Gentran Integration Suite™

Connect:Direct Server Adapter User Guide

Version 4.3

Sterling Commerce

An IBM Company

Contents

Contents

What's New with the Interface between Sterling Integrator and Connect:Direct

What's New with the Interface between Sterling Integrator and Connect:Direct

If your company uses both Sterling Integrator and Connect:Direct to perform business activities, route data, and transfer files, you can configure the Connect:Direct Server adapter on the Sterling Integrator side to act as the primary node, that is, the node on which the process is being submitted or the secondary node that interacts with the primary node during process execution. In Sterling Integrator version 5.1, you will find the following updates to the product and documentation:

General Enhancements

In Sterling Integrator version 5.1, several enhancements are focused on making it easier to use the Connect:Direct Server adapter (CDSA) and other related Connect:Direct Server services, such as the CopyTo service used to transfer files between a Sterling Integrator CDSA node and other Connect:Direct server nodes. Here's a summary of the general enhancements:

✦ Connect:Direct Service Adapter upgrade now allows you to make changes to an existing netmap, which take effect immediately without disabling and re-enabling the adapter. Simply edit the configuration of the Connect:Direct Service Adapter that uses the modified netmap, click Next until you reach the Confirm page, and then click Finish for the system to immediately recognize your netmap changes.

✦ Sterling Integrator version 5.1 and later supports the most common set of parameters available in the Connect:Direct for z/OS Process Copy statement To clause to provide more functionality, such as enhanced file allocation and disposition options for the destination file on the remote Connect:Direct for z/OS node. To ensure that business processes created in earlier versions of Sterling Integrator continue to execute properly, parameters existing in versions 5.0 and earlier will still be supported. However, these old parameters cannot be mixed with new parameters in the same CopyTo service. It is recommended that you use the new parameters when you create a new business process and that when

you make changes to an existing CopyTo service that you upgrade and use the new parameters, as well. For more information, see *Connect:Direct Server CopyTo Service* on the Working with Connect:Direct page.

✦ To reduce the number of instances business processes that terminate with an error because of PNODE session limits, Sterling Integrator now places business processes in a suspend queue to await session availability. When a session count frees up, it is assigned to the oldest suspended business process which can use the newly available session. The business process then resumes and is allowed to try to establish a session. For more information on this workflow suspension processing feature, see *How Sessions for Business Processes Are Established* on page 155.

✦ Connect:Direct Service Adapter upgrade now allows you to take advantage of the checkpoint restart feature. This feature allows the automatic restarting of copy operations that fail in certain ways, for example, due to network errors. The copy operation is resumed from a previously checkpointed location rather than having to start over from the beginning of the file transfer. To implement this feature, you must enable retry processing. For more information, see *How Checkpoint Restart and Retry Processing Works* on page 158.

In earlier versions of Sterling Integrator, you had to specify a retry in the business process itself. In addition, in Sterling Integrator version 5.1 and later, when a session is established the current retry counts are reset to zero so that if the session subsequently fails, the system starts counting retries from zero, which represents a departure from the earlier behavior.

The copy checkpoint retry feature is now governed by the same short-term and long-term retries parameters that control retries for initial session establishment. Prior to Sterling Integrator version 5.1, there were three sets of parameters related to session establishment and retry processing:

◆ Session establishment parameters that were used only for initial session establishment . These two fields, *Number of Retry attempts for establishing a session* and *Interval between session establishment attempts*, were configurable in both the Connect:Direct Service Adapter and Connect:Direct Server Begin Session Service. These parameters did not affect session re-establishment after a session failure during COPY processing.

◆ Short-term session retry parameters that were only used when the adapter attempted to establish a session but there was no PNODE session available. These two fields, *Number of short-term session retry attempts* and *Interval between short-term session retry attempts*, were configurable in both the Connect:Direct Service Adapter and Connect:Direct Server Begin Session Service. The server in that scenario would perform a series of delays and retries to try to acquire a free session count. These parameters controlled the retrying of the acquisition of a session count but had nothing to do with establishing sessions. This functionality has been made obsolete by the workflow suspension processing feature described above. With that feature, a business process is put in a suspend queue when there are no available sessions to await for the next free session count.

◆ Checkpoint-based copy-restart parameters that were used only in CopyTo and CopyFrom processing. These two fields, *Number of Retry attempts for checkpoint-based copy-restart* and *Interval between Retry attempts*, were configurable in only the Connect:Direct Service Adapter.When a COPY operation failed with a 'restartable' error such as a session failure, these parameters controlled the number of retries performed and the interval between retry attempts. This retry count was a hard limit on the number of retries that could be done during a given communications session regardless of whether sessions were re-established and then subsequently lost or whether a session failed and then could not be re-established. This set of parameters is now obsolete as a result of the enhanced copy checkpoint retry feature.

Session establishment and retry processing has been both simplified and enhanced in Sterling Integrator version 5.1. There are now two sets of parameters (short-term and long-term) instead of

three and the two sets apply throughout the session both to initial session establishment and also to re-establishment after a failure. These two sets of parameters are configured in the Connect:Direct Server adapter and can be overridden in the Connect:Direct Server Begin Session service:

- ◆ Session establishment parameters, which are now the long-term session retry settings and apply both to initial session establishment as well as to COPY steps when a session must be re-established. When the default settings defined in the adapter configuration are overridden in the Begin Session service, the new values are retained for the duration of the session and also apply to any subsequent COPY steps.

- ◆ Short-term session retry parameters, which now work in conjunction with the long-term session retry parameters. The values for the short-term parameters are used first if defined, and if a session has still not been established (or re-established) when they are exhausted, the long-term retry values are used, if configured. If the short-term values are overridden in the Begin Session service, the new values are retained for the duration of the session and also apply to any subsequent COPY steps.

✦ File Allocation Retry (FAR) processing allows the Connect:Direct Server adapter to retry a Copy operation when one of a set of certain file allocation errors occurs in combination with a non-zero return code. This is most useful when the Connect:Direct Server adapter initiates a file transfer with a remote Connect:Direct for z/OS system. This feature only affects locally initiated (PNODE) sessions that use the Connect:Direct Server CopyTo service or CopyFrom service. For more information, see *How File Allocation Retry Processing Works* on page 159.

✦ For interoperability with other Connect:Direct nodes in high-availability environmnents, the Alternate Comm Info parameter in the Connect:Direct Server adapter Netmap allows you to specify a list of alternate hostnames and IP addresses that are used for Netmap checking of inbound connection requests to the adapter. For more information, see *Alternate Comm Info* on page 14.

Improvements to Documentation

Throughout information related to the Connect:Direct Server adapter and services, links to the following information have been added to make information more accessible so you can find related information quickly:

✦ [Working with Connect:Direct page](#) (to access the main webpage listing Connect:Direct Server adapter-related information)

✦ [Sterling Integrator documentation library](#) (to access information about the general Sterling Integrator product that the Connect:Direct Server adapter and related services are part of)

✦ [Connect:Direct Process Language Web Site](#) (to access the MFT website for information on Connect:Direct processes and how to write them to communicate with Sterling Integrator)

New Documentation on the Connect:Direct Process Website

Information about the syntax to use when creating Connect:Direct Processes to communicate with Sterling Integrator has been provided on the Connect:Direct Process Guide web site. Refer to the following topics on the [Connect:Direct Process Language Web Site:](#)

✦ Transmitting Files between Connect:Direct and Sterling Integrator

✦ COPY Statement Keywords for Communicating with Sterling Integrator

✦ Sending to a Sterling Integrator Mailbox

✦ Sending to a Sterling Integrator Business Process

✦   Retrieving from a Sterling Integrator Business Process

✦   Retrieving from a Sterling Integrator Mailbox

✦   Specifying File Formats using SYSOPTS

✦   Submitting a Sterling Integrator Business Process from Connect:Direct

✦   Connect:Direct Parameters for Communicating with Sterling Integrator

Connect:Direct Process Examples

Several Connect:Direct Process examples have been provided to illustrate the syntax for the various platforms supported by Connect:Direct. Refer to the following topics on the Connect:Direct Process Language Web Site:

✦   Copying a File from Connect:Direct for z/OS to a Sterling Integrator Mailbox

✦   Copying a File from Connect:Direct for UNIX to a Sterling Integrator Mailbox

✦   Copying a File from Connect:Direct for Windows to a Sterling Integrator Mailbox

✦   Copying a File from Connect:Direct HP NonStop to a Sterling Integrator Mailbox

✦   Copying a File from Connect:Direct i5/OS to a Sterling Integrator Mailbox

✦   Copying a File from Connect:Direct for z/OS to a Sterling Integrator Business Process

✦   Copying a File from Connect:Direct for UNIX to a Sterling Integrator Business Process

✦   Copying a File from Connect:Direct for Windows to a Sterling Integrator Business Process

✦   Copying a File from Connect:Direct HP NonStop to a Sterling Integrator Business Process

