transmission Facility (DTF) dump is generated when an abend occurs. The dump contains the contents of the Connect:Direct address space, which is copied into one or more of the data sets that you specify by ddname in the DTF JCL (CDSVCDMP, SYSABEND, or SYSMDUMP).

The DTF dump is also referred to as a GCS dump for Connect:Direct for VM and PARTDUMP for Connect:Direct for VSE/ESA.

The following sections describe how to create a dump of the DTF for each Connect:Direct environment.

Connect:Direct OS/390 DTF Dumps (CDSVCDMP, SYSMDUMP, and SYSABEND)

When an abend occurs, Connect:Direct produces an SVC dump with all of the information for the address space, regardless of whether the abend occurred in the main task or a User Exit subtask. Unless otherwise specified in the JCL, the dump is written to the standard SVC dump data set, SYS1.DUMPxx. You can specify an alternate data set by using the CDSVCDMP DD statement in the JCL.

You can write debug information to the ESTAE DD by setting the debug trace bit in the initialization parameters to 00000001. For more information, see the ESTAE initialization parameter definition in the *Connect:Direct OS/390 Installation Guide*.

Note: If the system attempts to take an SVC dump and fails with: *ERROR* Unable to take an SVC dump; reason: 0B, the dump analysis and elimination (DAE) component of the operating system found an earlier dump of this problem already exists.

You can turn off the SVC dump by modifying your JCL. For more information, see the *Turning Off the SVC Dump* section below.

Capturing Multiple DTF SVC Dumps Using CDSVCDMP

You can use CDSVCDMP to capture multiple DTF SVC dumps. A dump is created for each abend and written to a separate data set. You can specify whether the dumps are written to the SYS1.DUMPxx data sets or to unique user-specified data sets.

To write dumps to user-specified data sets, you must create a data set name for each dump that can occur. The first data set name must end with .SYSMDP00. Each additional data set name must end with .SYSMDPnn, where nn is a consecutive number up to a value of 99. For example, if you want to create enough data sets to write five dumps, create five data set names beginning with xxxx.yyyy.SYSMDP00 and ending with xxxx.yyyy.SYSMDP04.

You must define the data sets with the same attributes as your SYS1.DUMPxx data sets. The data sets must be preallocated and on the same disk volume.

To record multiple SVC dumps, set the JCL statement for CDSVCDMP as follows.

```
//CDSVCDMP DD DSN=XXXX.YYYY.SYSMDP00,DISP=SHR
```

The first dump is written to the .SYSMDP00 data set. When an additional abend occurs, a dump is written to the next data set, .SYSMDP01. Each additional abend creates a dump to the next .SYSMDPnn data set as long as abends occur and enough .SYSMDPnn data sets are available. If an abend occurs and all data sets are full, the dump is not created and a message is issued stating that all .SYSMDPnn data sets are full.

You do not have to empty or reset these dump data sets. When the DTF is initialized, and you are using the .SYSMDPnn data sets, Connect:Direct writes over the existing data in the data sets. If you want to save the existing data, save the data sets using a different data set name before you restart Connect:Direct.

Turning Off the SVC Dump

If you want to turn off the SVC dump, place the following statement in your DTF JCL.

```
//CDSVCDMP DD DUMMY
```

Changing Dump Options

For the SDATA parameter specify SDATA=(ALLSDATA). If SDATA=(ALLSDATA) is not an acceptable default for your system, ensure that the PARMLIB member corresponding to the ddname in the JCL for the DTF specifies, at a minimum, the following.

```
SDATA=(IO, SWA, CB, ENQ, TRT, ERR, DM)
```

For the PDATA parameter for IEADMPxx and IEAABDxx, specify PDATA=(ALLPDATA).

> **Note:**   PDATA is not an option for member IEADMRxx.

If you cannot specify ALLPDATA, at a minimum, include PSW, REGS, SA, JPA, SPLS, and SUBTASKS. Refer to the IBM documentation.

If you are unable to change the PARMLIB member, issue an operator command to change the dump options.

The following steps guide you in issuing operator commands to change dump options:

1.   Issue the command DISPLAY DUMP,OPTIONS to list the dump options currently in effect.

2.   Issue the command CHNGDUMP SET to change the options.

3.   Issue the CHNGDUMP DEL or CHNGDUMP RESET command to reset the options after recreating the dump.

If the correct dump options are specified in one of the PARMLIB members, change the ddname in the JCL for the DTF to reference the ddname corresponding to that member.

For further information on changing dump options, refer to the applicable IBM manuals.

Connect:Direct for VM/ESA DTF Dump (GCS Dump)

Create VM dumps using the CP VMDUMP command and format them using IPCSDUMP on VM/SP or DUMPLOAD on a VM/XA system. They must be in machine-readable format for DUMPSCAN. VMDUMP is the required format. You must process dumps by IPCS or DUMPLOAD, prior to sending to Sterling Commerce.

Use the following procedures when producing a GCS dump:

1.   From the GCS (DTF) machine, type the following.

```
   #CP VMDUMP 0.END FORMAT GCS DSS *DUMPID
```

The dump is routed to the reader (RDR) of the virtual machine that is defined as the DUMP RECEIVER in the GCS CONFIG file. A message indicating the abend is displayed on the GCS console. This message signals that the dump is complete and in the reader. You can use the DUMPID field to append a description of the problem. The DUMPID field can contain 1 to 100 characters.

2.   Type the VM Interactive Problem Control System command **IPCSDUMP** on VM/SP or DUMPLOAD on a VM/XA or VM/ESA system to format the dump into a PRB*xxxxx* DUMP file. You are prompted for additional information which Connect:Direct uses to generate a PRBxxxxx REPORT file. Dump both of these files to tape using VMFPLC2 or TAPE.

3.   Append the GCS NUCMAP to the dump, or send it in a separate file to allow support representatives to map into system code.

4.   Also include the GCS console log, PROFILE GCS file, and the DMGCSMAP STARTUP file.

5.   Indicate if the dump is from a VM/SP, VM/XA, or VM/ESA system.

Connect:Direct for VSE/ESA DTF Dump (PARTDUMP)

To create the dump when the DTF cancels, request PARTDUMP on the OPTION job control statement in the startup job stream.

Add the following to the Connect:Direct startup JCL to create a dump.

```
//OPTION LOG,PARTDUMP
```

The specifications on the OPTION job control statement determine the kind of dump created.

Note: If you cancel Connect:Direct for VSE/ESA with ESTAE=YES, an abnormal termination exit always generates a dump.

Connect:Direct Interactive User Interface (IUI) Dumps

When the Connect:Direct IUI abends, a system dump might be required for problem resolution. The following sections describe how to create a dump of the IUI for each Connect:Direct environment.

Connect:Direct OS/390 IUI Dumps

To obtain a dump of the TSO address space, allocate a SYSUDUMP, SYSABEND, or SYSMDUMP ddname, and run the ISPF/PDF with the TEST option.

To send a dump of the IUI to a data set, allocate SYSUDUMP, SYSABEND, or SYSMDUMP with DISP=MOD to account for the two dumps that Connect:Direct produces.

To recreate an abend of the IUI to produce a dump, perform the following steps:

1.   Ensure that SYSUDUMP, SYSABEND, or SYSMDUMP is allocated.

2.   Reinvoke ISPF with the **ISPF TEST** command.

3.   To dynamically allocate a SYSUDUMP ddname, type the following TSO command where *filename* is a valid TSO name that has LRECL=121 and RECFM=VBA.

```
TSO ALLOC F(SYSUDUMP) DA(filename) MOD
```

Specify **DISP=MOD**, so that ISPF does not overwrite the dump. Ensure adequate space is allocated for the data set. Generally, 15 cylinders on a 3380 device is enough space for an IUI dump.

4.   When the abend message is displayed, press **ENTER** to produce a dump. Two dump messages (and dumps) are produced. Press **PF3**/**END** to bypass the dump.

