

IBM Sterling Connect:Enterprise for z/OS

Remote User's Guide

Version 1.5



This edition applies to the 1.5 Version of IBM® Sterling Connect:Enterprise® for z/OS® and to all subsequent releases and modifications until otherwise indicated in new editions.

Before using this information and the product it supports, read the information in *Notices* on page 91.

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Sterling Connect:Enterprise FTP Implementation

The IBM® Sterling Connect:Enterprise® for z/OS® FTP feature provides the standard FTP interface to an FTP client. It operates as an FTP server for connections from remote FTP clients. Sterling Connect:Enterprise places restrictions on the use and meaning of some FTP commands, which are discussed in this chapter. In addition, remote users can embed \$\$ADD commands in an FTP data stream to add data to the host data repository on the Sterling Connect:Enterprise FTP server. The last section in this chapter deals with using the \$\$ADD command and how data files must be formatted in order for the Sterling Connect:Enterprise FTP server to properly scan and interpret the \$\$ADD command including the data.

Data Representation and Storage

Transferring files between different computer systems introduces a myriad of issues emanating from the differences between computer systems. The IBM System z/OS architecture uses an 8-bit EBCDIC byte to represent character data. The IBM PS/2 system uses an 8-bit ASCII byte to represent character data. Some computers use a 7-bit ASCII code. The IBM PS/2 system organizes files as a continuous stream of data. The IBM System z/OS organizes files into records. With all these differences, Sterling Connect:Enterprise must provide a method of transferring these files and making them available for use on the receiving system.

The Sterling Connect:Enterprise FTP feature deals with these issues. FTP provides for FTP client and FTP server implementations to negotiate the data representation and storage types through the use of the data type, data structure, and transmission mode standard specifications.

Note: You are responsible for specifying the Sterling Connect:Enterprise FTP server options and the remote FTP client options so that the data transferred is usable by the receiving host.

Data storage attributes are determined by the host system. The Sterling Connect:Enterprise FTP feature stores character data in EBCDIC and image (binary) data as received. Data received as NVT-ASCII is converted to EBCDIC before being added to the current working data repository.

Sterling Connect:Enterprise performs the role of FTP server and the types are set by the remote FTP client.

The Sterling Connect:Enterprise FTP feature transfers data as 8-bit bytes. If your remote FTP client uses a different byte length, it is up to you to implement the appropriate conversion between local byte size and the Sterling Connect:Enterprise FTP feature 8-bit byte transfer length.

Data Type

Data type specifies how the receiver interprets the data bits being transferred. The receiver is either the Sterling Connect:Enterprise FTP server or the remote FTP client.

Sterling Connect:Enterprise FTP server assumes that the remote FTP client uses the ASCII character set. If the remote site does not use the ASCII character set, the remote FTP client must send the TYPE command to change the data type to EBCDIC or BINARY.

The FTP standard includes four data types: ASCII, EBCDIC, image, and local. Sterling Connect:Enterprise FTP server provides the ability to specify *three* data types: ASCII, EBCDIC, and image. The local byte size is 8 bits (L 8) for Sterling Connect:Enterprise, and cannot be changed.

ASCII

ASCII is character data. The sender converts the data from its internal representation into standard 8-bit NVT-ASCII before sending the data. Each line of data ends with a carriage-return-line-feed (<CRLF>). An ASCII <CRLF> is hexadecimal '0D0A'.

If Sterling Connect:Enterprise is receiving, the data is translated from NVT-ASCII to EBCDIC and the <CRLF> sequences are replaced with a new line (<NL>) character before the data is added to the current data repository. An EBCDIC <NL> is hexadecimal '15'.

If Sterling Connect:Enterprise is sending, the data is translated from EBCDIC into NVT-ASCII and the <NL> characters are replaced with the <CRLF> characters before transmitting the data to the remote FTP server.

ASCII (TYPE A) is the default data type for Sterling Connect:Enterprise FTP feature.

EBCDIC

EBCDIC is character data. The EBCDIC data type is the most efficient way to transfer data between EBCDIC hosts.

If Sterling Connect:Enterprise is receiving, the data is not translated before being added to the current data repository.

If Sterling Connect:Enterprise is sending, the data is not translated before being transmitted.

Not all remote ASCII hosts accept data type EBCDIC. Some remote FTP servers reject data type EBCDIC. Some hosts accept data type EBCDIC and store it as binary. Other hosts accept data type EBCDIC as binary, and then translate the data into data type ASCII.

Format Control for Character Data

Data types ASCII and EBCDIC have a second, optional parameter called format control. The format control parameter specifies the presence and type of vertical formatting control in the data being transferred. The Sterling Connect:Enterprise FTP implementation ignores ASCII and EBCDIC format controls. The following table shows the data types accepted by Sterling Connect:Enterprise FTP and the TELNET codes associated with the data types.

Type	Description
A See Note 1.	ASCII nonprint
A C See Note 1.	ASCII nonprint
A N See Note 1.	ASCII nonprint
A T See Note 1.	ASCII telnet
E See Note 2.	EBCDIC nonprint
E C See Note 2.	EBCDIC nonprint
E N See Note 2.	EBCDIC nonprint
E T See Note 2.	EBCDIC telnet
I	Image (binary)

- 1 Data types A, A C, A N, and A T are identical in the Sterling Connect:Enterprise FTP implementation.
- 2 Data types E, EC, E N, and E T are identical in the Sterling Connect:Enterprise FTP implementation.

Image

Image is noncharacter data. Data is sent and received as contiguous bits packed into 8-bit bytes. No translation takes place by Sterling Connect:Enterprise. Sterling Connect:Enterprise also assumes that no translation takes place at the remote FTP server. Character data can be transmitted as image, but no translation occurs.

Term	Definition
CC	Indicates that data contains ASA control characters in the first position of every line. The first character determines the vertical movement of the paper before the data is printed. The ASA control character is not printed. The first character after the ASA control character is printed on the first position of the output line on the paper.
NONPRINT	Indicates the data does not include format control characters. Nonprint format control is generally accepted by all FTP implementations. This format can be used for data destined for storage or processing. A print processor can assume that nonprint data contains standard values for spacing and margins.
TELNET	The file contains ASCII or EBCDIC vertical format controls that a printer Process can interpret. Some examples of TELNET vertical form control are carriage return (<CR>), line feed (<LF>), new line (<NL>), and vertical tab (<VT>). The <CRLF> sequence denotes end-of-line, not vertical control.

The four standard ASA control characters are:

Character	Vertical Spacing
blank	Move paper up one line.
0	Move paper up two lines.
1	Move paper to top of next page (form).
+	No movement. Overtyping the previous line.

Data Structure

The FTP client specifies the structure of files being transferred to and from Sterling Connect:Enterprise. Data structure is significant when transferring files between systems that have different methods of storing files. Some systems store files as file-oriented, whereas others store them as record-oriented.

The FTP standard includes three data structures: file, record, and page. Sterling Connect:Enterprise FTP provides the ability to specify *two* FTP data structures: file and record. Sterling Connect:Enterprise FTP does not support the page structure.

File

File has no internal structure and is considered a continuous sequence of bytes. File structure can be used with all transfer modes and data types. End-of-file (<EOF>) is indicated when the sender closes the data connection. File is the default data structure for Sterling Connect:Enterprise.

Record

The data is sent as a set of sequential records. The record structure is only valid with transfers of text files (data type ASCII or data type EBCDIC). End-of-record (<EOR>) indicators for all records, including the final record, must be explicit.

Page

The page structure is not implemented in the Sterling Connect:Enterprise FTP feature.

Transfer Mode

Transfer mode indicates which transmission services Sterling Connect:Enterprise must provide for z/OS FTP server.

There are three transfer modes defined in the FTP standard and implemented in Sterling Connect:Enterprise: stream, block, and compressed.

Stream

Data is transferred as a stream of bytes. Use any of the data types or data structures implemented in the Sterling Connect:Enterprise FTP feature. Stream mode is the default transfer mode for the Sterling Connect:Enterprise server.

For the file structure, end-of-file is indicated when the sending host closes the data connection. All bytes transferred are data bytes.

For the record structure, the end-of-record (<EOR>) and end-of-file (<EOF>) is identified by 2-byte control sequences. The <EOR> control sequence must be explicit, including the last record. The <EOR> and <EOF> control sequences are not stored as a part of the batch's data.

The first byte of a control sequence is the escape code—hexadecimal 'FF'. An <EOR> sequence is hexadecimal 'FF01'. An <EOF> sequence is hexadecimal 'FF02'. <EOR> and <EOF> can be indicated together on the last byte of the data as hexadecimal 'FF03'. An implicit <EOF> is indicated when the sender closes the data connection without receiving the <EOF> sequence.

If a data byte contains hexadecimal 'FF', two bytes of hexadecimal 'FFFF' are transmitted and received to prevent the loss of data. The single byte of hexadecimal 'FF' is stored with the batch, not the two bytes of hexadecimal 'FFFF'.

Block

Data is transferred as a series of blocks. Any of the data types are valid for a block mode transfer. Any of the file structures are valid for block mode transfer.

A header precedes each data block. The header is three (3) bytes long and contains a descriptor code and byte count field. The descriptor code is a binary code and is not data type sensitive. The byte count field is an unsigned half-word integer, and is not data type sensitive.

The descriptor code is the high-order byte (8 bits) of the header, and defines the block's attributes. The following table contains the valid descriptor codes:

Dec Code	Value	Meaning
128	X'80	'End of byte count is EOR
64	X'40	'End of byte count is EOF
32	X'20	'Suspected errors in data block (informational only)
16	X'10	'Data block is a restart marker
0	X'00	'Data continues to next block

The count field is the low order two bytes (16 bits) of the header, and contains of the number of bytes in the block excluding the header.

Compressed

Data is transferred as a series of blocks in a compressed format. ASCII and EBCDIC are the only valid data types for a compressed mode transfer. The only valid data structure for a compressed mode transfer is file. Compressed format transfers contain three kinds of information: uncompressed data, compressed data, and control information.

Uncompressed data is transferred as a byte string, and is preceded by a 1-byte count field. The maximum length of an uncompressed string is 127 bytes. If the byte contains a value from 1 through 127 (hexadecimal '01' through '7F'), it is a count field that describes the number of uncompressed bytes that follow.

There are two types of compressed data: replication and filler.

- ◆ Replication compressed data is represented by a 1-byte count field in front of the replicated character. The count field is the number of times the single character occurs in the data. If the byte contains a value from 128 to 191 (hexadecimal '80' through 'BF'), it is a count of the number of times the next byte is replicated. The first two bits of the byte are ignored. The last six bits contain the number of times the character is replicated. The maximum length of a compressed replicated field is 63 bytes. The replicated character is included in the count field.
- ◆ Filler compressed data is represented by a 1-byte count field. The count field is the number of filler characters that occur in the data. The filler byte is a blank character. If the byte contains a value from 192 to 255 (hexadecimal 'C0' through 'FF'), it is a count of the number of filler bytes to expand into the data. The first two bits of the byte are ignored. The last six bits contain the number of filler bytes. For ASCII and EBCDIC, the filler byte is a blank character. A blank is ASCII code 32 (hexadecimal '20') or EBCDIC code 64 (hexadecimal '40'). The maximum length of a compressed filler field is 63 bytes.

Control information is sent as a 2-byte control sequence. The first byte is an escape (<ESC>) character. The second byte contains a descriptor code. Control information is optional. The count and control sequence fields are not part of the data. The count and control field lengths are not included in the length of the information fields.

Data that is read from the TCP/IP stack is decompressed before any translation is done. Each byte read from the TCP/IP stack is examined for the count or control sequence field.

If the value of the byte is zero (hexadecimal '00'), it is the first byte of a 2-byte control sequence. The first byte of zero is the escape character. The second byte contains a descriptor code. The descriptor codes have the same meaning as in block mode and apply to the succeeding string of bytes. The succeeding string can be an uncompressed data string, a compressed replicated character, or a compressed filler character.

The compression count information fields are eliminated when the file is decompressed. The compression <EOR> control sequence field (hexadecimal 0080') is replaced with the <EOR> control sequence field, hexadecimal 'FF01'. The compression <EOB> control sequence field (hexadecimal '0040') is replaced with the <EOB> control sequence field, hexadecimal 'FF02'.

The following table shows which transfer modes you can specify for a given data type and data structure when using the Sterling Connect:Enterprise FTP server. Transfer mode *stream*, data type *ASCII*, and data structure *file* are the defaults for Sterling Connect:Enterprise FTP server.

Transfer Mode	Data Type			Data Structure	
	ASCII	EBCDIC	Image	File	Record
Stream	X	X	X	X	X
Block	X†	X	X†	X	X†
Compressed	X†	X	X†	X	X†

Note: The combinations marked by a dagger are not currently supported by the IBM z/OS FTP server.

When selecting among the options listed, consider the purpose of the file transfer. If programs on the receiving host use the transferred file, select options that make the file usable on the receiving host. If the receiving host is being used as an intermediate storage location for the transferred file, and the file will be retrieved again by the original host, you can select data type image, data structure file, and transfer mode stream.

Controlling FTP Connections

This section describes considerations for navigating firewalls and using the Clear Control Channel feature.

Implementing Firewall Navigation

Certain parameters defined in the Option Definition File (ODF) in Sterling Connect:Enterprise enable you to apply restrictions to FTP operations in active and passive FTP mode, enabling you to control FTP connections through your firewall. These parameters enable you to define port ranges, the number of retries if socket acquisition fails, and how long to wait between retries.

Although you can specify all available ports on a system in each range, you can control firewall navigation more effectively by assigning a limited number of ports for FTP operations.

Implementing the Clear Control Channel (CCC) Feature

Using the CCC feature provides a way to negotiate the control connection from an encrypted content to a clear text content. After the user ID and password have been transmitted in encrypted format, the remainder of the control transmission is in clear text until the connection ends. All data and objects transferred between the client and server remain encrypted.

Note: The CCC command is valid for Secure FTP only, and each endpoint of the connection must support the use of this command.

Connecting to a Sterling Connect:Enterprise FTP Server

The following procedure describes how to connect to a Sterling Connect:Enterprise FTP server. This is a generic procedure and assumes that you have access to an FTP client software package. Your FTP client software can require different procedures.

Note: Point and Click FTP systems do not have a command line. The prerequisite information is included during installation.

Prerequisites

Obtain the following information from your Sterling Connect:Enterprise administrator:

- ◆ Sterling Connect:Enterprise FTP server IP address or host name and port number or range of ports
- ◆ User name or remote name and password
- ◆ Mailbox ID

Log On

1. At the command line prompt, issue the following command:

```
> ftp host_name port_number
```

If your FTP client does not allow parameters on the initial ftp command, use the following two commands to establish the connection:

```
> ftp
> open host_name port_number [port_range(s)]
```

where “host_name” and “port_number” are the server IP address or host name and port number obtained from the Sterling Connect:Enterprise administrator, and “port_range(s)” limits the port or range of ports available for FTP transmissions through firewalls.

The Sterling Connect:Enterprise FTP server sends the following messages when the connection is complete, where:

```
220-Connect:Enterprise vv.rr.mm on opsys_name opsys_rel.
220-Connection will close if idle for more than discintv.
220 Ready (at local host date and time) yyyy/mm/dd at hh:mm:ss
```

- ◆ *vv.rr.mm* is the version, release, and modification level of Sterling Connect:Enterprise at the host site.
- ◆ *opsys_name* is the standard name for the operating system executing Sterling Connect:Enterprise.
- ◆ *opsys_rel* is the release information of the operating system.
- ◆ *discintv* is the idle disconnect interval.

The idle disconnect interval is the number of seconds that the FTP client and FTP server connection remains open with no activity. The Sterling Connect:Enterprise FTP server forces the session to end by closing the control connection. Get the required disconnect interval from the Sterling Connect:Enterprise administrator at the host site

- ◆ *hh:mm:ss* and *yyyy/mm/dd* are the time and date of the connection.

The time and date of the connection is the Sterling Connect:Enterprise local time and date. Batches added by the FTP client are posted using the Sterling Connect:Enterprise local time and date.

2. The FTP client prompts you for your user name. The user name is assigned by the Sterling Connect:Enterprise administrator and is referred to as the remote name. If the FTP client does not prompt you for your user name, type the following command:

```
> user username
```

3. The FTP client prompts you for your password. The initial password is assigned by the Sterling Connect:Enterprise administrator. When you are connected, the current working mailbox ID is the same as your user name.

Sterling Connect:Enterprise FTP Server and Equivalent Client Commands

This section describes the standard FTP commands that the Sterling Connect:Enterprise FTP server accepts along with the typical FTP client commands that invoke them. They are labeled typical FTP commands because some FTP client interface panels contain non-standard commands, like *get*, instead of the standard FTP commands, like *retr*. The client software translates a non-standard FTP client command into a standard FTP command before sending it to the FTP server.

The following table describes terminology specific to Sterling Connect:Enterprise FTP. The Sterling Connect:Enterprise terms have synonyms that may be more familiar to experienced FTP users.

Sterling Connect:Enterprise Term	Synonym
Mailbox ID	Directory
Batch ID or user batch ID	File name
Batch Number	Batch Number

Note: In Sterling Connect:Enterprise, it is possible for a mailbox ID to contain identical batch IDs or file names. The unique identifier for individual files in Sterling Connect:Enterprise thus becomes the batch number.

The exact format in which you issue a command depends on your operating system and follows any conventions required. For example, the Help command can provide help from your own operating system but not from Sterling Connect:Enterprise.

Caution: If you are issuing FTP commands from a client that does not use a Point and Click system, inconsistent results may occur if you do not follow the conventions of your operating system.