✦   Copying a File from Connect:Direct i5/OS to a Sterling Integrator Business Process

✦   Retrieving a File from a Sterling Integrator Business Process to Connect:Direct for z/OS

✦   Retrieving a File from a Sterling Integrator Business Process to Connect:Direct for Windows

✦   Retrieving a File from a Sterling Integrator Business Process to Connect:Direct for UNIX

✦   Retrieving a File from a Sterling Integrator Business Process to Connect:Direct HP NonStop

✦   Retrieving a File from a Sterling Integrator Business Process to Connect:Direct i5/OS

✦   Retrieving a File from a Sterling Integrator Mailbox to Connect:Direct for z/OS

✦   Retrieving a File from a Sterling Integrator Mailbox to Connect:Direct for Windows

✦   Retrieving a File from a Sterling Integrator Mailbox to Connect:Direct for UNIX

✦   Retrieving a File from a Sterling Integrator Mailbox to Connect:Direct HP NonStop

✦   Retrieving a File from a Sterling Integrator Mailbox to Connect:Direct i5/OS

✦   Submitting a Sterling Integrator Business Process from Connect:Direct for z/OS

✦   Submitting a Sterling Integrator Business Process from Connect:Direct for UNIX

✦   Submitting a Sterling Integrator Business Process from Connect:Direct for Windows

✦   Submitting a Sterling Integrator Business Process from Connect:Direct HP NonStop

✦   Submitting a Sterling Integrator Business Process from Connect:Direct i5/OS

Enhancements to Connect:Direct Server Adapter Documentation

The *Connect:Direct Server Adapter User Guide* was introduced in June 2009. With the release of Sterling Integrator version 5.1, this basic documentation has been enhanced by adding the following information:

✦ A procedure on setting up a Sterling Integrator mailbox and the advantages of using virtual roots. See *Create a Sterling Integrator Mailbox* on page 20.

✦ Detailed information on checkpoint restart and retry processing and how sessions for business processes are established. After reading this information, you may want to adjust your configuration settings to fit your environment. See *Session Establishment and Process Recovery* on page 155.

✦ Five new Sterling Integrator business process examples in *Sample Business Processes* on page 105.

✦ Existing sample business processes involving both Connect:Direct and Sterling Integrator processing, have been enhanced by adding the Connect:Direct Process which precedes the activity on the Sterling Integrator side. Explanations for examples have been sharpened by adding platform-specific information, and more details about operations, nodes, and files being transferred. See *Sample Business Processes* on page 105.

In addition, the documentation for the following Connect:Direct Server services has been updated:

✦ Connect:Direct Server Begin Session Service

> **Note:** In Connect:Direct Server Begin Session Service, the Using Obscured Password field was added and the related business process example was enhanced.

✦ Connect:Direct Server CopyFrom Service

✦ Connect:Direct Server CopyTo Service

✦ Connect:Direct Server End Session Service

✦ Connect:Direct Server Run Job Service

✦ Connect:Direct Server Run Task Service

✦ Connect:Direct Server Submit Service

As noted in *General Enhancements* on page 1, several enhancements in Sterling Integrator version 5.1 are focused on making it easier to use the Connect:Direct Server adapter (CDSA) and other related Connect:Direct Server services. To use these products most efficiently, it is recommended that you use the information on the Working with Connect:Direct page as the best practice. If you need to refer to information related to earlier versions of Sterling Integrator, refer to the adapter and services information Sterling Integrator documentation library.

Sterling Integrator Business Process Examples

Several Sterling Integrator business process examples have been provided to illustrate the syntax for the various platforms supported by Sterling Integrator and Connect:Direct. Refer to the following topics on the Working with Connect:Direct page:

✦ *Use Connect:Direct to Copy a File to Sterling Integrator* on page 106

✦ *Use Connect:Direct to Retrieve a File from Sterling Integrator* on page 107

✦ *Use Sterling Integrator to Copy a File to a Connect:Direct for z/OS Node* on page 109

✦ *Use Sterling Integrator to Copy a File to a Connect:Direct for Windows Node* on page 111

✦ *Use Sterling Integrator to Copy a File to a Connect:Direct for UNIX Node* on page 113

✦ *Use Sterling Integrator to Copy a File to a Connect:Direct HP NonStop Node* on page 115

✦ *Use Sterling Integrator to Copy a File to a Connect:Direct for i5/OS Node* on page 118

✦ *Use Sterling Integrator to Copy a File from Connect:Direct* on page 120

✦ *Add Error Handling to the Business Process* on page 122

✦ *Use Sterling Integrator to Submit a Connect:Direct Process* on page 124

✦ *Use Sterling Integrator to Start a Connect:Direct Run Job* on page 126

✦ *Use Sterling Integrator to Start a Connect:Direct Run Task* on page 128

✦ *Hide the Connect:Direct Password in the Business Process* on page 130

✦ *Use Sterling Integrator to Copy a File to Connect:Direct for z/OS (Advanced)* on page 132

Contact Us

Sterling Commerce welcomes your comments and suggestions for improvements to our product documentation. You can submit suggestions for improvements to ConnectDoc@stercomm.com.

About Connect:Direct and Sterling Integrator Interoperability

About Connect:Direct and Sterling Integrator Interoperability

Sterling Integrator (formerly known as Gentran Integration Suite) enables a business to define business processes in a software application and route data between enterprise systems using different protocols and formats.

Connect:Direct is a peer-to-peer data transfer application that uses a proprietary protocol to exchange data between Connect:Direct servers.

The Connect:Direct Server adapter is a component of Sterling Integrator that allows Sterling Integrator to act like a Connect:Direct server, sending and receiving data using the Connect:Direct protocol. The Connect:Direct Server adapter enables you to use files from a Connect:Direct server in a Sterling Integrator business process and to create business processes that exchange files with a Connect:Direct server.

Connect:Direct and Sterling Integrator Processes

Connect:Direct and Sterling Integrator each have their own version of a process. Connect:Direct uses a Process statement to initiate a session with another Connect:Direct node and then uses specific statements to perform tasks and make requests on that node.

Sterling Integrator uses business process services to initiate a session with another Connect:Direct node to perform tasks and make requests on that node. It is possible to use Sterling Integrator business processes to handle complex processes such as order fulfillment, invoicing, inventory, and other processes that require data exchange and business integration.

These business processes enable you to transfer your files, or business documents, to internal processing activities and to trading partners, exchanges, and customers.

Business Processes and Mailboxes

You can copy files from a Connect:Direct node directly to a Sterling Integrator business process or mailbox. Sterling Integrator business processes utilize services and adapters, such as the Connect:Direct Server adapter and related services, in a sequence of steps to achieve business goals. The Sterling Integrator Mailbox is a business document repository that enables you to organize, store, and manage trading partner documents and transactions.

Although staging and scheduling of data transmission is present to varying degrees in numerous applications and infrastructure components, it is beneficial to centralize the definition, operation, management, and control of this staging and scheduling. In Sterling Integrator, these capabilities are centralized in the Mailbox.

You can set up mailboxes within Sterling Integrator so that files copied over to Sterling Integrator are stored and retrieved later. When the files are stored in a mailbox, they are referred to as messages. You can also use mailbox routing rules to initiate business processes in Sterling Integrator based on messages that are stored in a mailbox. For more information on setting up mailboxes, see *Create a Sterling Integrator Mailbox* on page 20.

After you have set up a Sterling Integrator mailbox or business process to which you want to send a file, you can create the Connect:Direct Process to perform the file transfer. For more information about the Connect:Direct Process language and how to tailor it to communicate with Sterling Integrator, refer to S*terling Integrator Connect:Direct Server Adapter Syntax* and *Sterling Integrator-Connect:Direct Server Adapter Examples* on the Connect:Direct Process Language Web Site in the MFT Connect:Direct documentation library.

Using Connect:Direct Server Adapter Services in a Business Process

The Connect:Direct Server adapter provides a suite of B2B services to establish communication between Sterling Integrator and Connect:Direct.

Using these services, you can create business processes to perform the same tasks performed with Connect:Direct Processes and with Connect:Direct commands.

The Connect:Direct Server services correspond to the Connect:Direct Process Language. These services work with the Connect:Direct Server adapter. All services (except for Connect:Direct Server BP Response Service) are used when the Connect:Direct Server adapter is the PNODE. The Connect:Direct Server BP Response Service is used when the Connect:Direct Server adapter is the SNODE and Connect:Direct is retrieving a file from Sterling Integrator.

The services created specifically for use with Connect:Direct are described in sample workflows in this user guide. These workflows demonstrate how each service is used within a business process.