CMS Address Space Dump (Connect:Direct for VM/ESA Only)

Create VM dumps using the VMDUMP command and format them using IPCSDUMP on VM/SP or DUMPLOAD on a VM/XA system. You must put them in machine-readable format for DUMPSCAN. VMDUMP is the required format. Process dumps by IPCS or DUMPLOAD before you send them to Sterling Commerce.

To create a dump of the CMS address space, type the following command from CP read mode.

```
VMDUMP 0.END FORMAT CMS DSS *DUMPID
```

The dump is routed to the reader (RDR) of the virtual machine where the abend occurred. You can use the DUMPID field to append a description of the problem. DUMPID can be from 1-10 characters.

Use the VM Interactive Problem Control System command IPCSDUMP or DUMPLOAD to process the dump and create a problem report. Also, include the CMS NUCMAP with the dump.

SVC Dumps

If you take an SVC dump, copy the dump to a tape and mail it to Sterling Commerce. Include the DCB attributes of the tape data set and the DSN, VOLSER, and LABEL parameters specified when you created the tape. Sterling Commerce Customer Support formats the dump for you. Also, specify the system the dump was taken on (ESA, XA, and so forth).

DMBATCH Dumps

For DMBATCH dumps, ensure the JCL that executes DMBATCH contains a SYSUDUMP, SYSABEND, or SYSMDUMP DD statement. Refer to the discussion on DTF dumps beginning on page 102 to ensure that the appropriate dump options are specified for the corresponding ddname in the JCL for DMBATCH.

VSAM File Dumps

If a problem occurs when using a Connect:Direct VSAM file, you might need a dump of the VSAM file for problem resolution. The following sections describe how to create a dump of the VSAM file for each Connect:Direct environment.

Connect:Direct OS/390 VSAM File Dump

To dump a Connect:Direct OS/390 VSAM file, use the IBM Access Method Services (AMS) PRINT command. If you send an IDCAMS PRINT of the TCQ, include the TCX file.

Refer to the sample job stream in the following example for creating a Connect:Direct OS/390 VSAM dump.

```
//XXXXXX   JOB  (1111),PROGRAMMER,NOTIFY=TSOID,CLASS=D,MSGCLASS=X,
//             MSGLEVEL=(1,1)
//PRINT    EXEC PGM=IDCAMS
//SYSPRINT DD SYSOUT=*
//SYSIN    DD *
  PRINT INDATASET(DUMP1.OS390.VSAM1)                          -
            DUMP
```

To copy a VSAM file to tape, use the IDCAMS REPRO command. You must include the DCB parameters, RECFM=F, DSORG=PS for the data set created on the tape. In the LRECL and BLKSIZE parameters for the dataset created, you must reflect the size specified for the RECORDSIZE parameter used when you defined the file.

For example, if the Connect:Direct statistics file was initially defined with RECORDSIZE (4089 4089), copy the Connect:Direct statistics file by typing the following DCB parameters in the DD statement in the JCL.

```
//OUTDD DD DSN=TAPE.STAT.FILE,
  DCB=(LRECL=4089,BLKSIZE=4089,RECFM=F,DSORG=PS)
```

Connect:Direct for VM VSAM File Dump

To create a dump of a Connect:Direct for VM VSAM file, perform the following steps:

1. Issue a CMS DLBL command to define the VSAM Master Catalog that contains an entry for the VSAM file you want to dump. Following is an example.

```
DLBL IJSYSCT V DSN MASTCAT (PERM)
```

2. Issue the following CMS DLBL command to define the VSAM file to be dumped. Change **fm** to the file mode of the VSAM disk containing the VSAM file. Change filename to the file name of the VSAM file you want to dump.

```
DLBL SRCFILE fm DSN filename (CAT IJSYSCT)
```

3. Create the following input file to be used by the IBM VM Access Method Services (AMSERV) named PRINT AMSERV. Leave column one blank as shown in the following example.

```
PRINT INFILE ( SRCFILE ) DUMP
```

4. Issue the following CMS command to run AMSERV.

```
AMSERV PRINT
```

Connect:Direct for VSE/ESA VSAM File Dump

To create a dump of a Connect:Direct for VSE/ESA VSAM file, use the IDCAMS AMS PRINT command.

```
// DLBL  IJSYSUC,'vsam catalog id',,VSAM
// DLBL  SRCFILE,'filename',,VSAM
// EXEC  IDCAMS,SIZE=AUTO
   PRINT INFILE(SRCFILE) DUMP
/*
```

DTF Snap Dump Facility

The Snap Dump facility enables you to display, in hexadecimal format, the contents of a storage location in an active DTF. The following paragraphs describe the use of the commands and the format of the output as a result of invoking this facility. To use this facility, add a DD statement with the name CDDUMPR to the DTF startup procedure. Assign the output to SYSOUT or SYSLST.

Command Syntax

Use the operator command interface to type the following command for Connect:Direct OS/390.

```
F jobname,DUMP,type,[parameter1],[parameter2],[parameter3]
```

Use the operator command interface to type the following command for Connect:Direct for VSE/ESA.

```
nn DUMP,type,[parameter1],[parameter2],[parameter3]
```

The following table describes the command syntax in the preceding example.

Command	Description
DUMP	Indicates a snap dump if you request some location of an active DTF.
type	Identifies the classification of the storage to display.
parameter	Indicates the type of information displayed. It also specifies how the information is displayed.

Using Snap Dump Commands

The following examples describe different uses for the Snap Dump facility.

Displaying a Hexadecimal Dump Format

The following command provides a method to display in hexadecimal dump format the contents of the storage starting at location **addr1**. Determine the extent of the storage by tither an ending address at addr2 or by a length indicated by value.

```
DUMP,MEM,START=addr1,[END=addr2],[LEN=value]
```

Displaying the Resource Address Table

The following command displays the complete Resource Address Table (RAT).

```
DUMP RAT
```

Displaying Task Control Area Information

The following command provides two types of output. The LIST parameter provides a list of summary information for each of the active Task Control Areas in the system. The ID= parameter provides a dump of all the information for a specific Task Control Area.

```
DUMP TCA,[LIST],[ID=taid]
```

Displaying DTF Program Information

The following command provides information about the programs comprising the DTF. The LIST parameter provides a line of summary information for each of the programs loaded by the initialization of the DTF. To obtain a complete dump of a program, code the ID= parameter with the name of the module you want to dump.

```
DUMP PGM,[LIST],[ID=name]
```

Suppressing Dumps for Specific Abend Codes

Use the following procedure if you want to suppress the dump for specific abend codes.

1. Add the abend code for which you want to suppress dumps to the abend codes list defined in the ABEND.CODES.NODUMP parameter. Following is an example:

2. Set the ABEND.RUNTASK parameter to ABEND.CODES.NODUMP

```
ABEND.CODES.NODUMP => (SX37 SX13 U0728 SXD9 S9FC)
ABEND.RUNTASK => ABEND.CODES.NODUMP
```

Connect:Direct Traces

You can perform some problem isolation and diagnostics by running traces. A trace is a sequential recording of program events during execution. Generally, trace output is useful only as a diagnostic tool for the Sterling Commerce Customer Support staff because most of the output is meaningful only with access to the source code.

The following sections describe how to run the different types of traces:

❖ Guidelines for running traces

❖ Security traces

❖ Connect:Direct function traces

❖ Connect:Direct automatic traces

Guidelines for Running Traces

When running traces for Sterling Commerce Customer Support personnel, it is important to remember the following:

❖ Limit Connect:Direct activity while running traces.

❖ Use merged traces. That is, run separate traces for each affected task merged into a single output file.

❖ Trace the simplest case possible.

❖ Disable traces upon completion. They generate considerable overhead.