The dialog feature of Sterling Connect:Enterprise provides a way to track and troubleshoot inconsistencies that result from failure to adhere to your operating system conventions for commands. All transmissions between Sterling Connect:Enterprise FTP client and server are monitored and written to a dialog log file at the client site. This file lists each transmission, the command you thought you were issuing, and the command that Sterling Connect:Enterprise actually received. In addition, any error or confirmation messages returned by Sterling Connect:Enterprise are recorded in this file. Coordinate with your host site administrator to turn dialog on as the default for your site. If you do not want dialog on as a default, you can issue the \$\$DIALOG command from the command line to turn it on temporarily and troubleshoot for a particular session.

Sterling Connect:Enterprise FTP supports only the FTP commands in the following table, which lists FTP client commands available for a remote FTP client and the equivalent FTP command invoked by the Sterling Connect:Enterprise FTP server. When necessary, the Sterling Connect:Enterprise FTP description states how the Sterling Connect:Enterprise FTP implementation differs from the standard. Variations from the standard FTP commands are detailed in *Sterling Connect:Enterprise Variations from Standard FTP Commands* on page 35.

Command Invoked by Sterling Connect:Enterprise FTP Server	FTP Client Command	Standard Description	Sterling Connect:Enterprise FTP Implementation
ABOR	abort	Terminates the current data transfer. If a data transfer is not occurring, ABOR does not affect the session. Invalid if issued prior to logon completion.	Same as standard
AUTH	AUTH	Identifies the security mechanism used. Required to initiate a secure FTP session. SSL and TLS are the only security mechanism supported. Must be received prior to the USER and PASS commands.	Same as standard
CCC	CCC	Secure FTP only. Negotiates the control connection from an encrypted content to a clear-text content after the user ID and password have been transmitted in encrypted format. All data and objects transferred between client and server remain encrypted. Both ends of the connection must support this command.	Negotiate a clear-text control channel.
CWD	cd See table Note.	Change working directory Invalid if issued prior to logon completion.	Change current working mailbox ID
DELE	delete and mdelete See table Note.	Delete a file Invalid if issued prior to logon completion.	<i>Logically</i> delete batches from the current working mailbox ID This command does NOT delete the batch permanently. The information is recoverable until a purge is performed.
HELP	HELP	Display help information Invalid if issued prior to logon completion.	Same as standard
LIST	dir	List file information Invalid if issued prior to logon completion.	List batches in the current working mailbox ID

Note: By default, anonymous remote sites can execute all commands except CWD and DELE. The security exit or security interface can further limit the abilities of anonymous remote sites.

Command Invoked by Sterling Connect:Enterprise FTP Server	FTP Client Command	Standard Description	Sterling Connect:Enterprise FTP Implementation
NLST	ls, mdelete, mget	Names only list Invalid if issued prior to logon completion.	List user batch IDs in the current working mailbox ID
MODE	mode	Transfer mode	Same as standard
NOOP	NOOP	No operation Invalid if issued prior to logon completion.	Same as standard
PASV	PASV	Listen on alternate port Invalid if issued prior to logon completion.	Same as standard
PASS	PASS	Password	Same as standard
PBSZ	PBSZ	Specifies maximum buffer size in bytes of encrypted data sent or received during file transfer. Must occur prior to PROT command. Valid if issued prior to logon completion.	Same as standard
PORT	port	Host data port number	Same as standard
PROT	PROT	Indicates the type of data channel protection used by client and server during transfer. P is the only value currently supported. Indicates all data on channel is encrypted.	Same as standard
PWD	pwd	Print current directory name	Print current working mailbox ID
QUIT	QUIT	Disconnect	Same as standard
RETR	RETR, get, mget	Transfer (get) a file Invalid if issued prior to logon completion.	Retrieve batches from the current working mailbox ID
SITE	SITE	Site-specific information Invalid if issued prior to logon completion.	Same as standard
STAT	STAT	Send status Invalid if issued prior to logon completion.	Same as standard

Note: By default, anonymous remote sites can execute all commands except CWD and DELE. The security exit or security interface can further limit the abilities of anonymous remote sites.

Command Invoked by Sterling Connect:Enterprise FTP Server	FTP Client Command	Standard Description	Sterling Connect:Enterprise FTP Implementation
STOR	STOR, put, mput	Transfer a file Invalid if issued prior to logon completion.	Add a batch to the current working mailbox ID
STOU	STOU	Store a file with a unique name Invalid if issued prior to logon completion.	Add a batch to the current working mailbox ID
STRU	STRU	Set file transfer structure	Same as standard
SYST	SYST	Type of operating system	Same as standard
TYPE	TYPE	Data representation type Valid if issued prior to logon completion.	Same as standard
USER	USER	User name	Same as standard

Note: By default, anonymous remote sites can execute all commands except CWD and DELE. The security exit or security interface can further limit the abilities of anonymous remote sites.

Sterling Connect:Enterprise commands are not case-sensitive. Sterling Connect:Enterprise FTP server translates all commands to upper case. For example, "Help" is the same as "help," "HELP," and "heLP"

All commands end with a carriage-return-line-feed (<CRLF> is hexadecimal '0D0A') for ASCII and new line (<NL> is hexadecimal '15') for EBCDIC.

The <SP> symbol denotes a single space (blank). A blank is ASCII code 32 (hexadecimal '30') and EBCDIC code 64 (hexadecimal '40').

SITE Command Parameters

The SITE command sets parameters specific to Sterling Connect:Enterprise that affect adding batches (STOR), retrieving batches (RETR), listing batches (LIST), and listing user batch IDs (NLST). You can view the current values of the SITE command parameters using the STAT command. Refer to *Sample Output of STATUS Command* on page 28.

Multiple parameters can be specified on the SITE command. Specifying the SITE command with the RESET parameter sets all of the SITE parameter's values to the session default value. IDENT parameters are not affected by RESET.

The values set for a SITE command parameter remain in effect for the remainder of the session, except for the DIR_FILTER and LS_FILTER parameters. The DIR_FILTER and LS_FILTER parameter value changes are only effective for the next execution of the LIST or NLST command,

respectively. To make the DIR_FILTER and LS_FILTER parameter values effective for the remainder of the session, specify the KEEP option.

No security checks are made for the SITE command.

The following table lists the parameters valid for the SITE command. The column labeled “FTP server Command” lists the Sterling Connect:Enterprise FTP server command that is affected by the parameter listed. The column labeled “Remote FTP Client Command” lists the typical FTP client command that invokes the FTP server command affected by the parameter.

SITE Parameter	Description	FTP Server Command	Remote FTP Client Command
BCHSEP=NONE OPT3 OPT4 See Note 1.	Batch separation options. Note: BCHSEP=OPT4 affects the format of the responses from an NLST command, which can affect the typical FTP client mdelete and mget commands. See <i>Batch Status Flags</i> on page 41 for an explanation of the BCHSEP options.	NLIST, RETR	get, ls, mdelete, mget
BLKSIZE=0-32760 or blank	Block size of allocated file being sent.	STOR, STOU	put, mput
BLOCKS	Primary allocation amount of file being sent is in BLOCKS.	STOR, STOU	put, mput
BLOCKSIZE=0-32760 or blank	Block size of file being sent.	STOR, STOU	put, mput
COLL_EMPTY_BATCH= NO YES	Specifies whether to collect a batch containing no user data and treat it as a valid empty batch. If NO is specified, the incomplete flag is set for empty batches. If YES is specified, the incomplete flag is not set for empty batches.	STOR, STOU	put, mput

- 1 The default values for these parameters are specified in the *REMOTES sections of the ODF by the Sterling Connect:Enterprise administrator.
- 2 FTIME, ORIGIN, and TTIME affect the contents of the response from an NLST command. The response from the NLST command affects the typical client mdelete and mget commands.

SITE Parameter	Description	FTP Server Command	Remote FTP Client Command
CYLINDERS	Primary allocation amount of file being sent is in CYLINDERS.	STOR, STOU	put, mput
DIR_FILTER [QUERY]	Display batch exclusion filter.	N/A	N/A
DIR_FILTER DEFAULT NONE OFF [KEEP]	Reset batch exclusion filter.	LIST	dir
DIR_FILTER=<flags> [KEEP] See Note 1.	Specify batch exclusion filter.	LIST	dir
DIRECTORY=1-16777215 or blank	Number of directory blocks allocated for file being sent.	STOR, STOU	put, mput
DIRFORM=BROWSER BROWSER64 MBOX_CLIENT MBOX_CLIENT64 MBOX_EXT1_CLIENT64 MBOX_ZOS MBOX_ZOS64 \$MBINSDFXYKORV UNIX UNIX64 See Note 1.	Reply format options. The values following the \$ can be specified in any order to achieve the desired directory display format. Any number of options can be specified. See <i>Different DIRFORM Layouts Returned by LIST</i> on page 31 for examples.	LIST	dir
	\$ User-defined format		
	M 8-character mailbox ID		
	B 24-character user batch ID.		
	I 24-character batch ID.		
	N 7-digit batch number (#nnnnnn)		
	S 8-11 digit file size in number of bytes, based on high order significant digit (CT=nnnnnnnn[nnn])		
	D time/date of batch creation (hhmm-yyddd)		
	F Batch status flags.		
	X 64-character Batch ID (BID=xxxx....xxxx)		
	Y 64-character Batch ID (xxxx....xxxx)		
	K 15-digit file size in number of bytes (CT=nnnnnnnnnnnnnnnn)		

- 1 The default values for these parameters are specified in the *REMOTES sections of the ODF by the Sterling Connect:Enterprise administrator.
- 2 FTIME, ORIGIN, and TTIME affect the contents of the response from an NLST command. The response from the NLST command affects the typical client mdelete and mget commands.

SITE Parameter	Description	FTP Server Command	Remote FTP Client Command
	<p>O 8-character batch originator (batch job or remote name)</p> <p>R 11-digit record count (REC=nnnnnnnnnnn)</p> <p>V VBQ ID and allocation status (VBQnn [OFFLINE])</p>		
EDI= <u>NO</u> YES	<p>Specifies whether single byte x'15' segment terminators are used.</p> <p>EDI=YES indicates that X'15' segment terminators are being used and allows the translation table to translate the X '15' to a single byte.</p> <p>EDI=NO (the default) indicates that X'15' segment terminators are not being used so standard EBCDIC to ASCII translation is used to translate the X '15' to the 2-byte X '0D0A'.</p>	RETR	mget, get
EO=NO YES See Note 1.	<p>Extract once.</p> <p>EO=YES specifies that the batch is extracted and stored one time from a remote client and cannot be transmitted.</p> <p>The default value EO=NO does not prevent transmission or multiple extractions.</p>	STOR, STOU	mput, put
FIXRECFM	Sent by IBM—ignore.	STOR, STOU	put, mput
FTIME=<from_time> See Note 2.	<p>Limit batch selection by specifying the starting date for all data selected for processing. This value is used to calculate dates relative to the current date (for example, FROMDATE=3 is resolved to the date three days ago). The default is 1980001.</p> <p>Valid formats:</p> <p>nnn hhmm yyddd ccyyddd nnn:hhmm yyddd:hhmm ccyyddd:hhmm</p>	DELE, LIST, NLST, RETR	delete, dir, get, ls, mdelete, mget

- 1 The default values for these parameters are specified in the *REMOTES sections of the ODF by the Sterling Connect:Enterprise administrator.
- 2 FTIME, ORIGIN, and TTIME affect the contents of the response from an NLST command. The response from the NLST command affects the typical client mdelete and mget commands.

SITE Parameter	Description	FTP Server Command	Remote FTP Client Command
IDENT PROD_ID=n PROD_REL=x.x.xx	Identification of Sterling Connect:Enterprise product.	N/A	N/A
KALIVEOFF	Turns off the KALIVEON parameter. Note: KALIVEOFF is equivalent to setting KALIVEON=0.	N/A	N/A
KALIVEON=nnnnnnn	Keeps remote control ports open for the specified number of seconds (0–2147460) for non-Sterling Connect:Enterprise applications that experience timeouts on their control ports even though they have data port activity.	N/A	N/A
KIRN=YES NO	(KIRN stands for <u>K</u> ee <u>P</u> <u>I</u> n <u>p</u> u <u>t</u> <u>R</u> ec <u>s</u> e <u>p</u> <u>N</u> L) Sterling Connect:Enterprise removes the record separator string so that the batch is stored as a file structure instead of being record-oriented or keeps the record separator string, NL (New Line feed), for incoming SFA and SFE batches or allows. If the batch is not recordized, this parameter is ignored. The default comes from the KIRN setting in the *REMOTES record. NO = Sterling Connect:Enterprise removes the record separator string after recordizing the batch. YES = The Record separator strings are kept in the batch. The corresponding FTP_DEFAULT_RIFS parameter must be set to YES. For more information on recordizing, see the chapter on configuring ODF records for FTP connections in the <i>IBM Sterling Connect:Enterprise for z/OS Administration Guide</i> .	STOR, STOU	put, mput
LRECL=0-32760 or blank or "x"	LRECL of file being sent.	STOR, STOU	put, mput
LS_FILTER [QUERY]	Display batch exclusion filter.	NLST	ls, mdelete, mget

- 1 The default values for these parameters are specified in the *REMOTES sections of the ODF by the Sterling Connect:Enterprise administrator.
- 2 FTIME, ORIGIN, and TTIME affect the contents of the response from an NLST command. The response from the NLST command affects the typical client mdelete and mget commands.

SITE Parameter	Description	FTP Server Command	Remote FTP Client Command
LS_FILTER DEFAULT OFF NONE [KEEP]	Reset batch exclusion filter.	NLST	ls, mdelete, mget
LS_FILTER=<flags> [KEEP] See Note 1.	Specify batch exclusion filter.	NLST	ls,mdelete, mget
MULTXMIT=NO YES See Note 1.	Multiple transmission flag.	STOR, STOU	put
NLIST_QUOTES=NO YES	Specifies whether or not single quotes are to be used to delimit the start/end of the User Batch ID in the name list returned to the client, in response to a NLST command. The command will remain in effect for the duration of the session or until the command is issued again during that session. NLIST_QUOTES=NO tells the system to not enclose the User Batch ID in single quotes. The default value NLIST_QUOTES=YES encloses the User Batch ID in single quotes.	NLST	ls, mdelete, mget
nnnnnn	Sent by IBM—ignore.	STOR, STOR	put, mput
ONEBATCH=NO YES See Note 1.	Duplicate user batch ID	RETR	get, mget
ORIGIN=<originator> See Note 2.	Limit batch selection.	DELE, LIST, NLST, RETR	Delete, dir, get, ls, mdelete, mget
PRIMARY=1-16777215 or blank	Primary allocation amount of file being sent.	STOR, STOU	put, mput
RECFM=<recfm_list>	RECFM value for file being sent.	STOR, STOU	put, mput
REMOTE_FILENAME_LENGTH= SHORT LONG LONG64 See Note 1.	Length of remote file name.	NLST	ls, mdelete, mget
RESET	Set all values to default.	DELE, LIST, NLST, RETR, STOR, STOU	delete, dir, get, ls, mdelete, mget

- 1 The default values for these parameters are specified in the *REMOTES sections of the ODF by the Sterling Connect:Enterprise administrator.
- 2 FTIME, ORIGIN, and TTIME affect the contents of the response from an NLST command. The response from the NLST command affects the typical client mdelete and mget commands.

SITE Parameter	Description	FTP Server Command	Remote FTP Client Command
RIFS=YES NO	<p>(RIFS stands for <u>R</u>ecordize <u>I</u>nput <u>F</u>ile <u>S</u>tructure)</p> <p>Changes the batch to record structure or retains the batch as file structure.</p> <p>YES = Recordizes the batch after recognizing a record separator string and uses CRLF for SFA batches and NL for SFE batches.</p> <p>NO = Retains file structure of batch and does not recognize record separator strings in SFA or SFE batches.</p> <p>The default comes from the RIFS setting in the *REMOTES record.</p> <p>For more information on recordizing, see the chapter on configuring ODF records for FTP connections in the <i>IBM Sterling Connect:Enterprise for z/OS Administration Guide</i>.</p> <p>Note: Processing results cannot be predicted or supported when RIFS=NO and SCAN is set to YES or ALL.</p>	STOR, STOU	put, mput

- 1 The default values for these parameters are specified in the *REMOTES sections of the ODF by the Sterling Connect:Enterprise administrator.
- 2 FTIME, ORIGIN, and TTIME affect the contents of the response from an NLST command. The response from the NLST command affects the typical client mdelete and mget commands.

SITE Parameter	Description	FTP Server Command	Remote FTP Client Command
SCAN= <u>NO</u> YES ALL	<p>Specifies whether the Sterling Connect:Enterprise FTP server scans STOR or STOU received batches for \$\$ commands and /* cards. For more information, see <i>Preparing Batches for the Sterling Connect:Enterprise FTP Server</i> on page 47.</p> <p>NO= Scanning for Sterling Connect:Enterprise \$\$ commands is not enabled. Sterling Connect:Enterprise \$\$ commands, /*SIGNON, and /*BINASC cards embedded in a received batch are treated as data.</p> <p>YES= Scanning for Sterling Connect:Enterprise \$\$ commands is enabled initially, but scanning for a subsequent \$\$ADD card is not automatic. Each \$\$ADD card must include the parameter SCAN=YES to continue scanning for \$\$ commands. Use this value to make FTP command scanning behave like it does in SNA.</p> <p>ALL= Scanning for Sterling Connect:Enterprise \$\$ commands is enabled for the entire batch unless the batch contains a \$\$ADD card with the parameter SCAN=NO. Use this value to make FTP command scanning behave like it does in BSC.</p>	STOR, STOU	put, mput
SECONDARY=1-16777215 or blank	Secondary allocation amount of file being sent.	STOR, STOU	put, mput
TO=NO YES See Note 1.	<p>Transmit once.</p> <p>TO=YES specifies that the batch being received can only be transmitted once and is not extractable. TO=YES can be thought of as “transmit once, transmit only”.</p> <p>TO=NO specifies that the batch is not marked non-transmittable.</p>	STOR, STOU	put
TRACKS	Primary allocation amount of file being sent is in TRACKS.	STOR, STOU	put, mput

- 1 The default values for these parameters are specified in the *REMOTES sections of the ODF by the Sterling Connect:Enterprise administrator.
- 2 FTIME, ORIGIN, and TTIME affect the contents of the response from an NLST command. The response from the NLST command affects the typical client mdelete and mget commands.