The Connect:Direct Server adapter supports the following services:

✦ Connect:Direct Server Begin Session Service

✦ Connect:Direct Server BP Response Service

✦ Connect:Direct Server CopyFrom Service

✦ Connect:Direct Server CopyTo Service

✦ Connect:Direct Server End Session Service

✦ Connect:Direct Server Run Job Service

✦ Connect:Direct Server Run Task Service

✦ Connect:Direct Server Submit Service

Purpose of the User Guide

The User Guide describes how to perform common user tasks with the Sterling Integrator Connect:Direct Server adapter and remote Connect:Direct servers. These tasks include:

✦ *Use Connect:Direct to Copy a File to a Sterling Integrator Mailbox* on page 23

✦ *Use Connect:Direct to Copy a File to a Sterling Integrator Business Process* on page 27

✦ *Use Connect:Direct to Pull a File from Sterling Integrator* on page 35

✦ *Use Sterling Integrator to Copy a File to Connect:Direct* on page 45

✦ *Use Sterling Integrator to Copy a File from Connect:Direct* on page 53

✦ *Add Error Handling to a Sterling Integrator Business Process* on page 61

✦ *Add Secure+ Option* on page 69

✦ *Use Sterling Integrator to Submit a Connect:Direct Process* on page 75

✦ *Use Sterling Integrator to Start a Connect:Direct Run Job* on page 83

✦ *Use Sterling Integrator to Start a Connect:Direct Run Task* on page 89

✦ *Hide the Connect:Direct Password in the Business Process* on page 97

Requirements

Interoperability between Sterling Integrator and Connect:Direct has the following system requirements:

Supported Connect:Direct Versions

The following versions of Connect:Direct support interoperability with Sterling Integrator:

✦ Connect:Direct for z/OS 4.6 or later

✦ Connect:Direct for Windows 4.4 or later

✦ Connect:Direct for UNIX 3.8 or later

✦ Connect:Direct HP NonStop 3.4 or later

✦ Connect:Direct i5/OS 3.6 or later

Supported Sterling Integrator Versions

Sterling Integrator versions 4.2 or later support interoperability with Connect:Direct.

Licensing Requirements for Connect:Direct Interoperability

You must have appropriate adapter licensing to use one or more instances of the Connect:Direct Server adapter.

Activate your Sterling Integrator license file, if required, from the Sterling Commerce Self-Service Licensing Web site at www.productupdates.stercomm.com.

The Sterling Integrator Mailbox option enables you to copy and store files in personal mailboxes in Sterling Integrator for later retrieval or to initiate Sterling Integrator business processes. To use the Sterling Integrator Mailbox option, you must have appropriate mailbox licensing.

Setup Procedures

Setup Procedures

Before you can transfer files or initiate processes between Connect:Direct servers and the Sterling Integrator Connect:Direct Server adapter, perform the following:

✦ *Create Connect:Direct and Sterling Integrator User IDs* on page 11

✦ *Configure a Sterling Integrator Netmap Entry* on page 12

✦ *Configure a Sterling Integrator Connect:Direct Server Adapter* on page 16

✦ *Add Connect:Direct Server Adapter Node to Connect:Direct Netmap* on page 19

In addition, if you will be transferring files from Connect:Direct nodes to Sterling Integrator mailboxes, follow the instructions in the procedure, *Create a Sterling Integrator Mailbox* on page 20.

Create Connect:Direct and Sterling Integrator User IDs

Your Sterling Integrator administrator must create a Sterling Integrator User ID for you. The administrator must give this User ID permission to execute Sterling Integrator business processes that you copy files to or from. When you create your Connect:Direct processes, use this Sterling Integrator User ID as the SNODEID of the Process statement.

Your Connect:Direct administrator must create a Connect:Direct user account and give this account permission to copy files, submit processes, perform Run Jobs, and perform Run Tasks on the Connect:Direct node. When you create your Sterling Integrator business processes, use this Connect:Direct user account as the remote Connect:Direct User ID.

Configure a Sterling Integrator Netmap Entry

A node is a Connect:Direct server. Two Connect:Direct servers (local and remote) function together to perform data transfers. Either node can initiate the work by submitting a Process.

When a session is established, the node that initiates the session is the PNODE regardless of the direction of information flow. The other node is the SNODE. The Process can specify work destined for either the PNODE or SNODE.

> **Note:** The Sterling Integrator Connect:Direct Server adapter can be a Connect:Direct local or remote node and can function as a PNODE or an SNODE, depending on whether or not it initiates the connection with a remote Connect:Direct node.

The Connect:Direct Server adapter configuration identifies the remote nodes that it can communicate with through the use of a network map, called a netmap.

When you create a Connect:Direct Server adapter, you must specify a netmap.

In Sterling Integrator version 4.3 and earlier, the netmap is integrated with the Connect:Direct Server adapter configuration. In Sterling Integrator version 5.0 and later, netmaps are configured as separate objects which allows one netmap to be shared by more than one CDSA.

In Sterling Integrator version 5.0 and later, you can configure a netmap in Sterling Integrator from the Administration menu by selecting Deployment > Adapter utilities > C:D Netmaps.

From this menu, you can configure:

✦ Connect:Direct Nodes

✦ Connect:Direct Netmaps

✦ Connect:Direct Netmap cross-references (X-REF)

> **Note:** Updates to the netmap are not done dynamically. If you make changes to an existing netmap, Connect:Direct node, or Connect:Direct netmap cross-reference, you must refresh the configuration of each CDSA that uses the netmap by opening the adapter's configuration and re-saving it. In version 5.1, refreshing a CDSA's configuration does not affect any active sessions. Click Save to go to the Confirm page, and then click Finish to update the configuration. Your configuration changes to netmap members take effect immediately.

Connect:Direct Nodes

Create a Connect:Direct node definition for each remote Connect:Direct node that communicates with the Sterling Integrator Connect:Direct Server adapter. This is only required for nodes you plan to connect to and for nodes that connect to the Connect:Direct Server adapter when you have netmap checking enabled.

Use the following procedure to create a new Connect:Direct node:

1. From the Administration menu, select Deployment > Adapter Utilities > C:D Netmaps > C:D Nodes.

2. In the Create Nodes pane, click Go!. The Create Nodes page appears.

Field	Value to Enter	Description
Connect:Direct Server Node Name	Type the node name for the Connect:Direct server.	Name that will be used to identify the Connect:Direct server. Required.
Connect:Direct Server Host	Type the host name or IP address for the Connect:Direct server.	host name—Host name associated with the IP address. For example: host01 (where host01 is a machine on the local domain) host01.proddomain.com (fully-qualified host name) nnn.nnn.nnn.nnn or nnnn:nnnn:nnnn:nnnn:nnnn:nnnn:nnnn:nnnn—IP address of a machine running Connect:Direct. IPV6 is supported for Connect:Direct for UNIX 4.0 and Connect:Direct for Windows 4.4 or later. Required.
Connect:Direct Port	Type the host port number for the Connect:Direct server.	TCP/IP port number that Connect:Direct monitors for requests from remote nodes. Required. **Note:** If Sterling Integrator is installed on a UNIX operating system, do not select ports in the range 1-1024. These are normally reserved by the operating system.
Max locally initiated (pnode) sessions allowed	During testing, set this value to 100 so that you do not run out of sessions. After testing, enter the estimated number of sessions you require. Otherwise, accept the default value of 5.	Maximum number of sessions initiated locally by the Connect:Direct Server adapter that may be active at any time. Optional. If omitted, the value defined by the Connect:Direct Server adapter is used. This setting overrides the Max locally initiated (pnode) sessions allowed setting in the Connect:Direct Server adapter configuration. Valid value: Any number up to 9999. Minimum value is 1. Default is 5. For more information on session limits, see *How Sessions for Business Processes Are Established* on page 155.
Max remotely initiated (snode) sessions allowed	During testing, set this value to 100 so that you do not run out of sessions. After testing, enter the estimated number of sessions you require. Otherwise, accept the default value of 5.	Maximum number of sessions initiated by the remote node that may be active at any point of time. If omitted, the value defined by the Connect:Direct Server adapter is used. This setting overrides the Max remotely initiated (snode) sessions allowed setting in the Connect:Direct Server adapter configuration. Valid value: Any number up to 9999. Minimum value is 1. Default is 5.