Security Traces

Sterling Commerce Customer Support staff use a security trace to debug security problems. The trace shows:

❖ Fields from the security control block

❖ Messages

❖ Return codes from the security system itself such as RACF, CA-TOP SECRET, and VMSECURE

❖ Data set names, if verifying data sets

❖ Exact userids and passwords

Note: The security trace may include userids and unencrypted passwords. Therefore, use it selectively and only to pinpoint a problem.

To prevent a remote node's security from discovering and then using Signon dummy passwords to gain access to a primary node, you can use the REMOTE.DUMMY.PASSWORD initialization parameter. See Appendix A, *Global Initialization Parameters*, in the *Connect:Direct OS/390 Administration Guide.*

To start a security trace, complete the following steps:

1. Specify TEST=YES as a parameter in your security exit source and reassemble and link-edit the exit.

2. For Connect:Direct OS/390 in the Connect:Direct startup JCL, allocate a DD for SECURITY, either to SYSOUT or to a data set on DASD. SYSOUT is preferred.

    For Connect:Direct for VM/ESA, put a FILEDEF for SECURITY in the Connect:Direct PROFILE GCS, either to disk or to DUMMY. If you use DUMMY, spool the console before starting Connect:Direct for VM/ESA.

3. To allocate the security trace from the IUI, enter the following command appropriate for your operating environment.

```
   TSO ALLOC FI(APISECUR) DA(*)        /* FOR OS/390 */
   FILEDEF SECURITY TERMINAL           /* FOR VM/ESA  */
```

4. If Connect:Direct is active, stop Connect:Direct. Restart it with the modified JCL startup job, and recreate the problem.

For details on security, refer to the Connect:Direct installation guide for your operating environment.

The following figure shows a portion of a security trace produced on the local node.

```
09:35:01:37 SITA523I SECURITY INITIALIZED
======================================
======================================
AT ENTRY:SQCBREQC=80
SQCLASS=40
SQSTAT=20
SQSINWK=001FFBD8
UNODE#=000D  UNODE=SC.OS390.DALLAS
UID#=0006  UID=JSMITH    UID=C1D9C8D6 C1F14040          }  Userids and
UPWD#=0008  UPWD=COWBOY  UPWD=C9E4C940 40404040         }  passwords
SID#=0006  SID=JSMITH   SID=C1D9C8D6 C1F14040
SPWD#=0008 SPWD=COWBOY    SPWD=C9E4C940 40404040
NEWPSWD#=0000  NEWPSWD=  NEWPSWD=40404040 40404040
SQPACCT#=0000  SQSACCT=0000
CURRENT REQUEST= ** SIGNON **                           }  Signon
@@@@ STAGE1 PW       @@@********************
** USER IS ADMINISTRATOR **                             }  Use
********************                                     }  authorization set
********************
AT FINAL EXIT:
SECURITY SYSTEM RETCODE=00000000
SECURITY EXIT RETCODE=00000000
********************
======================================                  }  Return codes
======================================
AT ENTRY:
SQCBREQC=40
SQCLASS=90
SQSTAT=00
SQSINWK=00211BD8
UNODE#=000D  UNODE=SC.OS390.DALLAS
UID#=0006  UID=JSMITH    UID=C1D9C8D6 C1F14040
UPWD#=0008  UPWD=COWBOY      UPWD=C9E4C940 40404040
SID#=0006  SID=JSMITH   SID=C1D9C8D6 C1F14040
SPWD#=0003 SPWD=COWBOY     SPWD=C9E4C940 40404040
NEWPSWD#=0000  NEWPSWD=        NEWPSWD=40404040 40404040  }  Userids and
SQPACCT#=0000  SQSACCT=0000                               }  passwords
CURRENT REQUEST= ** DATASET VERIFY **
DATASET NAME=ACCT.DATA
SQINOUT=IN
CURRENT NODE=***PNODE***
********************
DATASET VERIFY SUCCESSFUL, RC=00000000
DATASET NAME=ACCT.DATA
VOLSER= M80004
INITIAL DISP=SHR
NORMAL DISP=KEEP
ABNORMAL DISP=KEEP
SQINOUT=IN
********************
********************                                      }  Data set
AT INTERMEDIATE EXIT:                                    }  verification
SECURITY SYSTEM RETCODE=00000000
SECURITY EXIT RETCODE=00000000
********************

                                                         }  Return codes
```

Connect:Direct Function Traces

Connect:Direct contains various internal traces for diagnosing problems and recording events. Based on the trace specified, the Connect:Direct trace output is directed to various ddnames. You can enable these traces using one of the following methods:

❖ Modify the Connect:Direct startup job stream to include the trace files and ddnames for trace output and add the DEBUG parameter to the initialization parameter data set. The traces are turned on during Connect:Direct initialization and continue running until turned off by the MODIFY command or until Connect:Direct is terminated.

❖ Issue the Connect:Direct MODIFY command to set DEBUG bits. The trace starts when you issue the MODIFY command.

❖ Reduce the amount of trace information by restricting a trace to a Process (MODIFY Debug = parameter) or a specific node (NODETRACE.ON parameter). See *Connect:Direct MODIFY Command* on page 119 for more information about these parameters.

The following table shows the available function traces for Connect:Direct OS/390, VM/ESA, and VSE/ESA, with their respective DEBUG settings, and the ddnames used for output

DEBUG Setting	Trace Type	Output DD	Pseudo DLBL (Connect:Direct for VSE/ESA only)
80000000	COPY Routine and RUN TASK trace	RADBDD01	RADBD01
10000000	Full TPCB/SYMBOLICS from DMCBSUBM	DMCBSUBM	DMCBSUB
08000000	Session manager trace	RADBDD05	RADBD05
04000000	Separate trace per task (Example: "R0000005" to trace TASK 5)	Rnnnnnnn	Rnnnnnn
02000000	API session trace	RADBDD07	RADBD07
01000000	DMGCBSUB trace	RADBDD08	RADBD08
00800000	NETEX task termination disconnect trace	NTXTRACE	N/A
00400000	TCQSH from DMCOPYRT	DMCOPYRT	DMCOPYR
00200000	Make each SVC dump unique	N/A	N/A
00040000	GETMAIN/FREEMAIN trace	RADBDD16	RADBD16
00008000	I/O buffer trace	RADBDD21	RADBD21
00004000	WTO all dynamic allocation parameters	RADBDD22	RADBD22
00002000	Connect:Direct/Plex traces		
	ACTION queue manager trace	CDPLXACT	N/A
	CKPT queue manager trace	CDPLXCKP	N/A
	TCQ queue manager trace	CDPLXTCQ	N/A
	STATS queue manager trace	CDPLXSTA	N/A
	First REQUEST queue manager trace	CDPLXREQ	N/A
	Second and subsequent REQUEST queue manager trace. For example, "CDPLXR03" traces the third queue manager. The number of queue manager traces is based on the maximum number of servers from the asset protection (APKEY) file.	CDPLXRnn	N/A
	JOIN queue manager trace	CDPLXJOI	N/A
00001000	Workload Balancing trace	CDPLXWLB	N/A
00000080	RPL trace - long	RPLOUT	RPLOUT
00000040	RPL trace - short	RPLOUT	RPLOUT
00000020	Version 2 session trace	RADBDD33	RADBD33
00000008	Logon exit trace	RADBDD35	RADBD35

DEBUG Setting	Trace Type	Output DD	Pseudo DLBL (Connect:Direct for VSE/ESA only)
00000004	Logon Process or trace	RADBDD36	RADBD36
00000002	SCIP exit trace	RADBDD37	RADBD37
00000001	SNMP trace	SCTRAPDD	N/A

DEBUG Initialization Parameters

Various settings on the DEBUG=*xxxxxxxx* initialization parameter turn on a specific trace option or any combination of options. In the syntax for the DEBUG initialization parameter, *xxxxxxxx* represents the DEBUG setting in hexadecimal.