SITE Parameter	Description	FTP Server Command	Remote FTP Client Command
TTIME=<to_time> See Note 2.	Limit batch selection by specifying the ending date for all data selected for processing. This value calculates dates relative to the current date. The default is 1980001. Valid formats: nnn hhmm yyddd ccyyddd nnn:hhmm yyddd:hhmm ccyyddd:hhmm	DELE, LIST, NLST, RETR	delete, dir, get, ls, mdelete, mget
VARRECFM	Sent by IBM—ignore	STOR, STOU	put, mput
VBQ#=nn Note: You cannot display or update this parameter in the ISPF and CICS screens related to the Options Definition File. Only a SITE or LOCSITE command can direct FTP batches to a VBQ other than the Current Collection VBQ.	Specifies the number of the VBQ file on which batches collected in FTP sessions are to be stored. To set this value for multiple collections, the command is: LOCSITE VBQ#=nn KEEP KEEP must be the next parameter after VBQ#=nn to retain the value for more than one batch collection unless it part of an MGET command. If nn is 00, the assignment resets to the Current Collect VBQ. If nn is 01 through 20 that particular VBQ is allocated.	STOR, STOU	dir, get, list, nlist, mget, scget
XMIT=NO YES See Note 1.	Transmission control	STOR, STOU	put
XMIT_EMPTY_BATCH= NO YES	Specifies whether to transmit an empty batch. If NO is specified, empty batches are not transmitted. If YES is specified, empty batches are transmitted.	RETR	get, mget

- 1 The default values for these parameters are specified in the *REMOTES sections of the ODF by the Sterling Connect:Enterprise administrator.
- 2 FTIME, ORIGIN, and TTIME affect the contents of the response from an NLST command. The response from the NLST command affects the typical client mdelete and mget commands.

Sample Output of STATUS Command

The type of information returned depends on the remote server. If the remote FTP server is a Sterling Connect:Enterprise system, the status and setting information is displayed in the following messages:

```

211-Connect:Enterprise at 10:09:49 on 2003.275 host time.
211-Session started at 10:09:33 on 2003/275 host time.
211-User: FTPRMT      Current working Mailbox ID: FTPRMT
211-TYPE: A          MODE: S              STRUcture: F
211-Local SITE option values:
211- Allocation type=NONE      BCHSEP=NONE  BLKSIZE=0
211- DIR_FILTER=18Fe          DIRECTORY=0      DIRFORM=MBOX_ZOS

211- EO=NO      FTIME=1980001:0000      LRECL=0      LS_FILTER=BDI!RST

211- MULTXMIT=NO      ONEBATCH=NO      ORIGIN=          PRIMARY=0
211- RECFM=          REMOTE_FILENAME_LENGTH=LONG      SECONDARY=0
211- TO=NO      TTIME=          XMIT=NO      VBQ=01      SCAN=NO
211-          0 Kbytes received for          0 batches during this session
211          0 Kbytes sent from          0 batches during this session
211 COLL_EMPTY_BATCH=NO      XMIT_EMPTY_BATCH=NO

```

In addition to the following SITE parameter setting information, the time the session started is shown (in hh:mm:ss and yyyy.ddd format) along with the number of bytes and batches received and sent during the session. The following table lists the information for each data label in alphabetical order:

Data Label	Description
Allocation type	The type of allocation used – BLOCKS, CYLINDER, TRACKS or NONE.
AUTH	The security mechanism used (SSL or TLS).
BCHSEP	The batch separation option used – NONE, OPT3, or OPT4 option. See <i>BCHSEP=NONE OPT3 OPT4</i> on page 20.
BLKSIZE	The file block size.
Current working Mailbox ID	The name of the current working mailbox.
DIR_FILTER	The filter used by the LIST command to exclude batches from the list returned to the remote FTP client. Refer to <i>DIR_FILTER=<flags> [KEEP]</i> on page 21.
DIRECTORY	The file directory size.

Data Label	Description
DIRFORM	The DIRFORM reply format. Refer to <i>DIRFORM=BROWSER BROWSER64 MBOX_CLIENT MBOX_CLIENT64 MBOX_EXT1_CLIENT64 MBOX_ZOS MBOX_ZOS64 \$MBINSDFXYKORV UNIX UNIX64</i> on page 21.
EO	Indicates if the file can be extracted once (EO) and transmitted (Yes or No).
FTIME	The date in year, month, day format followed by a semicolon and time in hours and minutes representing the from time parameter. Specifies the starting date for all data selected for processing. The nnn (1–3 digit number) value calculates dates relative to the current date. If nnn is specified, the FROMDATE value is calculated as today- <i>nnn</i> (for example, FROMDATE=3 is resolved to the date three days ago). The default is 1980001.
LRECL	The file logical record length.
LS_FILTER	A filter used by the NLST command to exclude batches from the list returned to the remote FTP client.
MODE	The mode – blocked (B), compressed (C), or stream (S).
MULTXMIT	Indicates if the batch being received can be transmitted multiple times (Yes or No).
ONEBATCH	Indicates if only the first eligible batch can be selected for transfer to the remote FTP client (Yes or No).
ORIGIN	The name of the remote or user ID of the batch job that added the batch.
PBSZ	The size of the protection buffer.
PRIMARY	The file primary allocation amount.
PROT	The type of data channel protection used by client and server during transfer. (P indicates all data on the channel is encrypted.)
RECFM	The file record format.
REMOTE_FILENAME_LENGTH	The length of the Batch ID returned by NLST (short or long).
SCAN	The last known value of the remote (server-side) SCAN setting, which indicates whether the Sterling Connect:Enterprise FTP server is scanning RETR received batches for \$\$ commands and /* cards. For more information, see the description for the SCAN parameter on page 26.
SECONDARY	The file secondary allocation amount.
STRUcture	The file structure – file (F) or record (R).
TO	Indicates if the file can only be transmitted once (TO) and cannot be extracted (Yes or No).

Data Label	Description
TTIME	The date in year, month, day followed by a semicolon and time in hours and minutes representing the to time (TTIME) parameter.
TYPE	The file type – ASCII (A), EBCDIC (B), or BINARY (I).
User	The name of the user ID currently logged into the remote FTP Server.
XMIT	Indicates if the batch is available to be transmitted to other sites (Yes or No).
VBQ	The number of the VBQ file on which batches collected in FTP sessions are to be stored.

VSAM Batch Status Flags

The DIR_FILTER parameter uses the values in the following batch status flags. Some combinations of these flags are always processed together or are not accepted.

For example:

- ◆ A batch with flag 8 or 9 also has an F flag.
(DIR_FILTER=89 is stored in the Remote definition as DIR_FILTER=F)
(DIR_FILTER=!8!9 is stored in the Remote definition as DIR_FILTER=!F)
- ◆ A batch with any combination of 1, 2, or 3 is not accepted.

Code	Description
A	The batch was added by the offline ADD utility.
B	The batch originated at a BSC remote site.
C	The batch was collected from a remote site through online Sterling Connect:Enterprise.
D	The batch is flagged for deletion due to an online \$\$DELETE request or an offline DELETE utility.
e	The batch was encrypted when added by the offline ADD utility.
E	The batch was extracted by the offline EXTRACT utility. This flag does not inhibit another EXTRACT from running and does not prevent online access to the batch.
F	The batch originated at an FTP remote site.
I	The batch is incomplete. Either no records were in the batch, or an online data collection was interrupted due to an error condition. This batch is ignored by Sterling Connect:Enterprise and only the EXTRACT utility can extract it.
M	The batch is available for multiple transmission, can be transmitted to any remote site, and is not marked T when transmitted unless mailboxID = AC Listname.
N	Nontransmittable. The batch is locked for transmissions. The status is set immediately after the batch is successfully collected, when the EO=Y option of a \$\$ADD command is specified. It is also set following successful transmission of a batch added with the TO=Y parameter.

Code	Description
R	Requestable. A remote site can request the batch or a host-initiated Auto Connect can transmit the batch.
S	The batch originated at an SNA remote site.
T	The batch was transmitted online to a remote site.
U	Unextractable. When displayed, this status replaces the E status. The batch is locked for extractions. This status is set immediately after the batch is added, when the TO=Y option added the batch. It is also set following successful extraction of the batch when the EO=Y option was used to add the batch.
X	The batch contains transparent data.
Z	EBCDIC data added through the APPC user API.
0	The batch is sorted on the VBQ as FILE_STRUCTURE (non record oriented). The batch was added offline or collected online as a contiguous byte string with no logical record delineation.
1	FTP mode is blocked.
2	FTP mode is compressed.
3	FTP mode is stream.
4	FTP collected SSL.
8	FTP structure is file.
9	FTP structure is record.

Different DIRFORM Layouts Returned by LIST

The layout of the information returned by the LIST command depends on the value of the DIRFORM parameter of the SITE command. The format returned when DIRFORM=MBOX_ZOS64 is shown in the following example, which illustrates the default directory list format.

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
COMPANYB	#0000047	CT=00000320	BID=LIST TEST	1508-01199	A R	F 038	VBQ01 OFFLINE
COMPANYB	#0000067	CT=00000420	BID=LIST	1046-01205	C T	F 038	VBQ20
COMPANYB	#0000068	CT=00000210	BID=LIST	1046-01205	C	F 038	VBQ03

Column	Description
(1)	Mailbox where the batch resides.
(2)	Batch number—zero filled.
(3)	Size of batch in bytes.
(4)	Batch ID

Column	Description
(5)	Date batch added (HHMM-YYDDDD)
(6)	Batch flags in 20 character field in the following order: I = Incomplete A C = Offline Added, Online Collected D = Delete N = Not Transmittable U = Unextractable R = Requestable T = Transmitted E = Extracted M = Multi-transmittable X = Transparent B F S Z = BSC, FTP, SNA or API Space = Reserved for future use. Space = Reserved for future use. 0 = File oriented data. 1 2 3 =FTP mode – blocked, compressed, stream 8 9 = FTP structure – file, record e = Offline added with encryption (ENCR=) Space = Reserved for future use. Space = Reserved for future use. Space = Reserved for future use.
(7)	The number of the VSAM Batch Queue where the batch is stored.
(8)	VBQ status–OFFLINE if VBQ is not available or blank if available.

The format returned when DIRFORM=BROWSER is shown below with an explanation of the columns:

(1)	(2)	(3)	(4)	(5)	(6)	(7)
A R	1	COMPANYB	0000047	00000320	JUL 18 15:08	LIST TEST
C T	1	COMPANYB	0000067	00000420	JUL 24 10:46	LIST
IC	1	COMPANYB	0000074	00000320	JUL 24 11:31	July Invoice

Column	Description
(1)	Batch flags in 10-character field in the following format: I = Incomplete A C = Offline added, Online Collected D = Delete R = Requestable T = Transmitted E = Extracted M = Multi-transmittable U = Unextractable N = Not transmittable X = Transparent
(2)	Constant 1.
(3)	Mailbox where batch resides.
(4)	Batch number—zero filled.
(5)	Size of batch in bytes.
(6)	Date batch added (MMM DD HH-MM)
(7)	Batch ID

The format returned when DIRFORM=MBOX_CLIENT is shown below with an explanation of the columns.

(1)	(2)	(3)	(4)	(5)	(6)	(7)
COMPANYB	#0000047	CT=00000320	BID=LIST TEST	1508-01199	A R	COMPANYB
COMPANYB	#0000067	CT=00000420	BID=LIST	1046-01205	C T	COMPANYB
COMPANYB	#0000068	CT=00000210	BID=LIST	1046-01205	C	COMPANYB

Column	Description
(1)	Mailbox where batch resides.
(2)	Batch number—zero filled.
(3)	Size of batch in bytes.
(4)	Batch ID
(5)	Date batch added (HHMM-YYDDD)

Column	Description
(6)	Batch flags in 10-character field in the following order: I = Incomplete A C = Offline Added, Online Collected D = Delete R = Requestable T = Transmitted E = Extracted M = Multi-transmittable U = Unextractable N = Not transmittable X = Transparent
(7)	Batch job name or remote name that added the batch.

The format returned when DIRFORM=UNIX is shown below with an explanation of the columns.

(1)	(2)	(3)	(4)	(5)	(6)	(7)
-A-R-----	1	CRONLY	2845	05 AUG 11 20:14	'CRONLY TEST	'.#0002845
-A-R-----	1	CRONLY	2846	05 AUG 11 20:14	'CRONLY TEST	'.#0002846
-A-R-----	1	CRONLY	2847	05 AUG 11 20:14	'CRONLY TEST	'.#0002847

Column	Description
(1)	Batch flags in 10-character field in the following order: I = Incomplete A C = Offline Added, Online Collected D = Delete R = Requestable T = Transmitted E = Extracted M = Multi-transmittable U = Unextractable N = Not transmittable X = Transparent Note: A hyphen (-) is returned as a placeholder for each batch status which is not present.
(2)	Constant 1.
(3)	Mailbox ID where batch resides.

Column	Description
(4)	Size of batch in bytes
(5)	Date batch added (YY month DD HH:MM), where month = Jan, Feb, ..., Nov, Dec.
(6)	Batch ID, enclosed in single quotes with .#nnnnnn appended, where nnnnnn = batch number, for example, '24 character batchid'.#0001234

Sterling Connect:Enterprise Variations from Standard FTP Commands

The Sterling Connect:Enterprise FTP server uses a construct called a mailbox ID as the equivalent of the directory in other FTP implementations. Sterling Connect:Enterprise supports a single level of the directory, which is referred to as the current working mailbox ID.

The following table summarizes the typical FTP commands that are implemented by the Sterling Connect:Enterprise FTP server in a manner that differs from other FTP server implementations. The way that Sterling Connect:Enterprise implements each command is detailed. The syntax and format for specifying user batch ID are also detailed.

FTP Command	Sterling Connect:Enterprise FTP Server Command	Sterling Connect:Enterprise Implementation
del, delete, mdelete	DELE	Logically delete batches from the current working mailbox ID
dir	LIST, NLST	List batches in the current working mailbox ID
get, mget	RETR	Retrieve batches from the current working mailbox ID
ls, mdelete, mget	NLST	List the user batch IDs in the current working mailbox ID
put, mput, STOU	STOR, STOU	Add a batch to the current working mailbox ID
cd	CWD	Change current working mailbox ID
pwd	PWD	Print current working mailbox ID

User Batch ID Syntax and Formats

The value of the user batch ID is case-sensitive and you cannot use the following characters in the user batch ID. The results of attempts to retrieve batches using FTP commands that contain wildcards in the user batch ID are unpredictable.

-	.	*	?	[]	\	/
---	---	---	---	---	---	---	---

Additionally, do not use the number symbol (#) as the first character in the user batch ID.

Caution: Some systems support ID numbers using the # character, but Sterling Connect:Enterprise can return inconsistent, redundant, or incorrect responses to queries that use # as the first character of the user batch ID.

Pathnames, or '<pathname>', consist of an optional Mailbox ID and a User Batch ID in the form: '[/<mailbox_ID>/]<batch_ID>'. Specifying the Mailbox ID in the <pathname> overrides the setting of the current working mailbox for the current command and the current working Mailbox ID is not changed. If <mailbox_ID> is not specified as part of the path name, then the current working Mailbox ID is used.

The user batch ID can be specified in one of the following ways:

Format	Description
nnnnnnn	The 1–7 digit batch number from 1–9999999. Leading zeros are optional.
"generic-name"	1–64 characters used to identify batches in the current working mailbox ID. (The quotation marks are required for this form of batch ID. Do not use wildcard characters in the "generic-Name" value.)
'specific'	1–64 character user batch ID left justified, padded with trailing blanks. The single quotes are required to delimit the ID. If the ID contains an apostrophe, two apostrophes must be encoded for each single apostrophe in the ID. Example: UID1235'BNK1 would need to be encoded 'UID1235"BNK1' If blanks are embedded within the ID, the single quotes must be left off. Example: UID1235 BNK1
'SPEC*?[]'	Indicates any batch that matches the specified pattern. 1–64 characters including any wildcard card characters. The pattern is compared to all batches in the current working mailbox ID and any matching batches are selected.
'batch_ID.#nnnnn nn'	1–64 character ID with trailing blanks truncated, followed by .# and the 7-digit batch number from 0000001–9999999 (including leading zeros) and enclosed in single quotes. Without the single quotes, you cannot use embedded blanks in this ID. This format is normally seen as part of a RETR or DELE command.
'#nnnnnnn.dat'	# and the 7-digit batch number from 0000001–9999999 with leading zeros followed by .dat and optionally enclosed in single quotes. This format is typically used as part of a RETR or DELE command.

delete or mdelete Command

In Sterling Connect:Enterprise, the **DELE** command *logically* deletes batches from the current working mailbox ID specified by the <pathname> parameter. You can set the current working mailbox ID using the FTP client cd command. Display the current working mailbox ID using either the STAT command or the PWD command. A mailbox ID specified in <pathname> temporarily overrides the permanent setting of the current working mailbox ID, for the duration of the current command.

The FTIME, ORIGIN, and TTIME parameters of the SITE command affect DELE processing. Set the FTIME, ORIGIN, and TTIME parameters using the SITE command and display them using either the STAT command or the PWD command.

The following two security checks are made before the DELE command deletes a batch:

- ◆ Session security exit call
- ◆ Security interface security checks

Note: Remote sites with the name anonymous are not permitted to use DELE.

Sterling Connect:Enterprise FTP del, delete, and mdelete Command Syntax

The typical FTP client **delete** and **mdelete** commands invoke the FTP server DELE command as shown in the following table. Required parameters are displayed in bold font. No optional parameters are available.