Field	Value to Enter	Description
Alternate Comm Info	Leave this blank unless the inbound Connect:Direct node has more than one outgoing IP address. If the inbound Connect:Direct node has more than one outgoing IP address, specify the IP addresses or host names in a comma-delimited list as shown in the Description.	Provides support for establishing netmap-checked sessions with high-availability (especially load balancing) systems with multiple IP addresses, such as Connect:Direct/Plex z/OS. Use this parameter to list all IP addresses or host names that are part of the multiple IP address environment. For Connect:Direct/Plex, this list should include the address of each Connect:Direct/Server with a different IP address from the Connect:Direct/Plex Manager. If a remote node has more than one outgoing IP address (as in a load balancing environment), specify all of the remote node's possible outgoing addresses in the Alternate Comm Info field so that those outgoing IP addresses are contained in the local node's netmap entry for that remote node. This configuration allows netmap checking to succeed when the remote node connects to the local node using any of the possible outgoing IP addresses specified. Valid format: hostname1/IP address, hostname2/IP address, hostname3/IP address (maximum length is 2048 characters) host name—Host name associated with the IP address. For example: host01 (where host01 is a machine on the local domain) host01.proddomain.com (fully-qualified host name) nnn.nnn.nnn.nnn or nnnn:nnnn:nnnn:nnnn:nnnn:nnnn:nnnn:nnnn—IP address of a machine running Connect:Direct IPV6 is supported for Connect:Direct for UNIX 4.0 and Connect:Direct for Windows 4.4 or later.
Secure+ Option	Accept the default setting (Disabled) until you start using Secure+. Files are not encrypted during copy operations.	Valid if Netmap Override=Yes at the Connect:Direct Server adapter. Indicate if you want to disable or enable encryption. Required. Valid values are: ◆ Disabled (default) ◆ Enabled

3. Click Next. The Confirm page appears.

4. Review your configuration settings and click Finish.

Connect:Direct Netmaps

Once you have defined at least one Connect:Direct node you want to use, you can create a netmap. When you configure a Connect:Direct Server adapter, you must specify the netmap you want to use rather than the individual Connect:Direct nodes you want to communicate with. The individual

Connect:Direct nodes are associated with netmaps with cross references. This arrangement is very flexible and allows you to:

✦ Define each Connect:Direct node one time no matter how many Connect:Direct Server adapters you have.

✦ Use the same netmap for multiple Connect:Direct Server adapters.

✦ Create specialized netmaps for different Connect:Direct Server adapters.

Use the following procedure to create a new Connect:Direct netmap:

1. From the C:D Netmaps menu, select C:D Netmaps. The C:D Netmaps page appears.

2. In the Create New Netmap pane, click Go!. The Create Netmap page appears.

Field	Value to Enter	Description
Netmap Name	Type the Connect:Direct netmap name.	Netmap names consist of alphanumeric, dollar ($), dot (.), underscore (_), and dash (–) characters. The maximum length is 64 characters. Required. **Note:** If you maintain multiple Connect:Direct Server adapters, you can use the same name for the netmap and Connect:Direct Server adapter for easier administration.
Netmap Description	Type the netmap description.	Required.

3. Click Next. The Confirm Page appears.

4. Review your configuration settings and click Finish.

Connect:Direct Netmap Cross-References

You can reuse nodes for a netmap or several netmaps by setting up a cross reference so you don't have to create a new node for each Connect:Direct Server adapter.

Use the following procedure to create a new netmap cross reference:

1. From the C:D Netmaps menu, select C:D Netmap X-REF.

2. In the Create or Modify Netmap Cross Reference pane, click Go!. The Create Cross Reference page appears.

Field	Value to Enter	Description
C:D Netmap Name	Select the Connect:Direct netmap name that you created in *Connect:Direct Netmaps* on page 14.	Select the Connect:Direct Netmap name. Required.

Field	Value to Enter	Description
Add Node	Click the plus sign to add a Node Name to the cross-reference. A new window appears, allowing you to select the Connect:Direct Node Name(s). Select the node name that you created *Connect:Direct Netmaps* on page 14.	

3. Click Next. The Confirm page appears.

4. Review your configuration settings and click Finish.

Configure a Sterling Integrator Connect:Direct Server Adapter

The Sterling Integrator Connect:Direct Server adapter can function as either the PNODE, SNODE, or both, in the Connect:Direct network, initiating and responding to Connect:Direct transfer requests. Configuring a Connect:Direct Server adapter is similar to configuring a Connect:Direct server.

Use the following procedure to configure a Connect:Direct Server adapter in Sterling Integrator:

1. From the Deployment menu, select Services > Configuration.

2. Click Go in the Create New Service pane.

3. In the Service Type box, type Connect:Direct Server Adapter and click Next.

4. Configure the following fields for this scenario. Accept default values for all other fields. For more information about all Connect:Direct Server adapter fields, refer to the [Sterling Integrator documentation library](#).

> **Note:** To enable session establishment retry processing, the value specified for either the number of long-term or short-term retry attempts must be greater than 0. Both of these adapter-level settings can be overridden by values specified for in the Connect:Direct Server Begin Session service for a particular business process.

> **Note:** To enable copy restart processing, session establishment retry processing must be enabled. You must also configure the Checkpoint Interval in the Connect:Direct Server adapter CopyTo or CopyFrom service in your business process. For additional information, see *How Checkpoint Restart and Retry Processing Works* on page 158.

> *Caution:* When you configure how you want retry processing to work, note that the short-term retry interval is configured in seconds rather than in minutes used for the long-term retry interval. For additional information, see *How Checkpoint Restart and Retry Processing Works* on page 158.

Field	Value to Enter	Description
Name	Type a unique name for the Connect:Direct Server adapter configuration.	Required. **Note:** Name is the adapter name, not the node name. However, in Sterling Integrator business processes, Name is the CDLocalNodeName. To avoid confusion, use the same value for both Name and Connect:Direct Server Node Name in your Connect:Direct Server adapter configuration.
Description	Type a description for the Connect:Direct Server adapter configuration.	Required
Connect:Direct Server Node Name	Type the node name to use to identify this Connect:Direct Server adapter. Best practice is to use the same value as the Name field.	Maximum 16 characters. This node name must match the Connect:Direct netmap entry for the Connect:Direct Server adapter. Required.
Connect:Direct Server Port	Type the listening port number for the Connect:Direct Server adapter. Make sure you select a port number that is not in use by another application.	TCP/IP port number that Connect:Direct Server adapter monitors for requests from remote nodes. Required. **Note:** If your application is installed on a UNIX operating system, do not select ports in the range 1-1024. These are normally reserved by the operating system.
Max locally initiated (pnode) sessions allowed	During testing, you may want to set this value to a high number, such as 100, so that you do not run out of sessions. After testing, enter the estimated number of sessions you require. Otherwise, accept the default value of 5. If you need to specify session limits for each node, set this value at the highest anticipated number of total, locally initiated sessions and then specify node limits in the netmap.	Maximum number of sessions initiated locally by the Connect:Direct Server adapter that may be active at any point in time. Required. May be overridden at the node level. If a node-level value is configured, the effective session limit is the smaller of two values: the limit for the adapter and the session limit for the remote node. Valid value: Any number through 9999. Minimum value is 1. Default is 5. For more information on session limits, see *How Sessions for Business Processes Are Established* on page 155.

Field	Value to Enter	Description
Max remotely initiated (snode) sessions allowed	During testing, you may want to set this value to a high number, such as 100, so that you do not run out of sessions. After testing, enter the estimated number of sessions you required. Otherwise, accept the default value of 5. If you need to specify session limits for each node, set this value at the highest anticipated number of total, remotely initiated sessions and then specify node limits in the netmap.	Maximum number of sessions initiated by all remote nodes that may be active at any point in time. Required. May be overridden at the node level. If a node-level value is configured, the effective session limit is the smaller of two values: the limit for the adapter and the session limit for the remote node. Valid value: Any number through 9999. Minimum value is 1. Default is 5.
NetMap Check	For testing purposes, you may find it convenient to select the default (No). After testing, select the value that best serves your network security requirements.	Whether the node netmap should be checked to authorize sessions. Required values are: ◆ Check both node name and IP address—Searches the Connect:Direct Server adapter network map for an entry corresponding to the node name of the remote client. If one exists, the IP address is obtained and compared to the IP address of the remote node making the request. ◆ Check node name only—Searches the Connect:Direct Server adapter network map for an entry corresponding to the node name of the remote client. ◆ No (default)—Disables netmap validation.
Number of short-term session retry attempts	Valid value: Any number up through 9999. Default is 0. Required. Retry activity is logged (if logging enabled). For more information on retry processing, see Session Establishment and Process Recovery.	Specifies the maximum number of short-term attempts for creating a session with a Connect:Direct node or for re-establishing a session after a session failure during COPY processing (both CopyTo and CopyFrom). This setting can be overridden by the value specified for ShortTermMaxRetries in the Connect:Direct Server Begin Session service. **Note:** The counter for the number of short-term session retry attempts is reset to zero when a session is successfully reestablished.
Interval between short-term session attempts (seconds)	Valid value: Any number through 99999999. Default is 5. Required.	Specifies the amount of time, in seconds, to wait between short-term session establishment and re-establishment attempts. This setting can be overridden by the value specified for ShortTermRetryInterval in the Connect Direct Server Begin Session service. This parameter performs successive retries within a shorter period of time than is available with the Interval between session establishment attempts (minutes) settings.