You can place trace DD statements in the system without slowing down Connect:Direct performance if you do not turn on the trace by specifying the DEBUG parameter.

With VSE/ESA, file names (equivalent to ddnames) are limited to seven characters. Any Connect:Direct OS/390 ddname that is eight characters long is truncated when referenced in Connect:Direct for VSE/ESA. For instance, RPLERRCK is RPLERRC for Connect:Direct for VSE/ESA. The exceptions occur with Connect:Direct OS/390 ddnames prefixed with RADBDD and R00000. For Connect:Direct for VSE/ESA, the prefixes are RADBD and R0000.

For problems with SNA or NETEX connections, use the following four function traces merged into a single output file.

❖   Session manager trace

❖   Separate trace per task trace

❖   Long RPL trace

❖   COPY routine trace

Note: If the problem occurs during file transfer or session establishment of node connections, run the trace on both the sending and receiving nodes.

Because Sterling Commerce Customer Support personnel often request these types of traces, the following example shows how to run them.

Example of Running a Merged Trace

To start the session manager, separate-trace-per-task, RPL long, and COPY routine traces, add the DEBUG parameter to the initialization parameter data set. DEBUG bits are listed in the table on page 114.

The DEBUG setting for the session manager trace is X'08000000'. The separate trace per task setting is X'04000000', the COPY routine setting is X'80000000', and the RPL long setting is X'00000080'. To specify all four traces merged into a single output file, add the four settings together. For example, the initialization parameter file contains the following.

```
DEBUG=8C000080
```

Next, allocate the appropriate ddnames for the trace output. Refer to the table on page 114. To run separate traces per task, it is not necessary to allocate the individual DDs for the session manager, COPY routine, and RPLOUT traces. These are dynamically allocated.

When running a separate trace for every task active on Connect:Direct, the number of DDs allocated for the separate trace per task depends on the level of activity on Connect:Direct at the time of the trace.

Connect:Direct for VSE/ESA

For Connect:Direct for VSE/ESA, add the following lines to the startup JCL for Connect:Direct.

```
******************************************************
*
* NOTE: The SYS numbers used are an example.  You may use ANY
*
* UN-USED SYS number in the CD:VSE/ESA partition....
*
* Also, the SYS number MUST be part of the FILEID and MUST
*
* be the same in the FILEID as the ASSGN statement. Do NOT
*
* change SYSOUT in the FILE-ID. POWER uses this to route the
*
* output to the POWER SYSLST output for the job.
 ******************************************************
// DLBL RADBD01,'SYSOUT.SYS050'
// DLBL RADBD05,'SYSOUT.SYS050'
// DLBL RPLOUT,'SYSOUT.SYS050'
// DLBL RPLERRC,'SYSOUT.SYS050'
// DLBL ESTAE,'SYSOUT.SYS050'
// DLBL NDMCMDS,'SYSOUT.SYS050'
// DLBL R000005, 'SYSOUT.SYS050'
// DLBL R000006, 'SYSOUT.SYS050'
// DLBL R000007, 'SYSOUT.SYS050'
// DLBL R000008, 'SYSOUT.SYS050'
// DLBL R000009, 'SYSOUT.SYS050'
// DLBL R000010, 'SYSOUT.SYS050'
// ASSGN SYS050,SYSLST
```

Refer to the *Connect:Direct for VSE/ESA Installation and Administration Guide* for further details on the MODIFY command for Connect:Direct for VSE/ESA.

Connect:Direct for VM/ESA

For Connect:Direct for VM/ESA, add the following lines to the Connect:Direct PROFILE GCS.

```
FILEDEF R0000005 DISK R05 TRACE A
FILEDEF R0000006 DISK R06 TRACE A
FILEDEF R0000007 DISK R07 TRACE A
FILEDEF R0000008 DISK R08 TRACE A
FILEDEF R0000009 DISK R09 TRACE A
FILEDEF R0000010 DISK R10 TRACE A
FILEDEF R0000011 DISK R11 TRACE A
FILEDEF R0000012 DISK R12 TRACE A
FILEDEF R0000013 DISK R13 TRACE A
FILEDEF R0000014 DISK R14 TRACE A
FILEDEF R0000015 DISK R15 TRACE A
```

You can also send this output to the terminal on VM/ESA by changing DISK FN FT FM in the preceding example to DUMMY.

With those two modifications made, bring the Connect:Direct DTF down and back up in order to activate the traces. Because of the extensive overhead involved in running the traces, it is best to try only the functions you need to trace, then bring your DTF back down and deactivate the traces by removing the DEBUG parameter.

As long as you do not have any bits turned on with DEBUG, you can leave the FILEDEFs (or DD statements) in your startup job without activating any traces. You can then use the MODIFY command to turn the bits on interactively.

Refer to the *Connect:Direct for VM/ESA Installation and Administration Guide* for further details on the MODIFY command for Connect:Direct for VM/ESA.

Examples of Connect:Direct Trace Output Using DEBUG Parameter

The figures in this section show some of the types of trace output that you can request using the DEBUG parameter with the appropriate DD or DLBL allocated.

COPY Routine Trace

For Connect:Direct OS/390, add the ddname to the Connect:Direct job stream for the trace output as follows.

```
RADBDD01
```

Specify the DEBUG setting as follows.

```
DEBUG=80000000
```

The following figure shows sample output from the COPY routine trace.

```
DMCOPYRT        DMENTER      EP=00074A68      TAID=P    TASK=7
TARTNCD1        =            00000000
TAMSGID1        =            SCPA000I
SUBPGM          DMCPYSND     R14=50074FC2
SUBPGM          SEND-OPEN-NON-RESTART
R14=4007E750
SUBPGM          CALLFH       R14=6007EFB8
ESUBPGM         CALLFH
SUBPGM          BLDCPCB      R14=5007F2EA
SUBPGM          INFORTH      R14=400891F0
ESUBPGM         CALLFH
ESUBPGM         INFORTN
ESUBPGM         BLDCPCB
SUBPGM          CALLFH       R14=7007F36C
ESUBPGM         CALLFH
*****NAME=S#MEMO
SUBPGM          CALLFH       R14=4007F586
ESUBPGM         CALLFH
ESUBPGM         SEND-OPEN-NON-RESTART
SUBPGM          CHECK-DESCR     R14=4007E78C
SUBPGM          SNDFMH71     R14=400802A6
SUBPGM          CALLFMH      R14=5008A3BC
ESUBPGM         CALLFMH
ESUBPGM         SNDFMH71
SUBPGM          RCVFMH71     R14=400802E0
**GETMEM  FOR  VTFMH@  IN  RCV71  ADDR=00198890
**FREEMEM FOR  VTFMH@  IN  MAINLINE  ADDR=0019D0E0
DMCOPYRT        DMRETURN
```

I/O Buffer Trace

For Connect:Direct OS/390, add the ddname to the Connect:Direct job stream for the trace output as follows.

```
RADBDD21
```

Specify the DEBUG setting as follows.

```
DEBUG=00008000
```

The following figure shows sample output from the I/O buffer trace.

```
IN  BUFF:     LEN=          3,120      BLK#=             1
95899587     40899586     96999481     A3899695     *positioning information with       *
81934084     81A38140     A49589A3     40404040     *each logical data unit             *
99844096     99408293     9683925D     40848597     *(record or block) depending        *
93A485A2     40A29785     83898689     85844089     *on the values specified in the     *
40404040     40404040     40404089     9589A389     *initialization parameters          *
A38599A2     40819584     40A38885     40949684     *and the mode the file              *
89958740     A3998195     A2868599     99858440     *is being transferred in            *
85839699     84409496     84854096     99408293     *(record mode or block mode.)       *
99844094     96848540     89A240A4     A2858440     *Record mode is used if the         *
00404040     40404040     40404089     A2408285     *file is being reblocked            *
99899587     40A39981     95A29489     A2A28996     *during transmission,that is        *
A4A397A4     A3408293     96839240     40404040     *the output block size does         *
849685A2     409596A3     408598A4     819340A3     *not equal the input                *
89A9854B     4040C293     96839240     94968485     *block size.  Block mode is used    *
40404040     40404040     404040A3     888540A2     *if the sending and                 *
A5899587     40868993     85A24088     81A58540     *receiving files have identical     *
A289A985     A24B4040     40404040     40404040     *block  sizes.                       *
```