FTP Command	Sterling Connect:Enterprise FTP Server Command	Syntax	Parameter Description
del, delete, mdelete	DELE	DELE<SP><pathname>	Required. <pathname> specifies the batch or batches to delete.

Batch Selection with Sterling Connect:Enterprise FTP del Command

If the user batch ID specified in <pathname> is in the form '#nnnnnnn', 'nnnnnnn', 'batch_ID.#nnnnnnn', or '#nnnnnnn.dat' and the batch is in the current working mailbox ID, the single batch with batch number 'nnnnnnn' is deleted.

Note: Your operating platform may not support using the number (#) character as the first character of a batch_ID. See *Transfer Mode* on page 11.

If the user batch ID specified in <pathname> is in form “generic-name”, 'specific', or 'spec*?[]', all batches in the current working mailbox ID that match the value specified are eligible for deletion.

An eligible batch is selected for deletion if the following conditions are met:

1. The batch's creation date and time is on or after the value specified in the FTIME parameter.
2. The batch's creation date and time is on or before the value specified in the TTIME parameter.
3. The batch's origination matches the value of the ORIGIN parameter or the ORIGIN parameter is blank.

If the user batch ID specified in <pathname> is in '#nnnnnnn', 'nnnnnnn', 'batch_ID.#nnnnnnn', or '#nnnnnnn.dat' format, the SITE parameters FTIME, ORIGIN, and TTIME are ignored.

The SITE parameters FTIME and TTIME limit the selection of batches based on the batch's earliest and latest creation date and time, respectively.

The ORIGIN parameter limits the selection of batches based on the name of the user or remote that created the batch.

dir Command

In Sterling Connect:Enterprise the **LIST** command lists batches in the current working data repository or the mailbox ID specified in the <pathname> parameter. You set the current working mailbox ID using the FTP client **cd** command. Display the current working mailbox ID using either the **STAT** command or the **PWD** command. For the **dir** command, the mailbox ID specified in <pathname> overrides the setting of the current working mailbox ID, but does not change its value.

Note: The current data representation must be either ASCII or EBCDIC. Image type is unsupported and is not recognized.

The **DIR_FILTER**, **FTIME**, **ORIGIN**, and **TTIME** parameters of the **SITE** command affect **LIST** processing. The **DIR_FILTER**, **FTIME**, **ORIGIN**, and **TTIME** parameters are set using the **SITE** command and displayed using either the **STAT** command or the **PWD** command.

The sequence of the list returned by the **LIST** command is in ascending order by mailbox ID. The batches listed for each mailbox ID are sequenced based on the values of the batch transmission status and batch age. The batches in the data repository that did not transmit are listed first in ascending sequence by creation date and time. The batches that transmitted are listed last in ascending sequence by creation date and time. The format of the list returned by the **LIST** command depends on the value of the **DIRFORM** parameter of the FTP server **SITE** command. The **DIRFORM** parameter is set using the FTP server **SITE** command and displayed using the FTP server **STAT** command.

The following two security checks are made before the **LIST** command accesses the data repository:

- ◆ Session security exit call
- ◆ Security interface security checks

If you did not specify a data connection port (using either the **PORT** or **PASV** command) before issuing the **dir** command, Sterling Connect:Enterprise assumes that the data uses the client's control connection port and the server's port adjacent to the control port (for example, L-1). Always specify the data connection port explicitly (through **PORT** or **PASV** commands) instead of assuming the default.

Sterling Connect:Enterprise FTP dir Command Syntax

The typical FTP client **dir** command invokes the FTP server LIST command as shown in the following table. Required parameters are displayed in bold font.

FTP Command	Sterling Connect:Enterprise FTP Server Command	Syntax	Parameter Description
dir, LIST, NLST	LIST	LIST[<SP><pathname>]	Optional. <pathname> specifies the batch or batches to list

Batch Selection with Sterling Connect:Enterprise FTP dir Command

If the user batch ID specified in <pathname> is formatted as '#nnnnnnn', 'nnnnnnn', 'batch_ID.#nnnnnnn', or '#nnnnnnn.dat' and the batch is in the current working mailbox ID, the single batch with batch number 'nnnnnnn' is eligible for the list.

If the user batch ID specified in <pathname> is in the form “generic-name”, 'specific', or 'spec*?[]', all of the batches in the current working data repository that match the specified value are eligible for the list.

If <pathname> is not specified, all of the batches in the current working data repository are eligible for the list. Eligible batches are selected for listing depending on the current settings of the SITE parameters DIR_FILTER, FTIME, ORIGIN, and TTIME.

An eligible batch is listed if the following conditions are met:

- ◆ The batch's status flags do not match any of the values specified in the DIR_FILTER parameter.
- ◆ The batch's creation date and time is on or after the value specified in the FTIME parameter.
- ◆ The batch's creation date and time is on or before the value specified in the TTIME parameter.
- ◆ The batch's origination matches the value of the ORIGIN parameter or the ORIGIN parameter is blank.

If the user batch ID specified in <pathname> is in '#nnnnnnn', 'nnnnnnn', 'batch_ID.#nnnnnnn', or '#nnnnnnn.dat format', the DIR_FILTER, FTIME, ORIGIN, and TTIME parameters are ignored.

- ◆ The DIR_FILTER parameter limits the selection of batches based on a batch's status flags.
- ◆ The FTIME and TTIME parameters limit the selection of batches based on the batch's earliest and latest creation date and time, respectively.
- ◆ The ORIGIN parameter limits the selection of batches based on the name of the user or remote that created the batch.

get or mget Command

In Sterling Connect:Enterprise, the RETR command retrieves batches from the current working data repository or the mailbox ID specified in the <pathname> parameter. For this command, the mailbox ID specified in <pathname> overrides the setting of the current working mailbox ID, but

does not change its value. Set the current working mailbox ID using the FTP client `cd` command. Display the current working data repository using either the `STAT` command or the `PWD` command.

The FTP client creates the file names at the remote site using the typical FTP client `get` and `mget` commands, and using the replies returned from the `NLST` command.

Several parameters of the `SITE` command affect `RETR` processing. You can set these parameters using the `SITE` command and display them using either the `STAT` command or the `PWD` command.

Several other parameters of the `SITE` command cause file characteristics to be stored with the batch.

Note: `BCHSEP` does not affect the selection of batches. It only determines when a batch is marked transmitted.

The following two security checks are made before the `RETR` command retrieves a batch:

- ◆ Session security exit call
- ◆ Security interface security checks

Before issuing this command, specify the data collection port using either the `PORT` command or the `PASV` command. Sterling Connect:Enterprise assumes that the data connection uses the client's control connection port and the server's port adjacent to the control port (for example, `L-1`). For optimum performance, always specify the data connection port explicitly (through the `PORT` or `PASV` commands) instead of assuming the default.

When the control connection is established and secure, SSL negotiation of the data connection is expected.

Sterling Connect:Enterprise FTP get Syntax

The typical FTP client `get` and `mget` commands invoke the FTP server `RETR` command as shown in the following table. Required parameters are displayed in bold font. No optional parameters are available.

FTP Command	Sterling Connect:Enterprise FTP Server Command	Syntax	Parameter Description
<code>get, mget</code>	<code>RETR</code>	<code>RETR<SP><pathname></code>	Required. <code><pathname></code> specifies the batch or batches to be listed.

Batch Selection

If the user batch ID specified in `<pathname>` is in the form `'#nnnnnnn'`, `'nnnnnnn'`, `'batch_ID.#nnnnnnn'`, or `'#nnnnnnn.dat'` and the batch is in the current working data repository, the single batch with batch number `'nnnnnnn'` is eligible for retrieval.

If the user batch ID specified in <pathname> is in the form “generic-name”, 'specific', or 'spec*?[]', all of the batches in the current working data repository that match the user batch ID are eligible for retrieval.

Eligible batches are selected for listing depending on the current settings of the SITE parameters TIME, ORIGIN, and TTIME, and of the data representation type.

A batch is selected for retrieval when the following conditions are met:

- ◆ The batch is contained in an online VBQ.
- ◆ The data representation type of the batch matches that of the TYPE parameter.
- ◆ The batch's creation date and time is on or after the value specified in the FTIME parameter.
- ◆ The batch's creation date and time is on or before the value specified in the TTIME parameter.
- ◆ The batch's origination matches the value of the ORIGIN parameter or the ORIGIN parameter is blank.
- ◆ The batch is requestable.

If the user batch ID specified in <pathname> is in '#nnnnnnn', 'nnnnnnn', 'batch_ID.#nnnnnnn', or '#nnnnnnn.dat' format, the SITE parameters FTIME, ORIGIN, and TTIME are ignored.

- ◆ The FTIME and TTIME parameters limit the selection of batches based on the batch's earliest and latest creation date and time, respectively.
- ◆ The data representation type of the batch limits the selection of batches based on current setting of the TYPE parameter.
- ◆ The ORIGIN parameter limits the selection of batches based on the name of the user or remote that created the batch.

Batch Transmission

If batches are selected for retrieval, the batches are transferred through the data connection.

If the user batch ID specified in <pathname> is in the form '#nnnnnnn', 'nnnnnnn', 'batch_ID.#nnnnnnn', or '#nnnnnnn.dat' and the batch is in the current working data repository, the single batch with batch number 'nnnnnnn' is eligible for retrieval unless the data representation type does not match.

If ONEBATCH=NO is specified, the RETR command concatenates all the batches selected and sends them as one file. If ONEBATCH=YES is specified, the RETR command only sends the first batch selected.

Batch Status Flags

The batch status flags have the following meaning.

- ◆ If BCHSEP=NONE or BCHSEP=OPT4, each batch is flagged as transmitted (“T”) when it is sent successfully. If a failure occurs during transmission, BCHSEP=NONE or BCHSEP=OPT4 prevents batches previously sent from being retransmitted. If the transmission is restarted to the same remote client file, the data from the previous batches is replaced with the data from the unsent batches, and the data from the previously sent batches are lost. If the transmission is restarted to a different remote client file, data sent in previous batches are not lost.

- ◆ If BCHSEP=OPT3, all batches are flagged as transmitted (“T”) when all of the batches are sent successfully. If a failure occurs during transmission, BCHSEP=OPT3 permits all batches to be transmitted again. If the transmission is restarted to the same remote client file, the data from the previous batches are retransmitted with no loss of data. If the transmission is restarted to a different remote client file, duplicate records are sent to the remote site.

put or mput Command (STOR)

In Sterling Connect:Enterprise, the STOR command adds a batch to the current working data repository or the mailbox ID specified in the <pathname> parameter. Set the current working mailbox ID using the FTP client cd command. Display the current working data repository using either the STAT command or the PWD command. For this command, the mailbox ID specified in <pathname> overrides the setting of the current working mailbox ID, but does not change its value.

Several parameters of the SITE command affect STOR processing. You can set these parameters using the SITE command and display them using either the STAT command or the PWD command.

Several other parameters of the SITE command cause file characteristics to be stored with the batch.

The following two security checks are made before the STOR command adds a batch:

- ◆ Session security exit call
- ◆ Security interface security checks

A unique batch number is assigned to every batch that is added allowing Sterling Connect:Enterprise to support duplicate user batch IDs.

Before issuing this command, specify a data connection port using either the PORT command or the PASV command. Sterling Connect:Enterprise assumes that the data connection uses the client's control connection port and the server's port adjacent to the control port (for example, L-1). Always specify the data connection port explicitly (through the PORT or PASV commands) instead of assuming the default.

Sterling Connect:Enterprise FTP put Syntax

The typical FTP client **put** and **mput** commands invoke the FTP server STOR command as shown in the following table. Required parameters are displayed in bold font. No optional parameters are available.

FTP Command	Sterling Connect:Enterprise FTP Server Command	Syntax	Parameter Description
put, mput	STOR	STOR<SP><pathname>	Required. <pathname> specifies the 1–64 character user batch ID of the batch to be added. User batch IDs can contain no wildcard characters, ('-', '.', '*', '?', '[', ']', '/', and '\'). Additionally, you cannot specify '#' as the first character. If more than 64 characters are specified, a command syntax error occurs.

put or mput Command (STOU)

In Sterling Connect:Enterprise, the STOU command adds a batch to the current working data repository or the mailbox ID specified in the <pathname> parameter. Set the current working mailbox ID using the FTP client cd command. Display the current working data repository using either the STAT command or the PWD command. For this command, the mailbox ID specified in <pathname> overrides the setting of the current working mailbox ID, but does not change its value.

Several parameters of the SITE command affect STOU processing. You can set these parameters using the SITE command and display them using either the STAT command or the PWD command.

Several other parameters of the SITE command cause file characteristics to be stored with the batch.

The following two security checks are made before the STOU command adds a batch:

- ◆ Session security exit call
- ◆ Security interface security checks

The user batch ID returned by the STOU command is defined in the BID sub-parameter of the RECEIVE_OPTIONS of the remote's definition in the *REMOTES section of the ODF. If the BID sub-parameter is not specified, the user batch ID assigned is 'NONE'.

The format of the user batch ID returned by the STOU command is:

```
batch_ID.#nnnnnnn
```

where *batch_ID* is the 1–64 character user batch ID, # is a constant, and #nnnnnnn is the 7-digit batch number with leading zeroes.

A unique batch number is assigned to every batch that is added allowing Sterling Connect:Enterprise to support duplicate user batch IDs.

Note: Before issuing this command, specify a data connection port using either the PORT command or the PASV command. Sterling Connect:Enterprise assumes that the data connection uses the client's control connection port and the server's port adjacent to the control port (for example, L-1). For optimum performance, always specify the data connection port explicitly (through the PORT or PASV commands) instead of assuming the default

Sterling Connect:Enterprise FTP put Syntax

The typical FTP client **put** and **mput** commands invoke the FTP server STOU command. Required parameters are displayed in bold font. No optional parameters are available.

FTP Command	Sterling Connect:Enterprise FTP Server Command	Syntax	Parameter Description
put, mput	STOU	STOU<SP><pathname>	No parameters are required.

pwd Command

For Sterling Connect:Enterprise FTP the PWD prints the current working mailbox ID. It prints to your standard output. No security checks are made for the PWD command.

pwd Command Syntax

The typical FTP client **pwd** command invokes the FTP server PWD command as shown in the following table. Required parameters are displayed in bold font. No optional parameters are available.

FTP Command	Sterling Connect:Enterprise FTP Server Command	Syntax	Parameter Description
pwd	PWD	PWD	None

cd Command

The typical FTP client **cd** command invokes the FTP server CWD command.

For Sterling Connect:Enterprise FTP the CWD command changes the current working mailbox ID to the specified value. The slash character (/) must precede the mailbox ID. Subsequent commands use the specified mailbox ID as the current working mailbox ID. The mailbox ID specified may or may not exist. Display the current working data repository using either the Stat command or the PWD command.

Note: The values of 2 periods in a row (..) or a single period between two blank characters (.) are not supported and are treated as syntax errors.

No security checks are made by this command. Authorization to use the specified mailbox ID is determined when an FTP server command attempts to access Sterling Connect:Enterprise.

Note: Remote sites with the name “anonymous” are not permitted to use CWD. They are restricted to the “PUBLIC” mailbox ID.

NLST Command

For Sterling Connect:Enterprise FTP the NLST command lists user batch IDs in the current working data repository or the mailbox ID specified in the pathname parameter. For this command, the mailbox ID specified in pathname overrides the setting of the current working mailbox ID, but does not change its value. Set the current working mailbox ID using the FTP client cd command. Display the current working data repository using the STAT command or the PWD command.

Note: The current data representation must be either ASCII or EBCDIC. Image type is unsupported and is not recognized.

The SITE parameters BCHSEP, FTIME, LS_FILTER, ORIGIN, REMOTE_FILENAME_LENGTH, and TTIME affect NLST processing. You display these parameters using either the STAT command or the PWD command.

The current data representation type value does not affect NLST processing. Unless LS_FILTER is used, output from NLST lists batches of any data type. Set the appropriate data type (ASCII or EBCDIC) before retrieving batches.

The format of the list returned by the NLST command depends on the value of the BCHSEP parameter of the SITE command. See *Batch Status Flags* on page 41 for a description of these values.

The following two security checks are made before the NLST command lists a batch:

- ◆ Session security exit call
- ◆ Security interface security checks

Note: Before issuing this command, specify a data connection port (using either the PORT or PASV command). Sterling Connect:Enterprise assumes the data connection uses the client's control connection port and the server's port adjacent to the control port (for example, L-1). Always specify the data connection port explicitly (through the PORT or PASV commands) instead of assuming the default.

Sterling Connect:Enterprise NLST Command Syntax

The typical FTP client **ls**, **mdelete**, and **mget** commands invoke the FTP server NLST command as shown in the following table.

FTP Command	Sterling Connect:Enterprise FTP Server Command	Syntax	Parameter Description
pwd	PWD	NLST[<SP><pathname>]	Optional. <pathname> specifies the 1–64 character user batch ID of the batch to be listed.

Batch Selection

If the user batch ID specified in <pathname> is in '#nnnnnnn', 'nnnnnnn', 'batch_ID.#nnnnnnn', or '#nnnnnnn.dat' format, and the batch is in the current working data repository, the single batch with batch number 'nnnnnnn' is eligible for the list.

If the user batch ID specified in <pathname> is in “generic-name”, 'specific', or 'spec*?[]' format, all of the batches in the current working data repository that match the user batch ID are eligible for the list.

If the user batch ID is not specified, all of the batches in the current working data repository are eligible for the list.

Eligible batches are selected for listing depending on the current settings of the SITE parameters FTIME, LS_FILTER, ORIGIN, and TTIME.

An eligible batch is selected for listing if the following conditions are met:

- ◆ The batch is contained in an online VBQ.
- ◆ The batch's status is not excluded by the values specified in the LS_FILTER parameter.
- ◆ The batch's creation date and time is on or after the value specified in the FTIME parameter.
- ◆ The batch's creation date and time is on or before the value specified in the TTIME parameter.
- ◆ The batch's origination matches the value of the ORIGIN parameter or the ORIGIN parameter is blank.