Field	Value to Enter	Description
Number of long-term session retry attempts	Valid value: Any number up to 9999. Default is 0. Required. Retry activity is logged (if logging enabled).	Specifies the maximum number of long-term attempts for creating a session with a Connect:Direct node or for re-establishing a session after a session failure during COPY processing (both CopyTo and CopyFrom). This setting can be overridden by the value specified for BeginSessionMaxRetries in the Connect:Direct Server Begin Session service. **Note:** The counter for the number of long-term session retry attempts is reset to zero when a session is successfully reestablished.
Interval between long-term session attempts (minutes)	Any number through 99999999. Required. Default is 1.	Specifies the time, in minutes, to wait between long-term session establishment and re-establishment attempts. This setting can be overridden by the value specified for BeginSessionRetryInterval in the Connect Direct Server Begin Session service.
Encryption using Secure+	Select the default setting (Disabled) until you start using Secure+.	Whether Secure+ is enabled. Required. Valid values are Enabled and Disabled. Default is Disabled. Your Connect:Direct node must be licensed for Secure+ Option and the Secure+ Option must be installed on your system. In addition, you must have the required certificates for implementing Secure+. For information, see the Connect:Direct documentation for the platform you are using.
C:D Netmap Name	Select the netmap name you created in *Connect:Direct Netmaps* on page 14.	

5. On the Confirm page, review your configuration settings, select Enable Service for Business Processes and click Finish.

   This will complete the Connect:Direct Server adapter configuration and start the adapter.

Add Connect:Direct Server Adapter Node to Connect:Direct Netmap

On your Connect:Direct server, add the Sterling Integrator Connect:Direct Server adapter node information to your Connect:Direct netmap with the following settings. Other settings may be

required, and will vary according to the type of Connect:Direct environment. For more information on the values valid for your Connect:Direct platform, refer to your Connect:Direct documentation.

Parameter	Value
Node Name	The node name of the Sterling Integrator Connect:Direct Server adapter.
Operating System	The operating system for your Sterling Integrator system. Specify UNIX.
Host/IP Address	Host or IP address of your Sterling Integrator system
Port/Service	Port/Service of your Sterling Integrator Connect:Direct Server adapter

Create a Sterling Integrator Mailbox

When you copy a file from Connect:Direct to Sterling Integrator, you can copy to a Sterling Integrator mailbox. Mailboxes allow you to organize, store, and manage trading partner documents and transactions, by providing business document repositories. In addition, setting up mailboxes within Sterling Integrator can also facilitate how you stage and schedule data transmissions, making the storage and retrieval of files more transparent to all parties—senders and recipients alike.

After you have set up your mailboxes, see *Use Connect:Direct to Copy a File to a Sterling Integrator Mailbox* on page 23, for more information on how to write a Connect:Direct process to send information to a Sterling Integrator mailbox. To see examples involving copying files from a variety of Connect:Direct platforms to a Sterling Integrator mailbox, refer to *Sterling Integrator-Connect:Direct Server Adapter Examples* on the Connect:Direct Process Language Web Site. To see examples for retrieving and storing primary documents in a Sterling Integrator mailbox system, see *Use Sterling Integrator to Copy a File to a Connect:Direct for i5/OS Node* on page 118 and *Use Sterling Integrator to Copy a File from Connect:Direct* on page 120.

Using Virtual Roots in a Mailbox Hierarchy

As in most operating systems, such as Windows or UNIX, Sterling Integrator mailboxes support the concept of a root directory acting as the first or top-most directory in your mailbox hierarchy. In Sterling Integrator, mailboxes are visible to users as a relative path, while administrators see the mailbox as an absolute or full path. Virtual roots can be useful for maintaining and reorganizing a mailbox hierarchy without impacting users. By limiting visibility into the mailbox hierarchy, virtual roots can enhance the general security of your system.

When a virtual root is defined for a user account, Sterling Integrator automatically inserts the virtual root component into the target filename specification. For example, if the *JohnSmith* user account used *JohnSmith* as its virtual root (for example, /*JohnSmith*), Sterling Integrator would automatically insert /*JohnSmith* into the target filename. Then, if the document, *sample.txt*, was

being sent to *JohnSmith,* the Connect:Direct Server adapter would process /mailbox/*sample.txt* as if it were specified /mailbox/*JohnSmith*/*sample.txt*.

Conversely, if you do not define a virtual root for a user account, documents sent to the user account are stored in the one and only mailbox directory, provided the user has adequate permission. For example, if the *JohnSmith* user account did not have a virtual root defined for it, the *sample.txt* document would be stored in the "root" of the mailbox as /mailbox/*sample.txt*.

Setting Up a Mailbox

> **Note:** You do not create a virtual root for your mailbox in this simple procedure. To set up a mailbox hierarchy using virtual roots, refer to the Sterling Integrator online documentation.

Use the following procedure to create and configure the Sterling Integrator mailbox:

1. Log in to Sterling Integrator.
2. From the Deployment menu, select Mailboxes > Configuration.
3. On the Mailbox Configuration page, click Go! in the Create a new Mailbox pane.
4. On the Mailbox Name page, highlight the forward-slash in the Select pane.

> **Note:** If you are required to specify a virtual root for your mailbox, highlight the mailbox or mailbox path in the Select pane for your virtual root.

5. In the Name box, type the name of your mailbox.
6. In the Description box, type a short description for your mailbox and click Next.
7. On the Assign Groups page, click Next.
8. On the Assign Users page, select your Sterling Integrator User ID in the Available Users pane and click the right-arrow to move your User ID to the Selected Users pane.
9. Click Next.
10. On the Confirm page, click Finish to create your mailbox.

Use Connect:Direct to Copy a File to a Sterling Integrator Mailbox

Use Connect:Direct to Copy a File to a Sterling Integrator Mailbox

This chapter describes how to copy a file from a Connect:Direct server (PNODE) to a Sterling Integrator Connect:Direct Server adapter (SNODE). The Connect:Direct Server adapter passes this file to a Sterling Integrator Mailbox.

Optionally, you can set up a mailbox rule so that a document copied to a mailbox triggers a Sterling Integrator business process. For more information about mailbox rules, refer to the Sterling Integrator documentation library.
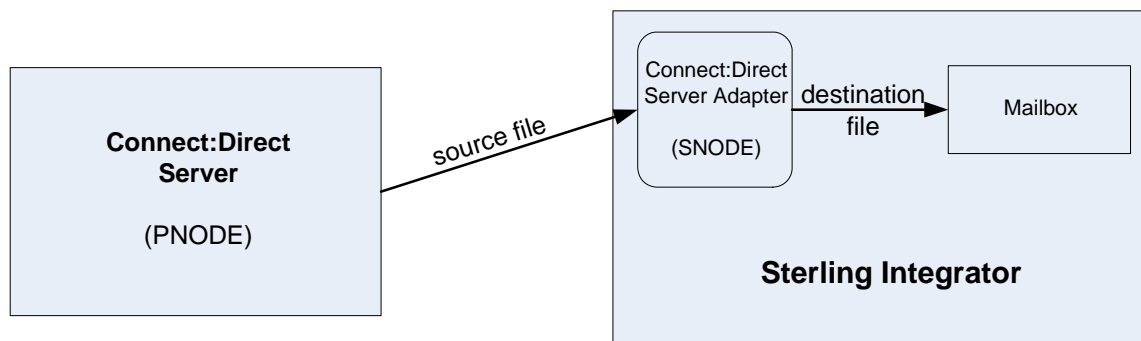
Use the following workflow to copy a file from a Connect:Direct server to a Sterling Integrator mailbox:

✦ *Create Your Connect:Direct Process* on page 24

✦ *Submit and Monitor Your Connect:Direct Process* on page 24

Create Your Connect:Direct Process

Create a Process for your Connect:Direct platform similar to the following example.

Note: It is assumed that you have already set up the Sterling Integrator mailbox to which the destination file is being copied. For more information, see *Create a Sterling Integrator Mailbox* on page 20.

```
COPY2MB PROCESS
  SNODE=yourCDSANode
  SNODEID=(yourUserID,yourPassword)

STEP1 COPY
  FROM (
  FILE=yourSourceFile
  )
  TO (
  FILE=/mailbox/yourMailbox/targetdocName
  DISP=RPL
  )

PEND
```

This Connect:Direct process copies *yourSourceFile* from your Connect:Direct server to the Sterling Integrator Connect:Direct Server adapter, *yourCDSANode*, which passes the file in the Sterling Integrator mailbox, *yourMailbox*. The SNODEID, *yourUserID*, is your Sterling Integrator User ID. There are three parts to the destination FILE name in this Copy step:

✦   /mailbox/ is a reserved word and signals to Sterling Integrator that you are copying to a Mailbox.

✦   *yourMailbox* includes the name of your Sterling Integrator Mailbox.

✦   *targetdocName* is the document that is passed to your mailbox by the Connect:Direct Server adapter. This document is stored in the mailbox. This document can be retrieved by an FTP client, business process or another Connect:Direct process.

Note: Refer to *Sterling Integrator-Connect:Direct Server Adapter Examples* on the Connect:Direct Process Language Web Site to see several examples involving transferring files from a variety of Connect:Direct platforms to a Sterling Integrator mailbox.