Long RPL Trace

For Connect:Direct OS/390, add the ddname to the Connect:Direct job stream for the trace output as follows.

```
   RPLOUT
```

Specify the DEBUG setting as follows.

```
   DEBUG=00000080
```

The following figure shows sample output from the long RPL trace.

```
09:35:01:76 SITA523I RPLOUT INITIALIZED
12:56:12:56 *** V T A M   R E C V *** TATASKNO:  5 TAID: P PNAME=PROC2VM  PNUM=357
12:56:12:57 RECEIVE DATA
            FMH HEADER IN RU
            ONLY IN CHAIN
            REQUEST DEFINITE RESPONSE
            CHANGE DIRECTION
            SYSTEM SENSE=0000  USER SENSE=0000
            DATA LENGTH=           66
00000000  42700012 81030000 E2C34BE5 D44BC4C1 D3D3C1E2 40404040 31401015 10704772 *....a...SC.VM.DALLAS    . ...... *
00000020  28A10100 20000000 0008E2C3 4BD4E5E2 4BC4C1D3 D3C1E240 40400000 00000000 *.~........SC.OS390.DALLAS  ...... *
00000040  0000         *..                          *
12:56:12:72 *** V T A M   S E N D *** TATASKNO: 5 TAID: P PNAME=PROC2VM  PNUM=357
            SEND POSITIVE RESPONSE
            SYSTEM SENSE=0000  USER SENSE=0000
12:56:12:74 SEND COMPLETED
            SEND
            SYSTEM SENSE=0000  USER SENSE=0000
            DATA LENGTH=            0
12:56:12:83 *** V T A M   S E N D *** TATASKNO: 5 TAID: P PNAME=PROC2VM  PNUM=357
            SEND DATA
            FMH HEADER IN RU
            ONLY IN CHAIN
            REQUEST DEFINITE RESPONSE
12:56:12:97 SEND COMPLETED
            SEND
            SYSTEM SENSE=0000  USER SENSE=0000
            DATA LENGTH=           66
00000000  42700312 000320F5 E2C34BD4 E5E24BC4 C1D3D3C1 E2404040 31103012 20502862 *.......5SC.OS390.DALLAS   .....&.. *
00000020  28A00100 A0000000 0008E2C3 4BD4E5E2 4BC4C1D3 D3C1E240 40400000 00000000 *. .. .....SC.OS390.DALLAS  ...... *
00000040  0000         *..                          *
12:56:13:65 *** V T A M   S E N D *** TATASKNO: 5 TAID: P PNAME=PROC2VM  PNUM=357
            SEND DATA
            FMH HEADER IN RU
            ONLY IN CHAIN
            CHANGE DIRECTION
12:56:13:68 SEND COMPLETED
            SEND
            SYSTEM SENSE=0000  USER SENSE=0000
            DATA LENGTH=          118
00000000  76720112 300000F5 D7D9D6C3 F2E5D440 F0F0F0F0 F0F3F5F7 E2C34BD4 E5E24BC2 *.......5PROC2VM 00000357SC.OS390.B *
00000020  D6E2E3D6 D5404040 D1E2D4C9 E3F14040 E2C34BE5 D44BC4C1 D3D3C1E2 40404040 *OSTON    JSMIT1  SC.VM.DALLAS       *
00000040  D5E5D4C4 F1F24040 D1E2D4C9 E3F24040 8A7F4F1D 615BA3EB 09EABA98 615BA3EB *NVMD12  JSMIT2  ."]./$t....q/$t.  *
00000060  928E4398 615AA2EA 40404040 40404040 00000000 0000                 *k .q/!s.        ......  *
```

Short RPL Trace

For Connect:Direct OS/390, add the ddname to the Connect:Direct job stream for the trace output as follows.

```
RPLOUT
```

Specify the DEBUG setting as follows.

```
DEBUG=00000040
```

The following figure shows sample output from the short RPL trace.

```
- 10:07:53:44                 OFFER  ERROR  NRBSTAT=          500
- 10:10:54:53                 OFFER  ERROR  NRBSTAT=          500
- 10:13:54:53                 OFFER  ERROR  NRBSTAT=          500
  10:16:02:01                 *** V T A M   S E N D ***     TATASKNO:   6    TAID:      I
      SEND DATA
      ONLY IN CHAIN
 10:16:02:01                  SEND COMPLETED
      SEND
      SYSTEM SENSE=0000        USER SENSE=0000
      DATA LENGTH=497
00000000                      C4E2D500..........            7E7E7E7E7E7E7E7E *DSN.&1= = = = =*
00000000                      7E7E7E7E..........            7E7E7E7E7E7E7E7E *= = = = = = = =*
10:26:45:82                   *** V T A M   R E C V ***     TATASKNO:   7    TAID:      P
10:26:45:82                   RECEIVE DATA
      FMH HEADER IN RU
      ONLY IN CHAIN
      REQUEST DEFINITE RESPONSE
      SYSTEM SENSE=0000        USER SENSE=0000
      DATA LENGTH=             42
00000000                      2A700012........79700016      00806022 *....a....NDM.CHAS40
00000020                      28A0010E00000000              1026
10:26:45:84                   *** V T A M   S E N D ***     TATASKNO:   7    TAID:      P
      SEND DATA
      FMH HEADER IN RU
      ONLY IN CHAIN
      REQUEST DEFINITE RESPONSE
10:26:45:85                   SEND COMPLETED
      SEND
      SYSTEM SENSE=0000                                     USER SENSE=0000
                                                                   DATA LENGTH=   4
 000000000                    4750112
```

Connect:Direct MODIFY Command

The Connect:Direct MODIFY command yields the same types of traces as the DEBUG initialization parameter. Unlike the initialization parameter, however, the MODIFY command does not require you to bring down and restart the DTF. The trace starts when you issue the MODIFY command to turn on the trace bits, provided the DD is allocated. However, for VSE/ESA, include the DLBLs in the start-up JCL rather than attempting dynamic allocation. The following table describes the parameters of the MODIFY command that relate to traces.

Connect:Direct MODIFY Command	Action
MODIFY BITS.ON=X'*xxxxxxxx*'	The specified debugging bits are turned on in the Connect:Direct resource address table.
MODIFY BITS.OFF=X'*xxxxxxxx*'	The specified debugging bits are turned off in the Connect:Direct resource address table.
MODIFY CLOSE=ddname	The ddname is closed in the DTF. For Connect:Direct for VSE/ESA: ddnames are the pseudo DLBL file names.

†   The batch and IUI formats are shown for he DYN parameter. The batch DYN parameter uses an equal sign before and quotes around the dynamic allocation string. The IUI DYN parameter does not use an equal sign before or quotes around the dynamic allocation string.