If eligible batches are available and selected, the list is returned through the data connection.

If the user batch ID specified in <pathname> is formatted as '#nnnnnnn', 'nnnnnnn', 'batch_ID.#nnnnnnn', or '#nnnnnnn.dat', the FTIME, LS_FILTER, ORIGIN, and TTIME parameters are ignored.

The LS_FILTER parameter limits the selection of batches based on a batch's status flags.

The FTIME and TTIME parameters limit the selection of batches based on the batch's earliest and latest creation date and time, respectively.

The ORIGIN parameter limits the selection of batches based on the name of the user or remote that created the batch.

Preparing Batches for the Sterling Connect:Enterprise FTP Server

The typical FTP client **put** and **mput** commands invoke the FTP server STOR or STOU command to add batches of data to the host data repository on the Sterling Connect:Enterprise FTP server. Scanning must be in effect on the Sterling Connect:Enterprise FTP server side for \$\$ADD commands to function as instructions to add batches of data to the VSAM batch files for transmission instead of being treated as data. If scanning is not in effect, all \$\$ADD and other embedded \$\$ commands as well as /* cards (/*SIGNON and /*BINASC, which contain session startup information) are treated as data.

No \$\$ADD batches transferred by one FTP command are considered complete until the final \$\$ADD is complete.

To continue scanning for additional \$\$ADD commands after each \$\$ADD command, you can use one of the following methods:

- ◆ At the FTP client site, include the parameter, SCAN=YES in each \$\$ADD command, or set the initial SCAN setting to ALL using the SITE command.
- ◆ At the FTP server site, set the initial SCAN setting to ALL in the ODF or by using the LOCSITE script command.

When you embed \$\$commands in data, use the following table to determine how to delimit records, depending on the data structure, transfer mode, and data type.

Data Structure	Transfer Mode/Data Type	End of Record Delimiter
Record	Stream	Explicit End of Record (control code x'FF02')
File	Block or Compressed	EOR descriptor in block header (B) or Esc sequence (C)
File	Stream/ASCII	Carriage Return-Line Feed (CRLF or x'0D0A')
File	Stream/EBCDIC	New Line (NL or 'x15')
File	Stream/Images	Records not supported—only one \$\$ADD allowed and must be delimited by either: <ul style="list-style-type: none"> ◆ \$\$END with the rest of file being considered data ◆ 4096 bytes with data starting at the 4097th byte after the first \$ in ADD.

For more information about how \$\$ADD commands are processed and how Sterling Connect:Enterprise recordizes batches, see the chapter on configuring ODF records for FTP connections in the *IBM Sterling Connect:Enterprise for z/OS Administration Guide*.

Using \$\$Commands and /*Cards

Files using embedded \$\$commands and /* cards must meet certain requirements. The first table summarizes these requirements for a file with a /*BINASC card; the second table is for a file without a /*BINASC card. In both tables, the file components are listed in the order of appearance in the file.

The third column in both tables lists the character set for ASCII, Image, and EBCDIC data types. The character set can be ASCII (A), Scanning (S), and E (EBCDIC). When a record is scanned, its first byte determines the character set for that record:

- ◆ /*SIGNON, /*BINASC, \$\$ADD, \$\$DEL, \$\$DIR, \$\$LOG, \$\$REQ.
- ◆ Only look for /*SIGNON on first record.
- ◆ Only look for /*BINASC immediately after the first \$\$ADD.
- ◆ First check for EBCDIC then ASCII. The translate table used is specified in the TRANSLATE parameter in the *REMOTES record for FTP Client and server connections in the Options Definition File. This parameter specifies the name of the translation table to use when converting ASCII data to EBCDIC data or EBCDIC data to ASCII data.
- ◆ If no match for either type, data is assumed and is always binary.
- ◆ The last column, Ends with, lists the delimiter used to mark the end of the file:
- ◆ EOR stands for End of Record meaning the last byte of the record or \$\$END
- ◆ EOB stands for End of batch meaning the last byte of the batch
- ◆ EOF stands for End of File meaning the last byte of the file

\$\$Commands and /*SIGNON with /*BINASC

File Component	Specification	Char Set for TYPE = A / S / E	Begins at	Ends with
/*SIGNON	Optional	A / S / E	First byte of file	EOR
First non-\$\$ADD \$\$command	Optional	A / S / E	First byte of file or after /*SIGNON	EOR
Subsequent non-\$\$ADD \$\$commands	Any number	A / S / E	After the previous non- \$\$ADD \$\$cmd	EOR
First \$\$ADD command	Optional	A / S / E	First byte of file or after the last present one of the preceding	EOR
/*BINASC	Present in file	A / S / E	First byte of file or after the last present one of the preceding	bytes
First data	Required	Binary	After /*BINASC	EOF
Subsequent \$\$ADD and data	Not allowed			

\$\$Commands and /*SIGNON without /*BINASC

File Component	Specification	Char Set for TYPE = A / I / E	Begins at	Ends with
/*SIGNON	Optional	A / S / E	First byte of file	EOR
First non-\$\$ADD \$\$command	Optional	A / S / E	First byte of file or after /*SIGNON	EOR
Subsequent non-\$\$ADD \$\$commands	Any number	A / S / E	After the previous non- \$\$ADD \$\$cmd	EOR
First \$\$ADD	Optional	A / S / E	First byte of file or after the last present one of the preceding	EOR
/*BINASC	Not present			
First data	Required	A / Binary / E	First byte of file or after the last present one of the preceding	EOF or EOB
Subsequent \$\$ADD	Any number	A / S / E	After last record of first data	EOR
Subsequent data	Any number	A / S / E	After a subsequent \$\$ADD	EOF or EOB

Syntax

The syntax for the \$\$ADD command at FTP sites is:

```

$$ADD ID=xxxxxxxxx BATCHID='xxx...xxx' EO=N|NO|Y|YES MULTXMIT=N|NO|Y|YES
SCAN=N|NO|Y|YES TO=N|NO|Y|YES VBQ#=n|nn XMIT=N|NO|Y|YES [$$END]
    
```

Be sure to follow these rules:

- ◆ The first \$ of the command must be the first character of a record.
- ◆ Use one or more blanks to separate each parameter.
- ◆ You must specify a BATCHID within a pair of single quotes. Otherwise, the parameter is not recognized. Once the string, BATCHID=' is found, a corresponding close quote must be found within 24 bytes or the rest of the \$\$ADD card is ignored.
- ◆ Only ID and BATCHID values can have mixed case. All else must be upper case.

Both unrecognized and duplicate parameters are ignored without generating any messages. Only the first parameter for each keyword is processed.

\$\$ADD Command Parameters

The following table describes the parameter that can be used with the \$\$ADD command at FTP client sites:

Parameter	Description
ID=xxxxxxx	Optional. 1–8 bytes.
BATCHID='xx...xxx'	Optional. 1–64 bytes. Default for STOR or RETR is the BID. For STOU, it is taken from RECEIVE_OPTIONS BID parameter. If no BID parameter is specified, the STOU \$\$ADD BID defaults to 'BATCH WITHOUT \$\$ADD', not 'NONE'. A null BATCHID takes the default value, AC BATCH WITHOUT \$\$ADD.
EO=N NO Y YES	Optional. Extract once. EO=YES specifies that the batch is extracted and stored one time from a remote client and cannot be transmitted. The default value EO=NO does not prevent transmission or multiple extractions.
MULTXMIT=N NO Y YES	Optional. Multi-Transmittable. The default is NO.
SCAN=N NO Y YES	Optional. Overrides current SCAN setting. The default is NO. Specifies whether Sterling Connect:Enterprise scans received batches for \$\$ commands. NO = Scanning for Sterling Connect:Enterprise \$\$ commands ends and the rest of the file is treated as data. YES = Scanning for Sterling Connect:Enterprise \$\$ commands continues. To keep scanning in effect when a \$\$ADD card is encountered, each \$\$ADD card must include the parameter SCAN=YES. Use this value to make FTP command scanning behave like it does in SNA.
TO=N NO Y YES	Optional. Transmit once. TO=YES specifies that the batch being received can only be transmitted once and is not extractable. TO=YES can be thought of as “transmit once, transmit only”. The default TO=NO specifies that the batch is not marked non-transmittable.
VBQ#=n nn	Optional. The default is the current collection VBQ. Specifies the number of the VBQ file on which batches collected in FTP sessions are to be stored. To set this value for multiple collections, the command is: LOCSITE VBQ#=#nn KEEP KEEP must be the next parameter after VBQ#=#nn to retain the value for more than one batch collection unless it part of an MGET command. If nn is 00, the assignment resets to the Current Collect VBQ. If nn is 01 through 20 that particular VBQ is allocated.
XMIT=N NO Y YES	Optional. Transmittable.
\$\$END	Optional for all files except for files with a File data structure transferred in stream mode containing images.

Communicating with SNA Sites

This chapter contains procedures and information specific to operating Sterling Connect:Enterprise with SNA sites.

Start and End a Session

The procedures for starting and ending a session are:

1. Establish a connection.

Your remote site may exist on a switched (dialup) or nonswitched (dedicated or leased) line. You may have different procedures to follow when you first establish a connection with Sterling Connect:Enterprise. Get the specific procedures to establish a connection from your Sterling Connect:Enterprise system administrator.

2. Log on SNA.

This procedure is done either manually or automatically and is remote-site dependent.

3. Type the commands described in this chapter.

4. Log off SNA.

See Chapter 4, *Remote User Commands* for more information about logon and logoff functions for SNA.

Host-Initiated Communications (Auto Connect)

Sterling Connect:Enterprise has a function called Auto Connect that enables the host site computer to contact an unattended remote site. Using Auto Connect, Sterling Connect:Enterprise can both transmit to and collect data batches from remote sites.

For Auto Connect to work, the remote site must appropriately respond to the host computer. Host site personnel provide the actions you take to prepare your site for responding to an Auto Connect from the host site.

Sterling Connect:Enterprise is very flexible in the way it uses the Auto Connect function. For example, Sterling Connect:Enterprise can be configured to transmit batches to your remote site at different times throughout the night. Your remote site terminal or computer is then required to receive the batches whenever the host makes contact.

Batches can be sent to the host site during Auto Connect. Since Auto Connect is often used with remote sites that can operate unattended, program or set up these terminals to send batches when the terminal is called by the host site.

Alternatively, you may receive a call from the host site at certain times of the day. You can then manually send batches to the host, if instructed to do so.

Host-initiated sessions do not support any \$\$ commands from the remote other than \$\$ADD.

Using Sterling Connect:Enterprise

Sterling Connect:Enterprise is a command-driven application. For example, a remote site can precede the transmittable data with a \$\$ADD header record.

The following command tells Sterling Connect:Enterprise to add the data that follows to the host data repository and identify that batch as report summary from ACME:

```
$$ADD ID=ACME BID='report summary'
```

The following command tells Sterling Connect:Enterprise to transmit all batches with an ID of ACME and a batch identifier of 'report summary' to the requesting remote site:

```
$$REQUEST ID=ACME BID='report summary'
```

The following command tells Sterling Connect:Enterprise to flag as deleted all batches with an ID of ACME and a batch identifier of 'report summary':

```
$$DELETE ID=ACME BID='report summary'
```

Wildcard Characters in Sterling Connect:Enterprise Names

Sterling Connect:Enterprise, SPC Option 3.1, and IBM® Sterling Connect:Enterprise® for UNIX 3.1 use the following special characters as wildcard characters when making decisions for various

types of data repository processing. Use the following wildcard characters in selection checks, most notably with BID values.

Wildcard Character	Function
asterisk (*)	Indicates any number of characters
question mark (?)	Indicates a single character
square brackets ([]) with any number of characters inside the brackets including an exclamation mark (!)	Indicates a specific character, or characters within a string of characters.

You may create batches with a BID value that include wildcard characters. However you may get unexpected results if you use wildcard characters in requests. For example:

- ◆ You create three batches with a BID value of ‘Test **’, ‘Test 123’, and ‘Test **456’ respectively. Because offline ADD processing and online collection processing do not restrict putting wildcard characters in the BID parameter, the batches are added to Sterling Connect:Enterprise without errors.
- ◆ To collect the batch with the BID of ‘TEST **’ you create the following \$\$REQUEST card:

```
$$REQ ID=yourid BID='TEST **'
```

- ◆ After submitting the request, you discover that you have collected data from all three batches.

To prevent the previous error, take one of the following steps:

- ◆ Refrain from using the wildcard characters when defining any name in data repository. The Sterling Connect:Enterprise System Administrator can enforce this rule by creating a Security Exit 1 and Offline ADD Exit to restrict the use of these characters in name values when adding data.
- ◆ Continue to use wildcard characters in data repository name values, but do not use any parameters that support wildcard characters. For example, use the #nnnnnnn parameter to request a specific batch by number. Do not use BID='xxx-xxx', as this parameter supports wildcards. Using this method limits selection, but eliminates confusion.

Terminal-Dependent Options

A variety of terminals and devices can communicate with Sterling Connect:Enterprise, but they do not all have the same capabilities. For this reason, Sterling Connect:Enterprise supports some terminal-dependent options for SNA. Some of these options are used only if they are installed by host site personnel. Other options do not require host site installation; they are used if your terminal type supports them.

SNA Sites

SNA terminal-dependent options are enabled only if your remote terminal supports the capability. These options include:

- ◆ Multiple Logical Unit (MLU) support
- ◆ Device media support
- ◆ Console display use
- ◆ Data compression
- ◆ Batch separation using Function Management Headers (FMHs)
- ◆ SNA transparency
- ◆ Disconnect interval
- ◆ Extended Binary Coded Decimal Information Code (EBCDIC) support

Detailed information about these options is provided in the sections that follow:

MLU (Multiple Logical Unit) Support

MLU Support permits a single remote terminal to be considered up to six terminals or sessions. Each session can have a different transaction in progress with Sterling Connect:Enterprise for a mixture of simultaneous data collections or transmissions on each of the separate terminals.

Type a logon command to Sterling Connect:Enterprise for each MLU session you wish to activate. These sessions are used as pipelines to activate multiple inbound and outbound data streams that all come from the same remote site. Alternatively, think of these sessions as logical remotes, with each remote site appearing as a separate remote to Sterling Connect:Enterprise. It is possible to let your remote terminal have one or more active sessions with Sterling Connect:Enterprise, along with active sessions to other applications in the host, such as JES2. All these options depend on the implementation of MLU capabilities in your remote terminal. Sterling Connect:Enterprise automatically handles the MLU capability if it receives more than one logon for the same remote site.

To implement MLU support:

1. Find out if and how your remote terminal supports MLU.
2. Logon multiple times to Sterling Connect:Enterprise.
3. Use any active MLU session to send or receive data.

Device Media Support

Some terminals have the capability to send or receive data on a certain medium.

You can send data to Sterling Connect:Enterprise from the following media:

- ◆ Console keyboard
- ◆ Card reader
- ◆ Exchange disk (transmission format or basic exchange)
- ◆ Printer output

You can receive data from Sterling Connect:Enterprise to the following media:

- ◆ Console display
- ◆ Card punch
- ◆ Exchange disk (transmission format or basic exchange)
- ◆ Printer

You always control the medium for inbound data sent to Sterling Connect:Enterprise. The medium used for outbound data sent to your terminal is controlled by you or by defaults set by host site personnel when Sterling Connect:Enterprise is installed.

When you request a batch from Sterling Connect:Enterprise, specify the medium that receives data from Sterling Connect:Enterprise. If you do not specify the medium, the batch is sent to the default medium for your remote site, as selected by host site personnel.

To implement device media support:

1. Determine if your remote terminal supports the receipt of data to a variety of media.
2. Ask your host site personnel to set a certain default medium for your remote site.
3. Specify the medium used when you request data from Sterling Connect:Enterprise, if different from the default. (optional)

Console Display Use

Sterling Connect:Enterprise can direct specific short information messages or error messages to a console display screen if your remote site is set up to handle the messages. Some types of messages are:

- ◆ A message following a successful logon to Sterling Connect:Enterprise
- ◆ A message indicating that Sterling Connect:Enterprise is ready to receive data from your terminal
- ◆ A message following a security violation

These messages are very helpful, so use them whenever possible.

In order for Sterling Connect:Enterprise to send the messages, your host site personnel must set an option for your remote site before Sterling Connect:Enterprise is brought online.

To implement console display:

1. Find out if your remote terminal can display control messages or other data on a console.
2. Ask host site personnel to define your remote site as a console device. This is the default value.

Data Compression

If your device cannot receive data from Sterling Connect:Enterprise in a compressed format, personnel at the host site need to know so they can specify COMPRESS=NO in the ODF. In addition, ensure the host VTAM Logon Mode Table reflects that compression is not supported. If these two areas are in conflict, message CMB184I is issued on the host system console.

Batch Separation Using FMHs

Remote sites can sometimes insert Functional Management Headers (FMHs) at the beginning and end of a batch sent to Sterling Connect:Enterprise. Your terminal probably controls the use of FMHs, and you need not worry about them. Some terminals enable you to influence the insertion of these FMHs, thereby indicating what is considered a batch to Sterling Connect:Enterprise. If your terminal has this capability, Sterling Connect:Enterprise automatically supports it.

You have the option to control when the FMHs are used, or you may configure this Process to run in the background.

If your terminal or the software package used on your terminal mentions FMHs, ensure your use of FMHs is compatible with Sterling Connect:Enterprise. Sterling Connect:Enterprise assumes that an FMH for Begin Data Set (BDS) marks the beginning of a batch, and an FMH for End Data Set (EDS) marks the end of a batch. If you are sending a single batch to Sterling Connect:Enterprise, this is probably handled automatically. If you are sending multiple batches or using nested send functions, your terminal may or may not separate the batches with FMHs. If you want Sterling Connect:Enterprise to consider the multiple batches as separate, you must ensure FMHs are inserted.