Submit and Monitor Your Connect:Direct Process

Submit the Connect:Direct process.

Monitor with Connect:Direct

You can use Connect:Direct Select Statistics to monitor your Connect:Direct to Sterling Integrator processes.

If the Connect:Direct process is successful, the Select Statistics detail will report the following:

Attribute	Value
Message ID	SCPA000I
Message Text	Copy operation successful
Destination File	/mailbox/*yourMailbox*/*targetdocName*

If the Connect:Direct process is not successful, refer to *Troubleshooting* on page 161.

View the Mailbox Document in Sterling Integrator

You can view *targetdocName* in your mailbox with Sterling Integrator.

Use the following procedure to view your mailbox document with Sterling Integrator:

1. From the Deployment menu, select Mailboxes > Messages.

2. On the Message Management page, select Filter by Name to display the Available Mailboxes pane.

3. In the Available Mailboxes pane, scroll down and highlight /*yourMailbox* and click the down-arrow to move /*yourMailbox* to the Selected Mailboxes pane.

4. Click Go! to display the search results.

    Information about the *targetdocName* document is displayed, including Document ID, Created date, Size, Mailbox, Extract Policy, Policy Value, and whether this document is locked by a business process.

    In this example, *targetdocName* has an Extraction Policy of Extractable. This means that users can extract this document from /*yourMailbox* an unlimited number of times with no expiration date and time. You can change the extraction policy for *targetdocName* by clicking on the Edit link. If you need to change the extraction policy for documents you copy to mailboxes using Connect:Direct, edit your Connect:Direct Server adapter configuration for Extractability.

Note: You can also monitor your Connect:Direct process from the Business Process menu by navigating to Monitor > Advanced Search > Documents or Monitor > Advanced Search > Communication Sessions.

Use Connect:Direct to Copy a File to a Sterling Integrator Business Process

Use Connect:Direct to Copy a File to a Sterling Integrator Business Process

This chapter describes how to use Connect:Direct to copy a file to Sterling Integrator. In this scenario, the Connect:Direct server is the PNODE and the Sterling Integrator Connect:Direct Server adapter is the SNODE. The Connect:Direct Server adapter receives the file and passes it to a business process.
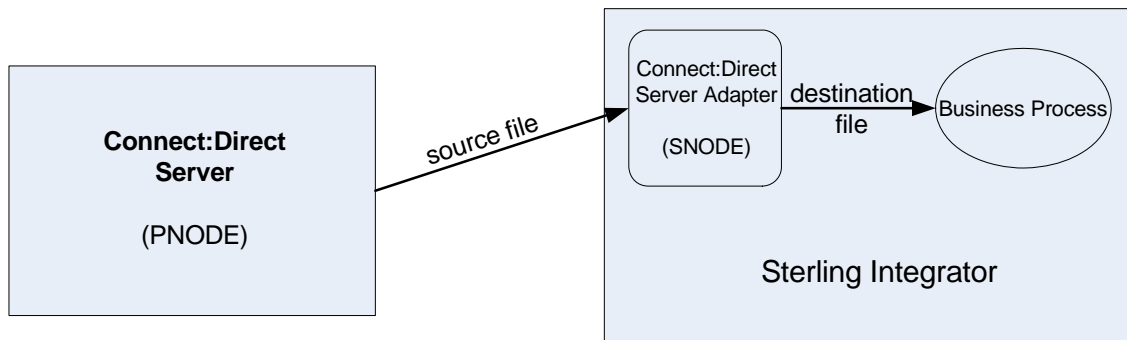
Use the following workflow to copy a file from Connect:Direct to a Sterling Integrator business process:

✦ *Create a Sterling Integrator Business Process* on page 28

✦ *Check Your Business Process into Sterling Integrator* on page 29

✦ *Create Your Connect:Direct Process* on page 30

✦ *Submit and Monitor Your Connect:Direct Process* on page 31

Create a Sterling Integrator Business Process

When you copy a file from Connect:Direct to Sterling Integrator, you must copy to a Sterling Integrator business process or mailbox. In this scenario, you are copying a document to a business process. This business process contains a service that provides information about the source file.

Use the Sterling Integrator Graphical Process Modeler to create and modify business processes. Individual services and adapters are represented by icons in the Modeler.

Use the following procedure to create the Sterling Integrator business process:

1. Log in to Sterling Integrator and launch the Graphical Process Modeler from the Home screen.

2. Enter your Sterling Integrator User ID and password in the Log In dialog box.

3. From the View menu, select Stencil > BPML. This will add the BPML stencil to the GPM.

   The BPML stencil contains BPML icons to use in your business processes.

4. From the View menu, select Stencil > Sync Mode. This will add the Sync Mode stencil to the GPM.

   The Sync Mode stencil contains an icon you will need in your business processes.

5. From the File menu, select New to open a new business process.

6. Drag and drop the following icons from the BPML and Sync Mode stencils into the Business Process window in the following order, from left to right:

   ◆ Start

   ◆ Get Document Information Service

   ◆ End

7. To link the icons:

   a. Click the arrow on the right side of the Start icon and drag it to the arrow on the left side of the Get Document Information Service icon.

   b. Click the arrow on the right side of the Get Document Information Service icon and drag it to the arrow on the left side of the End icon.

All business processes begin with a Start icon and end with an End icon. In this business process, the Get Documentation Information Service provides information about the primary document.

8. Configure the Get Document Information Service using the following procedure:

   a. Double-click the Get Document Information Service icon. This opens the Service Editor window.

   b. In the Service Editor-Get Documentation Information Service window, select GetDocumentInfoService from the Config drop-down list.

In this step you specify the pre-defined GetDocumentInfoService configuration for the Get Document Information Service. You can override configuration values in the Service Editor.

9. From the File menu, select Save. In the Validate dialog box, click Yes to validate the business process.

10. On the Save dialog box, type the business process file name in the File Name box and click Save.

   Remember where you save this file.

Note: To see a sample business process, refer to *Use Connect:Direct to Copy a File to Sterling Integrator* on page 106.

Check Your Business Process into Sterling Integrator

Use the following procedure to check the business process into Sterling Integrator:

1. Log in to Sterling Integrator.

2. From the Business Process menu, select Manager.

3. On the Business Process Manager page, in the Create Process Definition pane, click Go!.

4. Type the name of your business process in the Name box.

5. Under Select an input mode for defining the new process, select Check in Business Process created by the graphical modeling tool and click Next.

6. On the Check-in page, click Browse and navigate to the business process file name that you saved in step 10 of the previous procedure.

7. Type a short description for your business process in the Description box and click Next.

8. On the Process Levels page, select the Set onfault processing check box.

9. Set the Persistence Level to Full.

10. Set the Event Reporting Level to Full and click Next.

11. On the Deadline Settings page, click Next.

12. On the Life Span page, click Next.

13. On the Confirm page, select the Enable Business Process box.

14. Select the Create Permission box.

    This adds the business process to the list of Sterling Integrator security permissions. This makes it possible to assign permission for this business process to the user account.

15. Click Finish.

Note: The Sterling Integrator administrator must assign your Sterling Integrator User ID permission to run this business process.

Create Your Connect:Direct Process

Create a Process for your Connect:Direct platform similar to the following example.

```
COPY2SI PROCESS
  SNODE=yourCDSANode
  SNODEID=(yourUserID,yourPassword)

STEP1 COPY
  FROM (
  FILE=yourSourceFile
  )
  TO (
  FILE=/businessprocess/yourBusinessProcess/targetdocName
  DISP=RPL
  )

PEND
```

This Connect:Direct process copies *yourSourceFile* from your Connect:Direct server to the Sterling Integrator Connect:Direct Server adapter, *yourCDSANode*, which invokes the business process, *yourBusinessProcess*. The SNODEID, *yourUserID*, is your Sterling Integrator User ID. There are three parts to the destination FILE name in this Copy step:

✦ /businessprocess/ is a reserved word and signals to Sterling Integrator that you are copying to a business process.

✦ *yourBusinessProcess* is the name of the Sterling Integrator business process that the Connect:Direct Server adapter invokes.

✦ *targetdocName* is the name of the document that is passed to the business process by the Connect:Direct Server adapter. This document becomes the Primary Document in the *yourBusinessProcess* business process. The primary document is the document that the services in a business process act on or in relation to; this is usually the document passed to a business process by the initiating adapter.

Sterling Integrator uses a unique document ID to reference and track documents as they flow through the application. The document ID is assigned by Sterling Integrator. The business process may reference a document by the document name or the document ID, depending on the design of the business process.

Submit and Monitor Your Connect:Direct Process

Submit the Connect:Direct process.

Monitor with Connect:Direct

You can use the Connect:Direct Select Statistics to monitor your Connect:Direct to Sterling Integrator processes.