Connect:Direct MODIFY Command	Action
MODIFY DDNAME=(ddname,nn)	All trace information generated as a result of the MODIFY.BITS.ON setting is directed to the ddname specified, based on the Connect:Direct taskid specified as *nn*. This specification provides a consolidated trace of all activity associated with the specified task. The ddname format is R00000nn, where *nn* is the taskid.
MODIFY DEBUG=*xxxxxxxx*	Replace system-wide debugging bits with the specified debugging bits.
MODIFY DYN = 'dynamic allocation string' (batch)†	Using the specified allocation string, dynamic allocation is invoked in the DTF.
MODIFY DYN = dynamic allocation string (IUI)†	Using the specified allocation string, dynamic allocation is invoked in the DTF. This definition only applies to the MODIFY (TRACE) COMMAND panel in the IUI.
MODIFY LOG.PRINTER=OFF | ON | luname	Specify whether the log printer is turned off or on or whether the LU name has changed. If you specify a new LU name, the old log printer is disconnected and the new one is attached.
MODIFY MODDIR.TRACE=YES	Request a module trace.
MODIFY NODE.TRACE.ON=(node name, debug bits)	Request a trace on one or more specified nodes, up to 15 at one time. The node name is the 1–16 character name of the node on which the trace runs. The debug bits are the 8-character DEBUG bits setting. See the BITS.OFF=X'nnnnnnnn' BITS.ON=X'nnnnnnnn' parameter in the table on page 114 for a listing of debug bits.
MODIFY NODE.TRACE.OFF=(node name)	Turn off a trace set by the NODE.TRACE.ON parameter.
MODIFY SESSIONS=Q | R (WHERE (NODE=nodename | *))	To prevent the start of new sessions, specify MODIFY SESSIONS=Q. To resume sessions and allow the start of new sessions as required, specify MODIFY SESSIONS=R. The default value is MODIFY SESSIONS=R. The where (NODE=) parameter enables you to suspend or resume processing on one or more nodes to a maximum of 15 nodes.
MODIFY WHERE(SERVER=server name)	Specify which Connect:Direct Plex member the MODIFY command applies to. The servername is the 1–8 character name assigned to a Connect:Direct/Server by the CDPLEX.SERVER initialization parameter.

† The batch and IUI formats are shown for he DYN parameter. The batch DYN parameter uses an equal sign before and quotes around the dynamic allocation string. The IUI DYN parameter does not use an equal sign before or quotes around the dynamic allocation string.

Examples of MODIFY Commands

This section shows examples of MODIFY commands for Connect:Direct OS/390, VM/ESA, and VSE/ESA.

Connect:Direct OS/390

The following MODIFY commands set the bits to turn on a short send/receive trace and to dynamically allocate the ddname RPLOUT.

```
    MODIFY BITS.ON=X'00000040'
    MODIFY DYN='DD=RPLOUT,DSN=A985467.PRINT,DISP=SHR,FREE=CLOSE'
```

After running the trace, the following MODIFY commands close the ddname RPLOUT and turn off the short send/receive trace.

```
MODIFY  CLOSE=RPLOUT
MODIFY  BITS.OFF=X'00000040'
```

Connect:Direct for VM/ESA

The following MODIFY commands set the bits to turn on the dynamic allocation trace and invoke dynamic allocation in the DTF to allocate the ddname RADBDD24 to the file R24 S A.

```
MODIFY  BITS.ON=X'00001000'
MODIFY  DYN='DD=RADBDD24,DSN= "R24  S  A"'
```

After running the trace, use the following MODIFY commands to close the ddname RADBDD24, unallocate the DD, and turn off the dynamic allocation trace.

```
MODIFY  CLOSE=RADBDD24
MODIFY  DYN='UNALLOC DD=RADBDD24'
MODIFY  BITS.OFF=X'00001000'
```

Connect:Direct for VSE/ESA

The following MODIFY command sets the bits to turn on a session manager trace.

```
MODIFY BITS.ON=X'08000000'
```

After running the trace, use the following MODIFY command to turn off the session manager trace.

```
MODIFY BITS.OFF=X'08000000'
```

Note: You can use the command TRACE interchangeably with the MODIFY command.

Using MODIFY Commands Through the Batch Interface

In Connect:Direct OS/390 and VM/ESA, you can issue the MODIFY command interactively through the IUI or the batch interface, DMBATCH.

To use MODIFY commands from the batch interface, include them in a batch job stream.

For example, if using OS/390, submit the following job to turn on the merged COPY routine and DMGCBSUB traces.

```
//TRACEON JOB (1111),'TRACES',NOTIFY=JSMITH,CLASS=O,
//            REGION=1024K,MSGCLASS=X
//STEP01   EXEC PGM=DMBATCH,PARM='YYSLYYY'
//STEPLIB   DD DSN=$CD.CD.LINKLIB,DISP=SHR
//DMPUBLIB  DD DISP=SHR,DSN=JSMITH.CNTL
//          DD DISP=SHR,DSN=JSMITH.PROCESS.LIB
//DMMSGFIL  DD DISP=SHR,DSN=JSMITH.CD1.MSG
//DMNETMAP  DD DISP=SHR,DSN=JSMITH.CD1.NETMAP
//DMPRINT   DD  SYSOUT=*
//SYSPRINT  DD  SYSOUT=*
//NDMLOG    DD  SYSOUT=*
//SYSIN     DD  *
  SIGNON NETMAP=JSMITH.CD1.NETMAP USERID=(JSMITH)
     MODIFY BITS.ON=X'81000000'
SUBMIT PROC=ACCTSEPT
  SIGNOFF
```

To turn off the trace, submit the following job.

```
//NOTRACE JOB (1111),'TRACES',NOTIFY=JSMITH,CLASS=O,
//            REGION=1024K,MSGCLASS=X
//STEP01   EXEC PGM=DMBATCH,PARM='YYSLYYY'
//STEPLIB   DD DSN=$CD.CD.LINKLIB,DISP=SHR
//DMPUBLIB  DD DISP=SHR,DSN=JSMITH.CNTL
//          DD DISP=SHR,DSN=JSMITH.PROCESS.LIB
//DMMSGFIL  DD DISP=SHR,DSN=JSMITH.CD1.MSG
//DMNETMAP  DD DISP=SHR,DSN=JSMITH.CD1.NETMAP
//DMPRINT   DD  SYSOUT=*
//SYSPRINT  DD  SYSOUT=*
//NDMLOG    DD  SYSOUT=*
//SYSIN     DD  *
  SIGNON NETMAP=JSMITH.CD1.NETMAP USERID=(JSMITH)
MODIFY BITS.OFF=X'81000000'
  SIGNOFF
```

See the platform-specific Connect:Direct user's guide for a description of DMBATCH, and the installation and administration guide for a description of the MODIFY command.

Connect:Direct Automatic Traces

You can activate some internal Connect:Direct traces without using the DEBUG bits. Activate these traces during normal Connect:Direct operation. Others traces are useful mostly for problem diagnosis. You can activate each of these automatic Connect:Direct traces by having a DD statement or FILEDEF in the Connect:Direct startup JCL, except for NDMCMDS, which is allocated in the JCL for DMBATCH or through the IUI.

Some of the most useful automatic traces are:

❖ DMCOPYRT provides a display of the TCQSH control block from the DMCOPYRT program.

❖ DMVSOPEN contains information related to the allocation of the target data set.

❖ ESTAE captures information on I/O errors; VTAM connection errors; abend control blocks; open and close errors; TCQ/TCX errors on add, update, and so forth; LU1 printer errors; and statistics file write errors. Always allocate ESTAE.

- ❖ CDESTAE contains various I/O errors from the statistics facility. Always allocate CDESTAE.
- ❖ RPLERRCK captures VTAM send and receive errors. Always allocate RPLERRCK.
- ❖ NDMCMDS shows all actual Connect:Direct commands issued to the DTF, including resolution of symbolics. It can be particularly helpful to debug Connect:Direct commands through the IUI or through DMBATCH if you are having signon problems, syntax errors, and so forth.
- ❖ NDMLOG contains a chronological log of Connect:Direct events.
- ❖ CDLOG contains allocation information

The following table shows the ddnames you can use in the startup JCL for Connect:Direct for mainframe platforms.