To implement batch separation using FMHs:

1. Determine if you have any control over the insertion of FMHs. This control influences what constitutes a batch to Sterling Connect:Enterprise.
2. No host site installation option is needed. Sterling Connect:Enterprise automatically handles FMHs if present.

SNA Transparency

SNA transparency enables Sterling Connect:Enterprise to send and receive data that contains special embedded control characters, such as object modules. This function is often needed when sending data from a remote personal computer to the host site, but the data is not converted from ASCII to EBCDIC.

Sterling Connect:Enterprise automatically supports the use of SNA transparency with two restrictions:

- ◆ Outbound data from Sterling Connect:Enterprise to your terminal does not use transparency for data sent to the printer media or to the basic exchange media.
- ◆ Sterling Connect:Enterprise cannot recognize control commands that are sent as transparent data and not converted to EBCDIC transmission code.

To implement SNA transparency:

1. Choose the appropriate method for your terminal type to send transparent data to Sterling Connect:Enterprise.
2. No host site installation option is needed. Sterling Connect:Enterprise automatically handles transparent data.

Disconnect Interval

The disconnect interval forces your session with Sterling Connect:Enterprise to terminate when your session is inactive for a certain time interval.

The function of the Sterling Connect:Enterprise disconnect interval is to:

- ◆ Reduce phone costs in a dial-up network
- ◆ Provide added security

Host site personnel implement remote Sterling Connect:Enterprise disconnect intervals and define time intervals, which are from 1-9 seconds, 999 seconds, or set to 0 to prevent any forced disconnect.

If your remote site has a similar function, set a different disconnect interval than that used by Sterling Connect:Enterprise. For information about setting a different disconnect interval, contact your host site system administrator.

Note: If you lose your connection to Sterling Connect:Enterprise while transmitting data, the cause is probably a network issue rather than the expiration of the disconnect interval.

EBCDIC Support

Sterling Connect:Enterprise can receive any data format, but can only interpret data that uses EBCDIC character code.

Sample Data Streams

The following are samples of valid data streams sent from a remote site to Sterling Connect:Enterprise:

1. At SNA sites, request a directory listing of all batches associated with mailbox ID BRANCH01 and send in two files containing data for a payroll job run at the host.

```

$$DIRECTORY      ID=BRANCH01
$$ADD            ID=BRANCH01 BATCHID='4/23 PAYROLL DATA' SCAN=Y
data record 1
data record 2
.
.
last data record
$$ADD            ID=BRANCH01 BATCHID='4/24 PAYROLL DATA' SCAN=N
data record 1
data record 2
.
.
last data record

```

Note: Because the \$\$ADD commands are processed first, the newly added batches are included in the \$\$DIRECTORY output.

2. Request three data transmissions from the host: one for all batches waiting for transmission to mailbox ID BRANCH01, and two for specific batches for mailbox ID MARY. Data requested for mailbox ID MARY is sent directly to a printer.

```

$$REQUEST      ID=BRANCH01
$$REQUEST      ID=MARY BATCHID='LETTER FROM JOE'  MEDIA=PR
$$REQUEST      ID=MARY BATCHID=#14 MEDIA=PR

```

3. For SNA sites the MEDIA operand is added so that the directory list is displayed on the console display.

```

$$DELETE      ID=MARY  BATCHID=#67
$$DIRECTORY    PASSWORD=SECRET  MEDIA=CN

```

SNA Site Parameters

The following table describes the SNA site parameters:

Operand	Command	Description
APPLID(xxxxxxxx)	LOGON LOGOFF \$\$LOGOFF	The 1–8 character APPLID given to Sterling Connect:Enterprise at the host site, as chosen by your host site personnel.
BCHSEP=OPT3	\$\$REQUEST	Separates batches sent to remote sites when sending multiple batches in a single connection. OPT3 BCHSEP must remain consistent throughout a single connection and all \$\$ commands.
DATA(XXX,,XXX)	LOGON	Supplies your remote name to Sterling Connect:Enterprise. Host site personnel supply you with your own unique, confidential remote name. If required, you may supply a password (separated from the remote name by two commas) and use the new password option. This information resides in the logon, because it determines some options to use during communications.

Operand	Command	Description
EO=N Y	\$\$ADD	Specifies that the batch is extracted only once and cannot be transmitted. After extraction, the batch is permanently locked.
FORMAT=BID24 <u>BID64</u>	\$\$DIRECTORY	Specifies the format to use when listing batches. BID24 displays the directory using the first 24 characters of the User Batch ID. BID64 displays the directory display using the full 64 characters of the User Batch ID.
LOGMODE(xxxxxxxx)	LOGON	Supplies a value to determine the rules for communications between Sterling Connect:Enterprise and your remote site. It is a 1-8 character name, as chosen by your host site personnel.
MEDIA=CN PR PU EX BX	\$\$DIRECTORY \$\$REQUEST	(SNA sites only.) This parameter asks the host site to send the output data to the specified media on the remote device. Your remote device must support the requested media, ensure the media is ready and available for use. CN sends output data to the console display. This option causes Sterling Connect:Enterprise to use an X'15' (new line) as a record separator. PR sends output data to the printer. This option causes Sterling Connect:Enterprise to use an X'15' (new line) as a record separator. PU sends output data to the card punch. This option causes to use an X'1E' (standard IRS) as a record separator. EX sends output data to the exchange disk, and uses transmission exchange format. BX sends output data to the exchange disk, and uses basic exchange format. Many remote devices have the capability to assign media. For example, output data sent to the card punch is often assigned to a disk file on a personal computer. Sterling Connect:Enterprise is not aware of how you assign your remote site's media.

Operand	Command	Description
MULTXMIT= <u>NO</u> YES	\$\$ADD	(MX=) NO indicates that the batch is not available for multiple transmission. If a batch marked NO transmits to a remote site, that batch is marked with a T and is not available for transmission unless requested by batch number. YES indicates that the batch is available to all remote sites and is not marked with a T when requested by and transmitted to a remote site. Note: When MULTXMIT=YES, XMIT is forced to YES.
ONEBATCH=NO YES	\$\$REQUEST	(OB=) NO indicates all matching batches are returned. YES indicates that when BATCHID= is specified, only the first matching batch is returned.
PASSWORD=xxxxxxx	\$\$DIRECTORY	(PSWD=) The PASSWORD, if used, must match that supplied by host personnel for the Sterling Connect:Enterprise system. This parameter is required if the ID parameter is omitted.
RMT=xxxxxxx	LOGOFF \$\$LOGOFF	Replace the xxxxxx with the 1-8 byte remote name assigned to your remote terminal. It must match the remote name supplied in the logon. This operand is required.
SCAN=NO YES	\$\$ADD	NO indicates that all \$\$ commands must begin at the start of a data block. The default is NO. YES indicates that each record of each data block is decompressed and deblocked to SCAN for embedded \$\$ commands. This removes the requirement for starting \$\$ commands at the beginning of a data block. Use of this operand could result in system degradation due to the increased overhead. Note: Specifying SCAN=YES causes Sterling Connect:Enterprise to scan for only the next \$\$ command in subsequent data blocks. Once the next \$\$ command is found, further scanning is controlled by repeated specification of the SCAN= parameter. Note: The SCAN=YES facility for the \$\$ADD control card is ignored on remote sites that have SC=YES defined in the *REMOTES record in the ODF.
TO=N Y	\$\$ADD	Specifies that the batch is not extracted. It permits only one successful transmission, then the batch is permanently locked.

Operand	Command	Description
TRUNC=NO YES	\$\$REQUEST	This parameter specifies whether Sterling Connect:Enterprise truncates all trailing blanks from records before data transmission. NO means no blanks are truncated. YES means all blanks are truncated prior to data compression and data transmission.
VBQ#=xx	\$\$ADD	Specifies the VBQxx (where xx is any number from 1-20) file where you want to add the batch. If this option is not specified, the batch is placed in the current collection VBQ file. If the specified VBQ is not allocated, the batch is added to the current collection VBQ.

Operand	Command	Description
WAIT=hh:mm:ss, C	\$\$REQUEST	<p>Specifies the maximum Sterling Connect:Enterprise wait time and retry cycle used for the \$\$REQUEST.</p> <p>Permits the remote site to wait for transmittable batches for a specified time if no batches are initially found.</p> <p>The wait time is specified in hours, minutes, and seconds. The following describes valid values for the first subparameter:</p> <ul style="list-style-type: none"> ♦ ss— Specifies the amount of time to wait, in seconds. The maximum allowable value in this form is 59. ♦ mm:ss—Specifies the amount of time to wait, in minutes and seconds. The maximum allowable value in this form is 59:59. ♦ hh:mm:ss—Specifies the amount of time to wait, in hours, minutes, and seconds. The maximum allowable in this form is 23:59:59. <p>The second parameter is optional. It specifies the number of wait and retry cycles to attempt before failing the request if no batches are available. The maximum allowable value is 999. The default value is 1.</p> <p>For example, use the following to request all batches for an ID and to specify the wait period, if no batches are found:</p> <pre>\$\$REQUEST ID=DALLAS WAIT=59,10</pre> <p>This request waits 59 seconds for a transmittable batch and retries the search for a transmittable batch 10 times. This effectively waits for a batch for a total of 9 minutes and 50 seconds.</p> <p>Once a request is satisfied by sending one or more batches, the request is removed from the wait loop. If all retries are done and no batches are available for transmission, then the standard message of no batches for transmission is sent to the remote site.</p> <p>Note: If your SNA session is through SPC, verify that the disconnect interval defined in SPC is adequate to support appropriate processing.</p>
XMIT=NO YES	\$\$ADD	<p>NO indicates that the batch is available only to the host site.</p> <p>YES indicates that the batch being sent to the host is available for transmission to any remote site that requests it with the appropriate mailbox ID.</p>

Communicating with BSC Sites

This chapter contains procedures and information specific to operating Sterling Connect:Enterprise with BSC sites.

Start and End a Session

The specific procedures for starting and ending a session are:

1. Establish a connection.

Your remote site may exist on a switched (dialup) or nonswitched (dedicated or leased) line. You may have different procedures to follow when you first establish a connection with Sterling Connect:Enterprise. Get the appropriate procedures to establish a connection from your Sterling Connect:Enterprise system administrator.

2. SIGNON (optional).

This procedure is done either manually or automatically and is remote-site dependent.

3. Type the commands described in this chapter.

Sterling Connect:Enterprise Support for Signon (BSC Sites)

Remote terminals that communicate with Sterling Connect:Enterprise are often designed to communicate with special RJE (Remote Job Entry) systems on the host computer, such as JES. Some RJE systems require a SIGNON record sent from the remote site when the transmission connection is established. Sterling Connect:Enterprise does not require this SIGNON record, but can accept it if your remote terminal sends it to the host site.

Sterling Connect:Enterprise is configurable to permit a free-form SIGNON record, which is received by the host from your remote but is not validated. The host site personnel who install Sterling Connect:Enterprise define one or more valid SIGNON records, and inform the remote sites of the appropriate data to use.

Sterling Connect:Enterprise does not require the fixed-form SIGNON record. Begin your input data with any of the Sterling Connect:Enterprise \$\$ commands other than the SIGNON.

Host site personnel can also define optional free-form SIGNON records that create an environment for security checking. Coordinate the use of this or other SIGNON support with the host site.

Host-Initiated Communications (Auto Connect)

Sterling Connect:Enterprise has a function called Auto Connect that enables the host site computer to contact an unattended remote site. Using Auto Connect, Sterling Connect:Enterprise can both transmit to and collect data batches from remote sites.

For Auto Connect to work, the remote site must appropriately respond to the host computer. Host site personnel provide the actions you take to prepare your site for responding to an Auto Connect from the host site.

Sterling Connect:Enterprise is very flexible in the way it uses the Auto Connect function. For example, Sterling Connect:Enterprise is configurable to transmit batches to your remote site at different times throughout the night. Your remote site terminal or computer is then required to receive the batches whenever the host makes contact.

Batches can be sent to the host site during Auto Connect. Since Auto Connect is often used with remotes that can operate unattended, program or set up these terminals to send batches when the terminal is called by the host site.

Alternatively, you may receive a call from the host site at certain times of the day. You can then manually send batches to the host, if instructed to do so.

Host-initiated sessions do not support any \$\$ commands from the remote other than \$\$ADD.

Using Sterling Connect:Enterprise

Sterling Connect:Enterprise is a command-driven application. For example, a remote site can precede the transmittable data with a \$\$ADD header record.

The following command tells Sterling Connect:Enterprise to add the data that follows to the host data repository and identify that batch as report summary from ACME:

```
$$ADD ID=ACME BID='report summary'
```

The following command tells Sterling Connect:Enterprise to transmit all batches with an ID of ACME and a batch identifier of 'report summary' to the requesting remote site:

```
$$REQUEST ID=ACME BID='report summary'
```

The following command tells Sterling Connect:Enterprise to flag as deleted all batches with an ID of ACME and a batch identifier of 'report summary':

```
$$DELETE ID=ACME BID='report summary'
```

Wildcard Characters in Sterling Connect:Enterprise Names

Sterling Connect:Enterprise, SPC Option 3.1, and Sterling Connect:Enterprise for UNIX 3.1 use the following special characters as wildcard characters when making decisions for various types of data repository processing. Use the following wildcard characters in selection checks, most notably with BID values.

Wildcard Character	Function
asterisk (*)	Indicates any number of characters
question mark (?)	Indicates a single character
square brackets ([]) with any number of characters inside the brackets including an exclamation mark (!)	Indicates a specific character, or characters within a string of characters.

You may create batches with a BID value that include wildcard characters. However you may get unexpected results if you use wildcard characters in requests. For example:

- ◆ You create three batches with a BID value of 'Test **', 'Test 123', and 'Test **456' respectively. Because offline ADD processing and online collection processing do not restrict putting wildcard characters in the BID parameter, the batches are added to Sterling Connect:Enterprise without errors.
- ◆ To collect the batch with the BID of 'TEST **' you create the following \$\$REQUEST card:

```
$$REQ ID=yourid BID='TEST **'
```

- ◆ After submitting the request, you discover that you have collected data from all three batches. To prevent the previous error, take one of the following steps:
 - ◆ Refrain from using the wildcard characters when defining any name in data repository. The Sterling Connect:Enterprise System Administrator can enforce this rule by creating a Security Exit 1 and Offline ADD Exit to restrict the use of these characters in name values when adding data.
 - ◆ Continue to use wildcard characters in data repository name values, but do not use any parameters that support wildcard characters. For example, use the #nnnnnnn parameter to request a specific batch by number. Do not use BID='xxx-xxx', as this parameter supports wildcards. Using this method limits selection, but eliminates confusion.

Terminal-Dependent Options

A variety of terminals and devices can communicate with Sterling Connect:Enterprise, but they do not all have the same capabilities. For this reason, Sterling Connect:Enterprise supports some terminal-dependent options for BSC remote sites. Some of these options are used only if they are

installed by host site personnel. Other options do not require host site installation; they are used if your terminal type supports them.

BSC Options

BSC terminal-dependent options are used only if your remote terminal supports them. These options include:

- ◆ Free-form BSC SIGNON
- ◆ Blank compression
- ◆ Blank truncation
- ◆ Blocked data records
- ◆ BSC transparency
- ◆ Record separator override
- ◆ Use of \$TURNLINES\$
- ◆ Temporary Text Delay (TTD)
- ◆ Wait acknowledgement (WACK)

Detailed information about these options is provided in the sections that follow:

Free-Form BSC SIGNON

This SIGNON requires a remote name and an optional password. It is optional and must be coordinated with the Sterling Connect:Enterprise host site system administrator.

BSC SIGNON permits users to identify themselves as a specific remote. Without this SIGNON, users are identified only by the line on which they connected. This line is typically shared by other users and does not provide a unique identification.

For more information on the free-form BSC SIGNON, refer to the *Defining the ODF* chapter in the *IBM Sterling Connect:Enterprise for z/OS Installation Guide*.

Blank Compression

Data sent over telecommunications systems may contain many blanks (spaces). By using the blank compression method defined for the IBM 3780 data communication terminal, Sterling Connect:Enterprise can remove four or more contiguous blank spaces and replace them with a control character that indicates the number of compressed blanks. In order to specify blank compression to Sterling Connect:Enterprise in a transmission request, the remote terminal must also use the IBM 3780 method. In addition, both the host and the remote sites must use blank compression/decompression for a given transmission or the data is invalid. A batch collected using blank compression is stored in the VSAM batch files in compressed form and is automatically decompressed by the EXTRACT utility when extracted from the data repository.

Blank Truncation

Text data sent over telecommunications systems may have a large number of blanks at the end of each record. Sterling Connect:Enterprise can remove trailing blanks from records sent to remote sites. If the trailing blanks are necessary, the remote site must have the capability to replace them. Also, Sterling Connect:Enterprise can accept data with the trailing blanks stripped.

Blank truncation is restricted to 80-byte fixed-length records. Sterling Connect:Enterprise assumes blank truncated records are 80-byte fixed-length and a control character indicating the number of blanks removed is not required.

Blocked Data Records

It is more efficient to transmit blocks of data containing multiple records than it is to transmit individual records. Sterling Connect:Enterprise sends and receives blocked data records. However, the block size must not exceed 4096 bytes. If a record does not fit into a block, it is sent in the next block. An Inter-Record Separator (IRS) X'1E' or Inter-Unit-Separator (IUS) X'1F' must separate the records. X'1E' is the most commonly used and is the system default for an IRS. The record separator used by Sterling Connect:Enterprise when transmitting is set by the host site personnel for each BTAM transmission line at system installation. All terminals using the same line must handle the record separator sent by the host. If the terminals cannot handle the record separator sent by the host, the remote site must use the Record Separator Override option.