If the Connect:Direct process is successful, the Select Statistics detail will report the following:

Attribute	Value
Message ID	SCPA000I
Message Text	Copy operation successful
Destination File	/businessprocess/*yourBusinessProcess*/*targetdocName*

If the Connect:Direct process is not successful, refer to *Troubleshooting* on page 161.

Monitor with Sterling Integrator

You can also use Sterling Integrator to monitor your Connect:Direct to Sterling Integrator processes.

Use the following procedure to monitor your Connect:Direct process with Sterling Integrator:

1. From the Business Process menu, select Monitor > Advanced Search > Business Processes.

2. In the Search Using Business Process Name pane, select *yourBusinessProcess* in the Business Processes list and click Go!.

The Monitor page displays the following information:

Label	Description
Status	Status of the business process—a green traffic light signals a successful execution
ID	The business process ID number
Name	The business process name
State	The current state of the business process

If the Status indicates unsuccessful execution, refer to *Troubleshooting* on page 161.

3. Click the ID number to see details about the business process execution.

The Business Process Detail page displays the following information:

Label	Description
Step	The business process step number
Service	The Sterling Integrator service name used in the step
Status	The status of the step
Advanced Status	Additional status information
Started	The time and date the step started
Ended	The time and date the step ended
Status Report	A link to the status report for the step
Document	A link to documents in use by the step
Instance Data	A link to process data for the step

4. Click the Document info link for Step 1, GetDocumentInfo service.

   The PrimaryDocument page displays the contents of the Primary Document, *targetdocName*.

5. Close the PrimaryDocument page.

6. From the Business Process Detail page, click the Instance Data info link for Step 1, GetDocumentInfo service.

The Process Data page displays process data for the business process. The data is presented in XML format as shown:

```
<?xml version="1.0" encoding="UTF-8"?>
<ProcessData>
  <PrimaryDocument SCIObjectID="oxnard:node1:11efefe9db6:26492407"/>
  <CDServerNodeData>
    <RemoteFileName>C:\source.txt</RemoteFileName>
    <PnodeName>CDWIN</PnodeName>
    <LocalFileName>/businessprocess/ReceiveFromCD/dest.txt</LocalFileName>
    <SnodeName>SI51CD</SnodeName>
  </CDServerNodeData>
  <BodyName>dest.txt</BodyName>
  <BodyLength>5</BodyLength>
  <DocumentBodyLength>5</DocumentBodyLength>
  <DocumentLength>5</DocumentLength>
  <DocumentName>dest.txt</DocumentName>
  <DocumentId>oxnard:node1:11efefe9db6:26492400</DocumentId>
...
</ProcessData>
```

In this example, the Get Document Information Service puts information about the Primary Document, such as the BodyName and BodyLength, into process data.

Note: You can also monitor your business processes from the Business Process menu by navigating to Monitor > Advanced Search > Documents or Monitor > Advanced Search > Communication Sessions.

Use Connect:Direct to Pull a File from Sterling Integrator

Use Connect:Direct to Pull a File from Sterling Integrator

This chapter describes how to pull a file from a Sterling Integrator Connect:Direct Server adapter (SNODE) using the Connect:Direct node (PNODE). The Connect:Direct node connects to the Sterling Integrator Connect:Direct Server adapter which invokes a business process. This business process passes a document back to the Connect:Direct Server adapter which sends the file back to the Connect:Direct node.
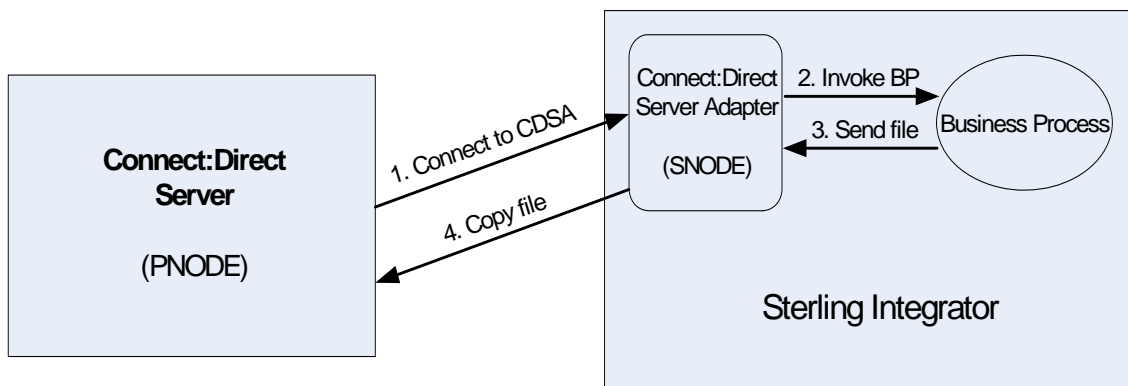
Use the following workflow to pull a file from Sterling Integrator to a Connect:Direct server:

✦ *Configure a File System Adapter* on page 36

✦ *Create a Sterling Integrator Business Process* on page 38

✦ *Check Your Business Process into Sterling Integrator* on page 40

✦ *Create Your Connect:Direct Process* on page 41

✦ *Submit and Monitor Your Connect:Direct Process* on page 41

Configure a File System Adapter

Use the File System Adapter within a Sterling Integrator business process to collect a file from the Sterling Integrator file system. Use the following procedure to create the directory and file for the File System Adapter:

1. Create a collection directory on the Sterling Integrator file system.
2. Create a source file in the collection directory.
3. Add the some text to the file so that you can verify that Connect:Direct pulls the correct file.
4. Create an extraction directory on the Sterling Integrator file system.

    An extraction directory is required to configure a File System Adapter configuration, but it is not used to extract files in this example.

Before you can use the File System Adapter in a business process, create a configuration of the adapter in Sterling Integrator. Use the following procedure to configure a File System Adapter:

1. Log in to Sterling Integrator and navigate to Deployment > Services > Configuration.
2. On the Services Configuration page, click Go! in the Create New Service pane.
3. In the Service Type box, type File System Adapter and click Next.

Field	Value to Enter	Description
Name	Type a unique name for the File System Adapter service configuration.	Required.
Description	Type a meaningful description for the File System Adapter service configuration.	Required.
Collection folder	Specify the collection folder you created above.	The name of the folder or subfolder on the same computer where Application is installed and where it collects (or picks up) files as part of a business process. If the path of the folder is not included as part of the name, the folder is assumed to be in the Application working directory.

Connect:Direct Server Adapter User Guide

Field	Value to Enter	Description
Filename filter	Specify the filter to match the file you created in the collection folder above.	Collect only files that match a specified filter within the collection folder. Optional. Examples include: ◆ *.txt (collects only .txt files) ◆ *.dat (collects only .dat files) ◆ EDI.* (collects only files named EDI with any file extension) ◆ EDI.txt (collects only files named EDI with a file extension of .txt) **Note:** If there are multiple files in the collection folder and you leave this field blank, one of the following occurs: ◆ If the adapter is configured to start a business process, it processes all files in the collection folder. ◆ If the adapter is within a business process, it collects only the first file in the folder.
Collect files from subfolders within and including the collection folder?	Select No for this scenario so that the File System Adapter does not collect files from subfolders of the collection folder.	Whether to scan for files in subfolders of the collection folder. Required. Valid values: Yes—Collects files in the specified folder and all subfolders. No—Collects files in the specified folder only.
User absolute file path name for the document name?	Select No for this scenario so that the document name does not include the path name.	Whether to keep the absolute path name of the files collected when assigning the document name. Required. Valid values: Yes—The absolute file path name is kept with the document in the business process. Choose this value if your business process requires the path information to precede the file name. No—Only the file name is kept with the document in the business process.
Start a business process once files are collected?	Select No for this scenario. Since you use the File System Adapter within a business process, there is no need to start another business process.	Whether to start a business process using the File System adapter after files are collected. Required. Valid values: Yes—Starts the business process specified from the business process drop-down list. No—No business process will be started.
Extraction folder	Select No for this scenario. The File System Adapter collects a file, but does not write (extract) a file in this scenario.	The name of the folder or subfolder on the same computer where Application is installed and where it installs (or writes) data from the primary document as part of a business process. If you do not include the file path for the folder as part of the name, the folder is assumed to be in the Application working directory. Required.

4. Click Finish to save the configuration.

Create a Sterling Integrator Business Process

When you use Connect:Direct to pull a file from Sterling Integrator, you invoke a Sterling Integrator business process. This business process contains a CD Server BP Response Service that sends the primary document back to Connect:Direct.

In this example, the business process uses a File System adapter to collect a file from the Sterling Integrator file System. This file becomes the primary document in the business process. The CD Server BP Response Service then sends the primary document to the Connect:Direct node via the Connect:Direct Server adapter.

Use the following procedure to create the Sterling Integrator business process:

1. Log in to Sterling Integrator and launch the Graphical Process Modeler from the Home screen.

2. Enter your Sterling Integrator User ID and password in the Log In dialog box.

3. If the BPML stencil is not visible in the GPM, navigate to the View menu and select Stencil > BPML.

    This will add the BPML stencil to the GPM.