Note:	With VSE/ESA, file names (equivalent to ddnames) are limited to seven characters. Any Connect:Direct ddname that is eight characters long is truncated when referenced in Connect:Direct for VSE/ESA. For instance, RPLERRCK is RPLERRC for Connect:Direct for VSE/ESA

DDNAME	Contents of File
DEVTRACE	Traces UCB open and close activity.
DMCOPYRT	Formats the TCQSH control block.
DMGEVENT	Traces Event Services activity.
DMVSOPEN	Formats the allocation block.
ESTAE	Abend diagnostics on various abend conditions and I/O errors. Allocate this name by including in the Connect:Direct startup JCL.
CDESTAE	Diagnostics on various I/O errors from the statistics facility. Allocate this name by including in the Connect:Direct startup JCL.
IGWTRACE	Traces PDSE program objects load to unload activity.
LOSTOUT	Lost term exit trace. For Connect:Direct for VM/ESA, use it in GCS only.
NDMAPI	Used for diagnostics on session errors with the API.
NDMCMDS	IUI/Application Program Interface (IUI/API) commands passed to Connect:Direct. Also use it for diagnostics on session errors with the API. For Connect:Direct for VM/ESA, use it in both GCS and CMS.
NDMLOG	Messages that are routed to ROUTCDE.NORM.
CDLOG	Allocation information.
NDMMSG	(Connect:Direct for VM/ESA) Message file handler errors. Use it in both GCS and CMS.
NDMRPL	(Connect:Direct for VM/ESA) VTAM errors between the GCS API and the DTF. Use it in GCS only.
RPLERRCK	Formatted RPL on error condition only. Allocate this name by including in the Connect:Direct startup JCL.
SCKFILEH	(Connect:Direct for VM/ESA) Message file handler errors. Use it in both GCS and CMS.

Examples of Automatic Connect:Direct Traces

The following examples show some of the types of trace output that is directed to specified ddnames as certain Connect:Direct events occur.

RPLERRCK Sample Output

The output for RPLERRCK in the following figure shows a session error.

```
15:35:11:13 SITA523I RPLERRCK INITIALIZED
VTAM SEND   ->MAY   9TH, 2003 AT 15:53:45
SNODE=SC.VM.DALLAS     PNODE=SC.OS390.BOSTON
PNAME=TAPETEST PNUM=353        TATASKNO=7
TATASKNO:       7 TAID: P
        ***   RPL @ 0020B398    ***
RPLID  =00              RPLSTYP =20            RPLREQ  =23
RPLLEN2 =70             RPLPLHPT=4009D57E      RPLECB =001BE80C
RPLFDBWD=00100900       RPLRTNCD=10            RPLFDB2 =0900
RPLRH3  =20             RPLSRTYP=0A            RPLCHN  =10
RPLVTFL2=0D             RPLCNTDF=80            RPLCNTDC=00
RPLCNTSC=00             RPLURH  =0BB220        RPLOPT1 =29
RPLRLEN =00000076       RPLBUFL =00001000      RPLOPT5 =90
RPLOPT6 =30             RPLOPT7 =54            RPLOPT8 =90
RPLOBSQV=0000           RPLIBSQV=0000          RPLOBSQ =80
RPLIBSQ =80             RPLSEQNO=0002          RPLEXTDS=40
RPLACTIV=00             RPLSSEI =00            RPLSSMI =00
RPLUSNSI=0000           RPLUSFLD=001BE680      RPLOPT9 =00
RPLOPT10=20             RPLOPT11=80            RPLOPT12=21
RPLSSEO =00             RPLSSMO =00            RPLUSNSO=0000
RPLSIGDA=00000000       RPLEXSCH=00
**ERROR**:
UNCONDITIONAL TERMINATE OR CHARACTER-CODED LOGOFF RECEIVED
            RECEIVE
            FMH HEADER IN RU
            ONLY IN CHAIN
            ASYNCHRONOUS
            CHANGE DIRECTION
            RETURN CODE   10
            FEEDBACK CODE 0900
                      INBOUND   OUTBOUND
            SYSTEM SENSE  0000      0000
            USER SENSE    0000      0000
            VTAM DATA LENGTH =   118
            VTAM BUFFER =
001FD000 08710112 03000000 0416E2C8 00500048 00000572 00004040 40404040 40404040 *..........SH.&........    *
001FD020 E2E3C5D7 F1404040 15533731 0090239F 00000000 E2C3D7C1 F0F0F0C9 D7404040 *STEP1   ............SCPA000IP*
001FD040 0090239F 15533692 40404040 20404040 00F8E2C4 E2C4C5E2 C3D90292 800180C0 *... ...k  .  .8SDSDESCR.k...{*
001FD060 80000008 91444040 40404040 40404040 40404040 4040                       *....j.               *
```

CDLOG Sample Output Showing Session Failure

The CDLOG output in the following figure shows a session failure during Process transmission.

```
SVTM055I    SESSION ESTABLISHED WITH   SNODE=CD.NY    (002)
SVTM036I    PROCESS STARTED TEST   ( 19) SNODE=CD.NY(002)
SVTM022I    SENDRU: SEND OF VTAM RU FAILED
SVTM045I    RPLERRCK: CD/CD SESSION FAILURE
SVTM049I    SNDFMH74: FMH_74 SEND ERROR
```

CDLOG Sample Output Showing Successful Completion

The CDLOG output in the following figure shows that Process PAYRL ended successfully.

```
SVTM055I    SESSION ESTABLISHED WITH      SNODE=CD.NY(002)
SVTM036I    PROCESS STARTED PAYRL  ( 20) SNODE=CD.NY(002)
SVTM052I
COPY COPY PAID (     20)  SNODE=CD.NY (002) COMPLETED 00000000/SCPA000I
SVTM037I    PROCESS ENDED PAYRL      ( 20) SNODE=CD.NY(002)
SVTM056I    SESSION TERMINATED WITH      SNODE=CD.NY(002)
```

ESTAE Sample Output

The ESTAE output in the following figure shows that the signon interactive applid was not active or did not exist.

```
OPEN  OF  ACB  RC=00000008   APPLID=NDMDD19
***   ACBERFLG=5A   ***
NO MATCHING APPLID ENTRY EXISTS OR IS NOT ACTIVE
```

NDMCMDS Sample Output

The sample output for NDMCMDS in the following figure shows the output from a successful API Process submission.

```
 STR#=  57 STR= SIGNON NETMAP=JSMITH.PUF8.NETMAP USERID=(RSMITH)ESF=YES
  CD/API VER.RLSE.MOD= 10,700 PUT0000
 STR#=  51 STR= SUB PROC=ACCTSEPT &DISP=RPL HOLD=YES NEWNAME=JOHN
 STR#=  117 STR=
 STEP01 COPY FROM(DSN=JSMITH.ACF2.INFO) TO(DSN='ACF2 INFO'
 LINK=(JSMI,WJSMI,W,191) DCB=(BLKSIZE=0)  DISP=RPL)
 STR#=  97 STR=STEP02 COPY FROM(DSN=JSMITH.CNTL SELECT=U7SVC)
 TO(DSN="!SPOOL JSMI U7SVC EXAMPLE"  DISP=RPL)
 STR#=  70 STR=NOTIFY RUN TASK(PGM=DMNOTFY2
 PARM=(GOOD,JSMITH.TEMP.DELETE,JSMITH) )
 STR#=  6 STR= PEND
 STR#=   9 STR= SIGNOFF
```

LOSTOUT Sample Output

The following figure shows sample output from the Lost Term Exit Trace (LOSTOUT). The fields in the trace are as follows:

❖ **R2**—VTAM application control block (ACB)

❖ **R3**—Communications ID (CID) of the session.

❖ **R4**—Connect:Direct user field

❖ **R5**—Reason code indicating why the exit was entered

```
 LOSTERM  ENTERED
 R2=000EE800
 R3=6552653F
 R4=000FA558
 R5=00000018 LOSTERM  ENTERED
 R2=000EE800
 R3=6552653F
 R4=000FA558
 R5=00000010
```

For more information, refer to the IBM *VTAM Programming* manual.