Note: All data, including record separators and BSC control characters (for example, STX (X'02'), ETX (X'03'), and so forth), must fit in the block size. This is the BUFSIZ= value in the M\$LINE user assembly defined at the host site.

Blocked data collected by Sterling Connect:Enterprise is stored in the VSAM batch files in blocked form. The EXTRACT utility automatically deblocks the blocked data while extracting it from the data repository.

BSC Transparency

Sterling Connect:Enterprise is capable of sending and receiving transparent data. Transparent data can contain embedded line control characters. BSC transparency is often a hardware function on terminals and is invoked by setting a switch. When Sterling Connect:Enterprise receives a \$\$REQ from a remote site in transparency form, it transmits all return data in transparency form. Refer to your terminal or computer operation manual to determine the action required to use BSC Transparent Data Transmission.

Record Separator Override

A Record Separator (control character) separates multiple records sent in a single nontransparent block. A default IRS is set by the host site personnel for each line used by Sterling Connect:Enterprise. If a remote site cannot process the default record separator, the site may request a record separator override when it asks for data from Sterling Connect:Enterprise. The record separator is typically either X'1E' or X'1F.'

Use of \$TURNLINE\$

The \$TURNLINE\$ capability provides a special method of limited conversational transmissions between your remote site and Sterling Connect:Enterprise at the host site. Instead of the standard send-all-receive-all mode of communications, your remote site can send-receive-send-receive-send-receive, and so on, as done for conversational transmissions.

To use this option, coordinate the send-receive sequence exactly with the data batch being sent from the host site. You send your terminal a signon record, receive data from your terminal, then send data to your terminal. In this case, set up your terminal to receive the signon record, send data to the host site, then receive data from the host site. Changing from receive to send, and vice versa, is called a line turnaround.

The host site data batch being sent controls when the line turnaround occurs. The data batch must contain a \$TURNLINE\$ record. When the host site detects a \$TURNLINE\$ record, it stops sending and does a line turnaround to receive. The \$TURNLINE\$ record is not sent to the remote site. After the receive is complete, the host site can again do a line turnaround to send.

Carefully coordinate the use of this option with the host site. If the \$TURNLINE\$ feature is used, get any special requirements for its implementation from the host site personnel.

Temporary Text Delay (TTD)

Sterling Connect:Enterprise sends a BSC 3780 TTD to remotes when file I/O requires more than a set period of time to complete (usually 3 seconds). TTD processing is invoked when Sterling Connect:Enterprise is searching for a transmittable batch or when flagging batches matching the Auto Connect listname as transmitted. The format of the TTD is STX ENQ or X'022D'. The remote must reply with a BSC NAK X'3D'.

WAIT Acknowledgement (WACK)

Sterling Connect:Enterprise is capable of handling a variable number of WACKs (X'106B') from a remote site while waiting for the transmission to continue. Sterling Connect:Enterprise responds with the appropriate ENQ (X'2D') until the limit, which is controlled by the WACKMAX ODF parameter, is reached. If you find that Sterling Connect:Enterprise disconnects before your remote continues transmission, contact host site personnel about increasing the WACKMAX value.

Sample Data Streams

The following are samples of valid data streams sent from a remote site to Sterling Connect:Enterprise:

1. At BSC sites, request three data transmissions from the host: one for all batches waiting for transmission to mailbox ID BRANCH02, and two for specific batches for mailbox ID MARY. Data requested for mailbox ID MARY is sent compressed, and all data is sent in blocks of six records each.

\$\$REQUEST	ID=BRANCH02 BLOCK=6
\$\$REQUEST	ID=MARY BATCHID='LETTER FROM JOE' BLOCK=6 CMP=Y
\$\$REQUEST	ID=MARY BATCHID=#0014 BLOCK=6 CMP=Y

2. Request Sterling Connect:Enterprise to delete a batch for mailbox ID MARY and send a directory listing of all batches for all mailbox IDs on the VSAM batch files.

```

$$DELETE      ID=MARY  BATCHID=#0067
$$DIRECTORY   PASSWORD=SECRET

```

BSC Site Parameters

The following table describes the BSC site parameters.

Operand	Command	Description
BCHSEP=NO OPT1 OPT2 OPT3	\$\$DELETE \$\$DIRECTORY \$\$REQUEST	<p>Specifies the method Sterling Connect:Enterprise uses to separate the data for multiple \$\$ commands.</p> <p>NO indicates batches are not separated. If multiple batches are sent in a single connection, they are concatenated and sent as a single batch. Ensure remote sites using this line can process concatenated data batches if this option is chosen.</p> <p>OPT1 causes Sterling Connect:Enterprise to use a common RJE method of separating batches. At the end of each batch, Sterling Connect:Enterprise sends an EOT (x'37') to the remote, reads a response from the remote, and then sends ENQ (x'02') to request use of the line. Do not use OPT1 if the remote site using this line cannot appropriately respond to this protocol.</p> <p>OPT2 Sterling Connect:Enterprise separates batches using an ETX (X'03'). Do not use OPT2 unless the remote can appropriately respond to this protocol.</p> <p>BCHSEP must remain consistent throughout a single connection and all \$\$ commands.</p>
BLOCK=xx	\$\$DIRECTORY \$\$REQUEST	<p>The BLOCK operand prompts Sterling Connect:Enterprise to send multiple records in a single data block, separated by control characters.</p> <p>xx—specifies the number of records sent per block, up to a maximum of 99. If BLOCK is omitted, the records are transmitted to the remote site unblocked. To use this operand, a remote site terminal must be capable of deblocking the records for use at the remote site. If the BLOCK factor specified causes Sterling Connect:Enterprise to build a block that is larger than the maximum buffer size (4096), a smaller blocking factor forces the specific transmission size.</p>
\$\$END	\$\$ADD	The \$\$END parameter signifies the end of a \$\$ADD card. It is valid only for blocked BSC transparent transmissions. The \$\$END characters are the last five bytes of the \$\$ADD record.
EO=N Y	\$\$ADD	Specifies that the batch is extracted only once and cannot be transmitted. After extraction, the batch is permanently locked.

Operand	Command	Description
FORMAT=BID24 <u>BID64</u>	\$\$DIRECTORY	Specifies the format to use when listing batches. BID24 displays the directory using the first 24 characters of the User Batch ID. BID64 displays the directory display using the full 64 characters of the User Batch ID.
MULTXMIT=NO YES	\$\$ADD	(MX=) NO indicates that the batch is not available for multiple transmission. If a batch marked NO transmits to a remote site, that batch is marked with a T and is not available for transmission unless requested by batch number. YES indicates that the batch is available to all remote sites and is not marked with a T when requested by and transmitted to a remote site. Note: When MULTXMIT=YES, XMIT is forced to YES.
ONEBATCH=NO YES	\$\$REQUEST	(OB=) NO indicates all matching batches are returned. YES indicates that when BATCHID= is specified, only the first matching batch is returned.
PASSWORD= xxxxxxx	\$\$DIRECTORY	(PSWD=) The PASSWORD, if used, must match that supplied by host personnel for the Sterling Connect:Enterprise system. This parameter is required if the ID parameter is omitted.
RECSEP=1E 1F	\$\$DIRECTORY \$\$REQUEST	Temporarily overrides the assigned line Record Separator that sends blocked records from the host site. Either 1E or 1F is specified as the record separator.
TO=N Y	\$\$ADD	Specifies that the batch is not extracted. It permits only one successful transmission, then the batch is permanently locked.
TRUNC=NO YES	\$\$REQUEST	This parameter specifies whether Sterling Connect:Enterprise truncates all trailing blanks from records before data transmission. NO means no blanks are truncated. YES means all blanks are truncated prior to data compression and data transmission.
VBQ#=xx	\$\$ADD	Specifies the VBQxx (where xx is any number from 1-20) file where you want to add the batch. If this option is not specified, the batch is placed in the current collection VBQ file. If the specified VBQ is not allocated, the batch is added to the current collection VBQ.
XMIT=NO YES	\$\$ADD	NO indicates that the batch is available only to the host site. YES indicates that the batch being sent to the host is available for transmission to any remote site that requests it with the appropriate mailbox ID.

Remote User Commands

This chapter describes the following commands available to Sterling Connect:Enterprise remote users.:

- ◆ \$\$ADD sends a batch of data to the host site
- ◆ \$\$DELETE flags a batch of data, as deleted, at the host site
- ◆ \$\$DIRECTORY requests a formatted listing of batches from the host site
- ◆ \$\$LOGOFF logs off from Sterling Connect:Enterprise at the host site
- ◆ \$\$REQUEST requests a batch of data from the host site

In addition, this chapter gives session information and user instructions to assist you during a Sterling Connect:Enterprise session.

Submit Commands

When a remote connection is established, the remote site communicates with Sterling Connect:Enterprise by means of the command utilities, referred to as the \$\$ commands. These commands are described in the following sections.

The \$\$ADD command is the only command available for a remote site when the connection is initiated by the host using an Auto Connect.

\$\$REQUEST, \$\$DIRECTORY, \$\$DELETE, and \$\$LOGOFF (SNA only) are typed in these three ways:

- ◆ Individual commands from your remote computer console keyboard or from a data file
- ◆ Commands before a \$\$ADD record at the start of a data batch
- ◆ Commands after a \$\$ADD record with SCAN=Y (SNA sites)

When the host receives \$\$ commands that precede \$\$ADD, they are saved and processed in the order received after all inbound data for the \$\$ADD is received. When the host receives \$\$ commands as single commands that do not precede \$\$ADD, they are processed immediately and the output data is sent to your remote site.

For BSC only, if multiple \$\$ output commands are received, the output data is sent as batches separated by EOTs (X'37') (see BCHSEP=OPT1 on page 3-11). If a remote site is unable to use this method of batch separation, the remote must specify BCHSEP=OPT2 on each \$\$ output command line. This separates batches with an ETX (X'03').

The following rules apply to \$\$ commands:

- ◆ Place the \$\$ command in column 1.
- ◆ Code any number of blanks between operands.
- ◆ Do not use commas between operands.
- ◆ Type commands and operands in upper case.
- ◆ Code must be EBCDIC.
- ◆ Code each parameter value as documented in *Chapter 3, Communicating with BSC Sites*. Short forms are not allowed.
- ◆ Do not exceed the maximum record length. The maximum \$\$ remote command record length is 100 for BSC and 256 for SNA.

The following worksheets can assist you in typing information pertinent to the \$\$ commands. The worksheets can be duplicated and used routinely.

\$\$ Command Worksheet

Command \$\$ADD | \$\$DELETE | \$\$DIRECTORY | LOGON | \$\$LOGOFF | \$\$REQUEST

Remote site IDs Contact your host site administrator for the following remote site IDs.

Mailbox ID: ID=_____

User Batch ID: BATCHID=_____

Circle the appropriate option or contact you host site administrator for the values required for the following operands.

SNA Options		BSC Options	
Operand	Value	Operand	Value
BCHSEP	= OPT3	BCHSEP	= NO OPT1 OPT2 OPT3
EO	= <u>N</u> Y	EO	= <u>N</u> Y
FORMAT	= BID24 <u>BID64</u>	FORMAT	= BID24 <u>BID64</u>
MEDIA	= <u>CN</u> PR PU EX BX	CMP	= <u>NO</u> YES
MULTXMIT	= <u>NO</u> YES	MULTXMIT	= <u>NO</u> YES
ONEBATCH	= <u>NO</u> YES	RECSEP	= <u>NO</u> YES
SCAN	= <u>NO</u> YES	TO	= <u>N</u> Y
TO	= <u>N</u> Y	TRUNC	= <u>NO</u> YES
TRUNC	= <u>NO</u> YES	XMIT	= <u>NO</u> YES
WAIT	= hh:mm:ss, C _____	BLOCK	= _____
XMIT	= <u>NO</u> YES	PASSWORD	= _____
APPLID	= _____	VBQ#	= _____
DATA	= _____		
LOGMODE	= _____		
PASSWORD	= _____		
RMT	= _____		

\$\$ADD Command

\$\$ADD places batches of data into the data repository, and precedes the batch data that is sent. You may send any number of \$\$ADD records and associated data files to the host site.

The data collection function is initiated by the remote site. Sterling Connect:Enterprise permits two methods of initiating data collection:

- ◆ The preferred method uses a \$\$ADD record that precedes the data
- ◆ Another method is to send only data once communications are established. The drawback of the second method is that the batch is identified by the remote name (BSC and SNA), BSC line name, or BSC Auto Connect remote name (if BSC SIGNON is not used), rather than your specific mailbox ID.

\$\$ADD Defaults

If a data batch is sent to the host site without a \$\$ADD record, the following defaults are used:

Default Name	Description
BATCHID	BATCH WITHOUT \$\$ADD
ID	LINEID for BSC remotes not using the free-form BSC SIGNON
MULTXMIT	No
SCAN	No
VBQ#	Current collection VBQ
XMIT	No

If a data batch is sent to the host site without a \$\$ADD record during a host-initiated Auto Connect to the remote site, the following defaults are used:

Default Name	Description
BATCHID	AC BATCH WITHOUT \$\$ADD
ID	The remote name from the Auto Connect list
MULTXMIT	No
SCAN	No
VBQ#	Current collection VBQ
XMIT	No

Multiple Batches

If multiple batches are sent per transmission, precede each batch with a \$\$ADD record. If multiple batches are sent to the host computer in a single transmission, and the batches are separated by \$\$ADD records, use caution if the records are blocked by your remote terminal before they are sent to the host site. Sterling Connect:Enterprise cannot detect a \$\$ADD record unless it is the first record in a block of data. Ensure that your remote terminal begins a new block for each \$\$ADD record.

Sterling Connect:Enterprise can also create multiple batches on the VSAM batch files as follows:

- ◆ At SNA sites, use standard Function Management Headers (FMHs) to separate files sent to the host site. If Sterling Connect:Enterprise receives an End Data Set FMH from the remote site during a data collection, the current batch is marked complete and a new batch is started when the next Begin Data Set FMH is received.
- ◆ For BSC sites, if Sterling Connect:Enterprise receives a block ending with ETX (X'03'), the current batch is marked complete and a new batch is started with the next data input from the remote site.

A new \$\$ADD record at the beginning of a BSC block causes batch separation as if an ETX had terminated the previous block.

Syntax

The syntax for the \$\$ADD command at SNA sites is:

```

$$ADD BATCHID='xxx...xxx' EO=N|Y ID=xxxxxxxxx MULTXMIT=NO|YES
SCAN=NO|YES TO=N|Y VBQ#=nn XMIT=NO|YES
    
```

The syntax for the \$\$ADD command at BSC sites is:

```

$$ADD BATCHID='xxx...xxx' EO=N|Y ID=xxxxxxxxx MULTXMIT=NO|YES TO=N|Y
VBQ#=nn XMIT=NO|YES [ $$END]
    
```

Description

Use any number of blanks to separate operands. Do not use commas to separate operands. \$\$ADD must begin in the first record position.

Note: The parameter setting, SCAN=YES, is ignored on SNA remote sites that have SC=YES defined in the *REMOTES record in the Options Definition File. See the *IBM Sterling Connect:Enterprise for z/OS Administration Guide* for more information on the SC parameter.

\$\$DELETE Command

Any batch on the VSAM batch files can be flagged as deleted by a remote site. To delete a batch, you must know the batch identifiers. Run a directory list to confirm you know the correct batch identification data before deletion.

After the host receives the input requests, Sterling Connect:Enterprise processes the delete requests and then turns the line around and sends a message to the remote site concerning the outcome of the \$\$DELETE request. Ensure that your terminal is ready to first send the \$\$DELETE request to the host site, then receive the output from the host in the same transmission session.

Syntax

To flag a batch as deleted from an SNA site, send the host a \$\$DELETE record in the following format:

```
$$DELETE BATCHID=#nnnnnnn ID=xxxxxxxxx
```

To flag a batch as deleted from a BSC site, send the host a \$\$DELETE record in the following format:

```
$$DELETE BATCHID=#nnnnnnn BCHSEP=OPT1|OPT2 ID=xxxxxxxxx
```

Description

Use any number of blanks to separate operands. \$\$DELETE must begin in the first record position. Abbreviate this command as \$\$DEL.

\$\$DIRECTORY Command

Remote sites can send inquiries about the contents of the VSAM batch files to the host by submitting a directory request and their mailbox ID. The directory listing is received in mailbox ID order. Sterling Connect:Enterprise searches the VSAM batch files for all batches that match the submitted mailbox ID. A listing of the batch control information for each batch is sent back to the remote site. It is only possible to obtain a listing of all batches for all mailbox IDs if two conditions exist: 1) a password was defined when Sterling Connect:Enterprise was installed, and 2) the password was appropriately submitted in the \$\$DIRECTORY command from the remote site.

Syntax

To request a directory listing from an SNA site, send the host a record in the following format:

```
$$DIRECTORY ID=xxxxxxxxx FORMAT=BID24|BID64 MEDIA=CN|PR|PU|EX|BX PASSWORD=xxxxxxxxx
```

To request a directory listing from a BSC site, send the host a record in the following format:

```
$$DIRECTORY BCHSEP=OPT1|OPT2 BLOCK=xx ID=xxxxxxxxx FORMAT=BID24|BID64  
PASSWORD=xxxxxxxxx RECSEP=1E|1F
```

Description

Use any number of blanks to separate operands. \$\$DIRECTORY must begin in the first record position. Abbreviate this command as \$\$DIR.

After the host receives your \$\$DIRECTORY request, Sterling Connect:Enterprise turns the line around and sends the requested data to the remote site. Ensure that your remote site is ready to send the \$\$DIRECTORY request to the host site, and receive the output from the host in the same transmission session.