DMCOPYRT Sample Output

The following figure shows sample output from the DMCOPYRT trace.

```
TCQSH:
00074C00                          03F2E2C8   00500048 0000054E 00004040 40404
040  *          .2SH.&.....+..        *
TCQSH:
00074C20  40404040 E2E3C5D7 F1404040 09010686   0094126F 00000000 E2C3D7C1 F0F0F
0C9  *     STEP1   ...f.m.?....SCPA000I *
0006BBA0                                                            03F2E
2C8  *                      .2SH *
00074C40  D7404040 0094126F 09010522 40404040   20404040 00F8E2C4 E2C4C5E2 C3D90
292  *P  .m.?....   .    .8SDSDESCR.k *
0006BBC0  00500048 0000054E 00004040 40404040   40404040 E2E3C5D7 F1404040 09010
686  *.&.....+..        STEP1   ...f *
```

DMVSOPEN Sample Output

The following figure shows sample output from the DMVSOPEN trace.

```
DMVSOPEN: AFTER ALLOPRFL
DAPARM#=008D
DAPARM =
ALLOC         DD=NDM0017  TSODSN=NO RETURN=(DSORG,DEVTYPE) DSN='PROFILE EXEC' DI
SP=(SHR   ) LINK=(AWINS1,ALL,RR,0191)  UN
IT=(          ,,DEFER)
DMVSOPEN: AFTER ALLOPRFL
DAPARM#=00C6
DAPARM =
ALLOC         DD=NDM0018  TSODSN=NO RETURN=(DSORG,DEVTYPE) DSN='!SPOOL AWINS1 PR
OFILE EXEC4' DISP=(NEW   ,KEEP  ,        )
DCB=(BLKSIZE=00063,DSORG=PS  ,LRECL=00063,RECFM=V   )  UNIT=(........,,DEFER)
```

Tracing Network Traffic

This chapter describes how to use VTAM line and buffer traces to trace network traffic and record such events as supervisor calls and start I/O operations.

VTAM Line and Buffer Traces

VTAM line and buffer traces are VTAM options that trace network traffic and record such events as supervisor calls and start I/O operations.

The following sections describe how to start VTAM line and buffer traces for Connect:Direct OS/390, VM/ESA, or VSE/ESA.

Connect:Direct OS/390 VTAM Trace

Refer to the following example when starting VTAM line and buffer traces for Connect:Direct OS/390. For complete instructions, refer to your IBM manuals.

1. Activate the Generalized Trace Facility (GTF), an operating system trace facility that VTAM uses to store captured trace data for printing by a GTF print utility. you must activate the GTF before you can actually capture any trace data, although you can turn on the VTAM traces first. Type the following command.

   ```
   S GTF.stepname
   ```

   Note: The command to activate the GTF may be customized for your environment. Verify this command with appropriate personnel at your site.

2. After entering the command, the response number is displayed in the system log. Type the response number and trace options as follows.

   ```
   nn,TRACE=RNIO,USR
   nn,U
   ```

3. Begin the VTAM trace by using your network management software. Type the following command.

   ```
   F NET,TRACE,TYPE=BUF,ID=node
   F NET,TRACE,TYPE=IO,ID=node
   ```

4. Run the test cases or Processes to ensure that the problem occurred while the trace was active.

5. Stop the VTAM trace and the GTF when the trace is complete. Type the following command.

```
F NET,NOTRACE,TYPE=BUF,ID=node
F NET,NOTRACE,TYPE=IO,ID=node
```

6. Stop the GTF when the trace is complete. Type the following command.

```
P stepname
```

7. Format the VTAM buffer trace results using either ACFTAP, the GTF command in IPCS, or AMDPRDMP (if pre-ESA).

8. Print or browse the VTAM buffer trace results using ISPF/PDF utilities.

Connect:Direct VM/ESA VTAM Trace

Complete the following steps to start the VTAM line and buffer trace for Connect:Direct for VM/ESA.   For more information about using TRSTART, TRSOURCE, and TRSAVE, see the *IBM VM/ESA CP Command and Utility Reference* manual.

1. Set up the VM/ESA GCS/Control Program (GCS/CP) environment for the trace by creating a GCS EXEC called TRSTART GCS on the VTAM 191 disk.

   The following is a sample EXEC. Change userid to the userid whose reader receives the trace file. Change sysname to the system name of the GCS machine running Connect:Direct for VM/ESA.

```
CP TRSOURCE ID trace_id TYPE GT FOR VMGROUP sysname
CP TRSAVE ID trace_id TO user_id
CP TRSOURCE ENABLE ID trace_id
ETRACE GTRACE GROUP
```

2. To execute the EXEC, type the following command.

```
TRSTART
```

3. Begin the VTAM trace by issuing the following command.

```
VTAM F [NET,]TRACE,ID=vtamid,TYPE=tracetype
```

4. Run the test cases or Processes.

5. Stop the VTAM trace by issuing the following command. Note that NET is optional.

```
VTAM F [NET,]NOTRACE,ID=vtamid,TYPE=tracetype
```

6. Shut down the GCS/CP trace environment by creating a GCS EXEC called TRSTOP GCS on the VTAM 191 disk. The following is a sample EXEC.

```
CP TRSOURCE DISABLE ID trace_id
ETRACE GTRACE OFF
```

7. To execute the EXEC, type the following command.

```
TRSTOP
```

8. After the EXEC completes execution, a message is displayed verifying that the file containing the trace results was sent to the reader specified when you set up your environment.

9. Format the trace output using the TRACERED and ACFTAP utilities.

10. Print or browse the VTAM buffer trace results.

Connect:Direct for VSE/ESA VTAM Trace

Complete the following steps to start the VTAM line and buffer trace for Connect:Direct for VSE/ESA.

1. Issue the VTAM MODIFY TRACE command as shown in the following example. Note that the ndmappl is the application ID (APPLID) for the Connect:Direct DTF.

```
MODIFY NET,TRACE,TYPE=BUF,ID=ndmappl
```

2. Run the test cases or Processes.

3. Stop the VTAM trace by issuing the following command.

```
MODIFY NET,NOTRACE,TYPE=BUF,ID=ndmappl
```

4. Print the VTAM trace by running a batch job to execute program TPRINT. Running this job also flushes any in-memory buffers for the buffer trace into the disk trace file.

```
* $$ JOB JNM=TPRINT,CLASS=V,DISP=K,USER='name'
* $$ LST CLASS=A,DISP=D
// JOB TPRINT  PRINT THE VTAM TRACE DATASET
// EXEC TPRINT,SIZE=512K
/*
/&
* $$ EOJ
```

Normally, information in the DLBL, EXTENT, and ASSGN statements is not in your job stream, but in the STDLABEL area. If your installation requires these statements in the job stream, use the following sample statements and place them between the JOB and EXEC statements.

```
// DLBL TRFILE,'your.trace.fileid',1999/365,SD
// EXTENT SYS001,packid,1,0,nnnn,mmm
// ASSGN SYS001,DISK,VOL=packid,SHR
```

❖ In the DLBL statement, change *your.trace.fileid* to your actual VTAM Trace File-ID.

❖ In the EXTENT statement, change *packid* to the VOLSER of the volume on which the trace file resides. Change *nnnn* to the starting track number and *mmm* to the number of tracks of your VTAM trace file.

❖ In the ASSGN statement, change *packid* to the VOLSER of the volume on which the trace file resides.

The following message is displayed on the console.

```
5K07A SNAPSHOT MODE TPRINT?   ENTER Y OR N
```

5. Type No to the previous prompt using the following information where id is the outstanding VSE/ESA REPLID.

```
    id N
```

The following message is displayed on the console.

```
    5K05A ENTER TRACE PRINT OPTIONS OR 'CANCEL'
```

6. Respond with the trace print options.

```
    id PRINT BUF=ALL
```

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