Output

One record is returned to the remote site for each batch in the VSAM batch files that matches the requested mailbox ID. The directory listings use the following format:

```
xxxxxxxxx #nnnnnnnn CT=nnnnnnnnnn BID=x...x HHMM-YYDDD ICADNURTEMXBSZ  
VBQnn|OFFLINE
```

The contents of the fields are:

Field	Description
xxxxxxxxx	The 8-byte mailbox ID with which the batch is associated
#nnnnnnnn	The 7-digit batch number assigned by Sterling Connect:Enterprise
CT=nnnnnnnnnn	The record/block count in the batch. Depending on the installation parameters, this value is either the total number of records in the batch or the total number of blocks in the batch. Contact your Sterling Connect:Enterprise administrator to determine which value is being used. If the count = 0, then either the batch data collection is in progress or is interrupted before completion.

Field	Description
BATCHID=xx....xx	The 64-byte user batch ID assigned to the batch when added to the VSAM batch files. If the batch is created due to an online data collection without a \$\$ADD record, this field contains: BID=BATCH WITHOUT \$\$ADD (For Remote Connects) BID=AC BATCH WITHOUT \$\$ADD (For Auto Connects) If the batch is created in an online data collection with a \$\$ADD record, but no BATCHID is specified, this field contains BID=NONE.
HHMM	The time the batch is created
YYDDD	The Julian date the batch is created
I C A D N U R T E M X B S Z	One or more of the letters ICADNURTEMXBSZ occurs in the directory listing. These letters indicate the batch status.
I	The batch is incomplete; collection is in progress or the transmission is interrupted
C	The batch is collected from a remote site while Sterling Connect:Enterprise is online.
A	The batch is added by the offline utilities
D	The batch is flagged as deleted from the VSAM batch files
N	The batch is nontransmittable (locked for transmissions). When displayed, this status replaces the D status. This status is set immediately after the batch is successfully collected when the EO=Y option of the \$\$ADD command is specified. It is also set after a successful transmission of the batch added with the TO=Y option
U	The batch is unextractable (locked for extractions). When displayed, this status replaces the D or N status. This status is set immediately after the batch is added, when the TO=Y option adds the batch. It is also set after the batch's successful extraction when the EO=Y option added the batch.
R	The batch is requestable through a \$\$REQUEST from a remote site.
T	The batch is transmitted to a remote site. It is not transmitted on a <i>transmit all for the mailbox ID</i> , but can be transmitted again by specific batch number.
E	The batch is extracted by host site personnel
M	The batch is available for multiple transmission and any remote site can request it by its ID.
X	The batch contains transparent data.
B	The batch originated at an online BSC remote site
S	The batch originated at an online SNA remote site.
Z	EBCDIC data added through the APPC User API

Field	Description
VBQnn OFFLINE	The name of the VSAM batch queue where the data resides. If the batch resides on a VSAM batch queue, which is not currently allocated to Sterling Connect:Enterprise, OFFLINE is displayed instead of the VBQ name.

SNA Logon System Function

Logon is a system function, rather than a Sterling Connect:Enterprise command. Your remote terminal must log on through VTAM to gain access to Sterling Connect:Enterprise at the host site.

The logon function may be totally automated by your remote site, or you may have to type a logon or other command on your terminal's keyboard. The procedures you must use are determined by host site personnel, not by Sterling Connect:Enterprise. Therefore, this section cannot tell you exactly how to type a logon, or if a logon is automatic for your terminal. It can give you a general idea of the information Sterling Connect:Enterprise requires, but the exact format of the logon may vary.

The following is a sample common logon. This example may not necessarily work for your particular installation, and the names in parentheses probably differ for your installation.

```
LOGON APPLID(MAILBOX) LOGMODE(RJE3770) DATA(RMT001)
```

If something is wrong with your logon, you receive the message SESSION NOT BOUND. This means that your logon attempt is rejected, either by the system or by Sterling Connect:Enterprise. Correct the logon format and retype the logon.

For MLU support, you must log on for each session you activate. The sessions can use the same format for all the logons, or you may be instructed to use a different remote name for each logon. This decision is made by your host site personnel. MLU supports a maximum of six sessions.

Syntax

Use the following format to log on from an SNA site. This format may not necessarily work for your particular installation.

```
LOGON APPLID(xxxxxxxx)
DATA (xxxxxxxx, , yyyyyyyy, zzzzzzzz)
LOGMODE (xxxxxxxx)
```

Description

Sterling Connect:Enterprise gains control when you type a logon. Three key logon items are required.

Note: The keywords APPLID, LOGMODE, and DATA are standards for typing a logon, but they are determined by host site personnel. Different keywords may be used, or the information can be typed as positional parameters instead.

SNA LOGOFF and \$\$LOGOFF System Functions

Type LOGOFF as a system function or as a Sterling Connect:Enterprise \$\$ command. In either case, the purpose of the logoff is to end the session with the host site. When the logoff function is processed from a dial-up line, the telephone connection is also dropped.

Type the LOGOFF system function as a command on your terminal's keyboard or press a specified function key. The exact procedure depends upon your terminal type and on the implementation by host site personnel.

The \$\$LOGOFF Sterling Connect:Enterprise function is essentially a data string that Sterling Connect:Enterprise interprets as a request to end the session. For security, correctly type your remote name and the APPLID defined to Sterling Connect:Enterprise.

Syntax

The Sterling Connect:Enterprise logoff function is initiated by sending the host a record with the following format:

```
$$LOGOFF APPLID=xxxxxxxx RMT=xxxxxxxx
```

Description

Use any number of blanks to separate operands. \$\$LOGOFF must begin in the first record position.

\$\$REQUEST Command

Data transmission to your remote site is initiated by sending a \$\$REQUEST. A request for a transmission can identify a single batch on the VSAM batch files or can request transmission of all batches associated with a mailbox ID. When requesting all batches for a mailbox ID, remember that only batches not already flagged transmitted are sent. A transmission request for a single batch by its batch number can access a batch flagged as already transmitted.

If multiple batches are transmitted to a remote site in response to a \$\$REQUEST for an ID (without a BATCHID), Sterling Connect:Enterprise separates the batches using standard SNA FMHs, unless BCHSEP=OPT3 is used, which concatenates the separate batches into one.

Syntax

At SNA sites, the \$\$REQUEST record uses the following syntax:

```
$$REQUEST BATCHID='xx.xx'|"yyy.yyy"|#nnnnnnn BCHSEP=OPT3
ID=xxxxxxxxx MEDIA=xx ONEBATCH=NO|YES TRUNC=NO|YES WAIT=hh:mm:ss,C
```

At BSC sites, the \$\$REQUEST record uses the following syntax:

```
$$REQUEST BATCHID='xx.xx'|"yyy.yyy"|#nnnnnnn
BCHSEP=NO|OPT1|OPT2|OPT3 BLOCK=xx CMP=NO|YES ID=xxxxxxxxx
ONEBATCH=NO|YES RECSEP=xx TRUNC=NO|YES
```

Abbreviate this command as \$\$REQ.

Description

Use any number of blanks to separate operands. \$\$REQUEST must begin in the first record position.

Parameter Interrelationships

The following is a list of parameter interrelationships:

- ◆ If TRUNC=Y and CMP=Y are both selected, the data is first truncated and then compressed.
- ◆ Do not attempt to use BSC transparency in conjunction with blocked data, with TRUNC=Y, or with CMP=Y.
- ◆ If a batch is requested using BLOCK for blocked data, and if the requested batch is already blocked on the VSAM batch files, double blocking can occur. This is appropriately handled by Sterling Connect:Enterprise, but the remote terminal must be able to deblock such records.

\$\$REQUEST Sample Outputs

Sterling Connect:Enterprise uses certain criteria to determine which batches are sent to your remote site for a \$\$REQUEST. The batch status indicators (such as those displayed for a \$\$DIRECTORY) are checked and the following rules are applied:

Requesting all batches for an ID:

```
$$REQUEST ID=xxxxxxxxx
```

The batch must be marked R (requestable). The batch must not be marked T (already transmitted), D (deleted), I (incomplete), or N (nontransmittable).

Requesting all batches by ID and batch ID:

```
$$REQUEST ID=xxxxxxxxx BATCHID='xxx.yyy'
```

The rules are the same as for requesting all batches for an ID.

Requesting a single batch by ID and batch number:

```
$$REQUEST ID=xxxxxxxx BATCHID=#nnnnnnn
```

The batch must be marked R (requestable). The batch must not be marked D (deleted) or N (nontransmittable).

If you are unable to request a batch that is on the VSAM batch files, try a \$\$DIRECTORY and examine the batch status indicators to determine the reason.

Error Messages

Usually the data collection and data transmission processing proceeds with no problems. However, some error messages may occasionally transmit to the remote site.

Sometimes when the remote site is expecting to receive a batch data transmission, it may instead receive a message that the requested batch does not exist. Use caution in processing received data to ensure you are not processing an error message from Sterling Connect:Enterprise instead of actual batch data.

If your SNA remote site is defined as a console device, you may display these messages on the console screen.

All of the remote site messages are identified and explained in this chapter. They are also included in the *IBM Sterling Connect:Enterprise for z/OS Error Messages and Codes Guide*.

Remote User Error Messages (***) ERROR (***)

The following is a list of all of the remote site messages. An identifier, description, and action for these messages is included.

Message	Description	Action
*** ERROR ***	An unidentifiable error occurred at the host.	Verify that your input data is correct, and retry the data transmission at a later time.
*** ERROR *** BATCH DATA BLOCKS EXCEED BUFFER SIZE.	You requested a batch with record sizes that are larger than allowed on the telecommunications line. Sterling Connect:Enterprise cannot send the batch to you using this line.	Try another line which may allow larger records. If it still does not work, you cannot access the batch.

Message	Description	Action
*** ERROR ***BSC SIGNON SECURITY VIOLATION.	Your BSC SIGNON attempt has failed.	Contact host site personnel for further information.
*** ERROR *** COLLECTION FAILED. ID VALIDATION FAILED FOR ID=XXXXXXXX.	The Sterling Connect:Enterprise system at the host site uses the batch security option. The ID for your input data batch is incorrect, and your batch is rejected.	Correct the ID used if it is spelled incorrectly, or contact host site personnel to obtain a valid ID.
*** ERROR *** COLLECTION FAILED. SECURITY VIOLATION.	You attempted to send batches without following security procedures. These procedures are unique for your installation and are activated by a user security exit.	Contact host site personnel if you cannot correct the problem.
*** ERROR *** COLLECTION FAILED. INVALID DATA COULD NOT BE DEBLOCKED.	You attempted to send batches to the host, but Sterling Connect:Enterprise cannot deblock your data to analyze its contents. This is generally due to a data format error or to a very large data block.	Attempt to correct your input data and retry the collection. If the problem persists, contact host personnel.
*** ERROR *** COLLECTION FAILED. INVALID FMH SENT.	Your remote site sent a Function Management Header (FMH) that is not supported by Sterling Connect:Enterprise. Sterling Connect:Enterprise supports only a 6-character FMH Type 1.	If you cannot correct the problem, contact host personnel.
*** ERROR *** COLLECTION FAILED. HOST SITE FILE PROBLEM.	The host site experienced a problem with its files while attempting to process your data collection. This is usually due to a file full condition or to a very large input data block.	If you cannot correct the problem, contact host personnel.
*** ERROR *** DATA COLLECTION REJECTED. TRY AGAIN LATER.	A temporary busy condition is encountered at the host site.	Retry the data collection at a later time.
*** ERROR *** DATA COLLECTION ABORTED. TRY AGAIN LATER.	An error condition at the host or on the line caused a data collection in progress to fail. The partial data batch is ignored and must be retransmitted at a later time. If this message occurs repeatedly, check the data you are sending the host.	Verify the data being transmitted if you receive this error.

Message	Description	Action
*** ERROR *** ID VALIDATION FAILED FOR ID=xxxxxxx.	The Sterling Connect:Enterprise system at the host site uses the batch security option. The ID in your input data is incorrect, and your communications attempt is rejected.	Correct the ID used if it is spelled incorrectly or contact host site personnel to obtain a valid ID.
*** ERROR *** INVALID PASSWORD FOR FULL DIRECTORY REQUEST.	You attempted a \$\$DIRECTORY request without supplying a mailbox ID, and you did not supply the correct password.	Retype the request with the correct password, or only attempt a \$\$DIRECTORY for a single mailbox ID.
*** ERROR *** INVALID DELETE. BATCH NOT FOUND.	You attempted a \$\$DELETE for a batch that does not exist.	Correct the \$\$DELETE to specify the specific batch for deletion and retry the transmission.
*** ERROR *** INVALID DELETE. ENTER ID AND BATCHID=#nnnnnnn.	You attempted a \$\$DELETE but typed the batch identifiers incorrectly.	Correct the \$\$DELETE request and retry the transmission.
*** ERROR *** NO BATCHES FOR TRANSMISSION.	You have requested a data transmission with a \$\$REQUEST record, but the batch requested either does not exist or is not available for a data transmission to a remote site.	Use a \$\$DIRECTORY input to verify the identification of the batch. Note: Batches flagged T (transmitted) do not transmit again if you are requesting all batches for a mailbox ID.
*** NOTE *** NO BATCHES FOR TRANSMISSION.	The host site has initiated a data transmission to your site through the Auto Connect feature. At the time of the Auto Connect, no batches are available for transmission to your remote site. This is normally not an error.	None.
*** ERROR *** SECURITY VIOLATION.	You attempted to access batches without following security procedures. These procedures are unique for your installation and are activated by a user security exit.	Contact host site personnel if you cannot correct the problem by changing your batch identifiers.
*** ERROR ***SELECTED BATCH ON DEALLOCATED FILE.	The selected batch is not accessible because it is located on an offline VSAM batch queue.	Contact host site personnel to have the VSAM batch queue allocated and retry your request.

Message	Description	Action
*** ERROR *** SNA BATCH CANNOT BE CONVERTED TO BSC.	You attempted to request transmission of a batch which originated at an SNA remote site. The batch contains SNA control characters and cannot be converted and sent to your BSC remote site. The batch is accessible only to host site personnel or to SNA remote sites.	Verify batch selection. If correct, contact host site personnel.
*** ERROR ***SYSTEM I/O LIMIT REACHED TRY AGAIN LATER.	Host system activity is too high to satisfy this request.	Try your request later.
*** ERROR *** TRANSMIT FAILED. INCORRECT \$\$LOGOFF OPERAND.	You typed a \$\$LOGOFF command, but failed to supply the appropriate RMT or APPLID parameters. The \$\$LOGOFF is ignored.	Supply the appropriate \$\$LOGOFF format and retype the request.
*** ERROR *** TRANSMIT FAILED. ID VALIDATION FAILED FOR ID=XXXXXXXX.	The Sterling Connect:Enterprise system is installed at the host site with the batch security option. The ID you used is incorrect, and your request is rejected.	Correct the ID used if it is spelled incorrectly, or contact host site personnel to obtain a valid ID.
*** ERROR *** TRANSMIT FAILED. NO BATCHES FOR TRANSMISSION.	You have requested a data transmission with the \$\$REQUEST function, but the batch requested either does not exist or is not available for a data transmission to a remote site.	Use a \$\$DIRECTORY to verify the identification of the batch and to determine if it is transmittable.
*** NOTE *** TRANSMIT FAILED. NO BATCHES FOR TRANSMISSION DURING Sterling Connect:Enterprise AUTO CONNECT.	The host site initiated a connection to your remote site through the Sterling Connect:Enterprise Auto Connect feature. At this time, no batches are ready for transmission to your remote site. This may not be an error. No batches are sent to you, but you may now have the opportunity to send data to the host site.	None.
*** ERROR *** TRANSMIT FAILED. INVALID PASSWORD FOR FULL DIRECTORY REQUEST.	You attempted a \$\$DIRECTORY request without supplying an ID, and did not supply the appropriate system password.	Retype the \$\$DIRECTORY with the appropriate password, or attempt a \$\$DIRECTORY for a single mailbox ID only.

Message	Description	Action
*** ERROR *** TRANSMIT FAILED. SECURITY VIOLATION.	You attempted to access host data without following security procedures. These procedures are unique for your installation and are activated by a user security exit.	Contact host site personnel if you cannot correct the problem.
*** ERROR *** TRANSMIT FAILED. YOUR REMOTE SENT NEGATIVE RESPONSE TO TRANSMIT.	Sterling Connect:Enterprise attempted a data transmission to your remote site, but your remote site rejected it by sending a negative response. This can occur for many reasons. For example, your remote site may want to send data to the host at this time and not receive it. Or, Sterling Connect:Enterprise has directed the batch to a certain media that is currently not ready and available for use. Sterling Connect:Enterprise handles the negative response, and you can retry the failed transmission later if appropriate. Ensure the appropriate output media device is assigned and ready for use.	If you cannot determine why your remote site is rejecting a transmission with a negative response, contact host site personnel. Sterling Connect:Enterprise records the transaction that failed and the reason for failure. It may be possible to recreate the problem and have host site personnel explain the negative response.
*** ERROR *** TRANSMIT FAILED. DATA CANNOT BE FORMATTED FOR YOUR REMOTE.	The batch you have requested cannot be sent to your remote site due to a data formatting problem. This can occur when attempting to transmit BSC originated data to an SNA remote site, or vice versa.	If you are unable to correct the problem, contact host site personnel.
*** ERROR *** TRANSMIT FAILED. RECORDS ARE TOO LARGE FOR YOUR BUFFER SIZE.	The batch you have requested cannot be sent to your remote site. One or more of the batch data records exceeds the buffer size for your remote.	Contact remote site personnel if the problem persists and you require access to the batch. They may need to assign a larger buffer to your remote site.
*** ERROR *** TRANSMIT FAILED. SELECTED BATCH REQUIRES A STERLING CONNECT REMOTE DEFINITION.	The batch you have requested requires a Sterling Connect remote definition to transmit correctly. Your current remote definition is not defined as such.	Make the appropriate changes to support Sterling Connect remotes and retry the \$\$\$REQUEST or refrain from selecting this batch.

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