4. If the Sync Mode stencil is not visible in the GPM, navigate to the View menu and select Stencil > Sync Mode.

    This will add the Sync Mode stencil to the GPM.

5. From the View menu, select Stencil > Applications > Sterling Commerce > Connect:Direct.

    This will add the Connect:Direct stencil to the GPM. The Connect:Direct stencil contains an icon you will need in your business processes.

6. From the File menu, select New to open a new business process.

7. Drag and drop the following icons from the BPML, Sync Mode, and Connect:Direct stencils into the Business Process window in the following order, from left to right:

    ◆ Start

    ◆ File System Adapter

    ◆ CD Server BP Response Service

    ◆ End

8. To link the icons:

    a. Click the arrow on the right side of the Start icon and drag it to the arrow on the left side of the File System Adapter icon.

    b. Click the arrow on the right side of the File System Adapter icon and drag it to the arrow on the left side of the CD Server BP Response Service icon.

   c.   Click the arrow on the right side of the CD Server BP Response Service icon and drag it to the arrow on the left side of the End icon.
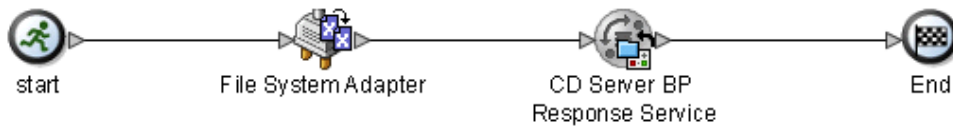
9. Configure the File System Adapter using the following procedure:

   a.   Double-click the File System Adapter icon.

   b.   In the Service Editor-File System Adapter window, select your File System Adapter configuration from the Config drop-down list. The Message To Service tab is displayed.

       In this step you specify the configuration that you created for the File System Adapter. You can override configuration values in the Service Editor.

   c.   On the Message to Service tab, select Collection as the Value for Action.

       This causes the File System Adapter to collect files from the collection folder.

   d.   Select No as the Value for deleteAfterCollect.

       If deleteAfterCollect is set to Yes, the File System Adapter deletes the files in the collection folder after it collects them. When you are testing this business process, keep this value set to No so that you don't have to replace the source file after each test run.

10. Configure the CD Server BP Response Service using the following procedure:

    a. Double-click the CD Server BP Response Service icon.

       This opens the Service Editor window.

    b. In the Service Editor-CD Server BP Response Service window, select CDServerBPResponse from the Config drop-down list.

       In this step you specify the pre-defined CDServerBPResponse configuration for the CD Server BP Response Service. You can override configuration values in the Service Editor.

11. From the File menu, select Save. In the Validate dialog box, click Yes to validate the business process.

12. On the Save dialog box, type the name of your business process in the File Name box and click Save.

    Remember where you save this file.

Note: To see a sample business process, refer to *Use Connect:Direct to Retrieve a File from Sterling Integrator* on page 107.

Check Your Business Process into Sterling Integrator

Use the following procedure to check the business process into Sterling Integrator:

1. Log in to Sterling Integrator.

2. From the Business Process menu, select Manager.

3. On the Business Process Manager page, in the Create Process Definition pane, click Go!.

4. Type your business process name in the Name box.

5. Under Select an input mode for defining the new process, select Check in Business Process created by the graphical modeling tool and click Next.

6. On the Check-in page, click Browse and navigate to the business process file that you saved in step 12 of the previous procedure.

7. Type a short description of the business process in the Description box and click Next.

8. On the Process Levels page, select the Set onfault processing check box.

9. Set the Persistence Level to Full.

10. Set the Event Reporting Level to Full and click Next.

11. On the Deadline Settings page, click Next.

12. On the Life Span page, click Next.

13. On the Confirm page, select the Enable Business Process box.

14. Select the Create Permission box.

    This adds the business process to the list of Sterling Integrator security permissions. This makes it possible to assign permission for this business process to the user account.

15. Click Finish.

Create Your Connect:Direct Process

Create a Process for your Connect:Direct platform similar to the following example.

```
PULLFILE PROCESS
  SNODE=yourCDSANode
  SNODEID=(yourUserID,yourPassword)

STEP1 COPY
  FROM (
  FILE=/businessprocess/yourBusinessProcess/yourSourceFile
  SNODE
  )
  TO (
  FILE=targetdocName
  PNODE
  DISP=RPL
  )

PEND
```

This Connect:Direct process retrieves *yourSourceFile* from the Sterling Integrator Connect:Direct Server adapter which receives the file from your business process. There are three parts to the FROM FILE name in the Copy step:

✦ /businessprocess/ is a reserved word and signals to Sterling Integrator that you are invoking a business process.

✦ *yourBusinessProcess* is the name of the Sterling Integrator business process that the Connect:Direct Server adapter invokes.

✦ *targetdocName* is the name of the document that is passed from the Sterling Integrator Connect:Direct Server adapter to your Connect:Direct node. This document is the Primary Document in your business process.

Submit and Monitor Your Connect:Direct Process

Submit the Connect:Direct process.

Monitor with Connect:Direct

You can use the Connect:Direct Select Statistics to monitor your Connect:Direct to Sterling Integrator processes.

If the Connect:Direct process is successful, the Select Statistics detail will report the following:

Attribute	Value
Message ID	SCPA000I
Message Text	Copy operation successful
Source File	/businessprocess/*yourBusinessProcess*/*yourSourceFile*

Attribute	Value
Destination File	*<default download directory>\targetdocName*

If the Connect:Direct process is not successful, refer to *Troubleshooting* on page 161.

Monitor with Sterling Integrator

Use the following procedure to monitor your Connect:Direct process with Sterling Integrator:

1. From the Business Process menu, select Monitor > Advanced Search > Business Processes.

2. In the Search Using Business Process Name pane, select your business process in the Business Processes list and click Go!.

   The Monitor page displays the following information:

Label	Description
Status	Status of the business process—a green traffic light signals a successful execution
ID	The business process ID number
Name	The business process name
State	The current state of the business process

   If the Status indicates unsuccessful execution, refer to *Troubleshooting* on page 161.

3. Click the ID number to see details about the business process execution.

   The Business Process Detail page displays the following information:

Label	Description
Step	The business process step number
Service	The Sterling Integrator service name used in the step
Status	The status of the step
Advanced Status	Additional status information
Started	The time and date the step started
Ended	The time and date the step ended
Status Report	A link to the status report for the step
Document	A link to documents in use by the step
Instance Data	A link to process data for the step

4. Click the Document info link for the Connect:Direct Server Response Service.

    The PrimaryDocument page displays the contents of the primary document.

5. Close the PrimaryDocument page.

Note: You can also monitor your business processes from the Business Process menu by navigating to Monitor > Advanced Search > Documents or Monitor > Advanced Search > Communication Sessions.

Use Sterling Integrator to Copy a File to Connect:Direct

Use Sterling Integrator to Copy a File to Connect:Direct

This chapter describes how to copy a file from Sterling Integrator to Connect:Direct. The Sterling Integrator business process passes a document to the Connect:Direct Server adapter (PNODE) which copies the file to the Connect:Direct node (SNODE). The business process functions much like a Connect:Direct process.
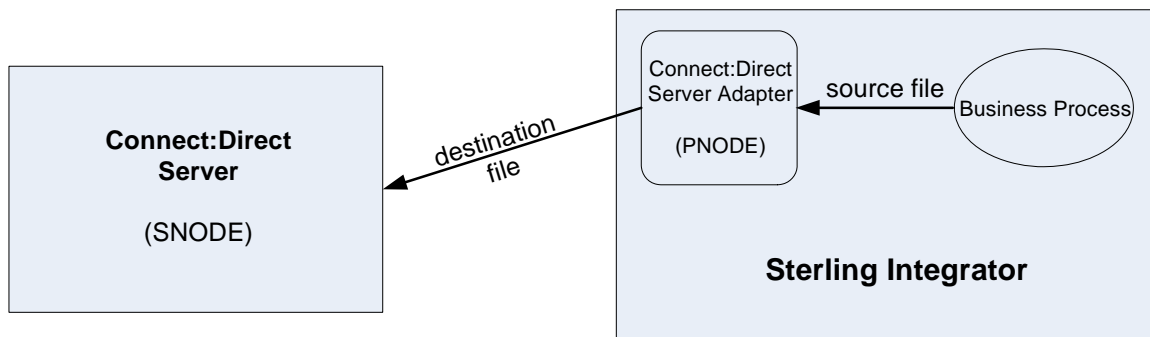
Use the following workflow to copy a file from Sterling Integrator to a Connect:Direct server:

✦ *Create a Sterling Integrator Business Process* on page 45

✦ *Check Your Business Process into Sterling Integrator* on page 49

✦ *Submit and Monitor Your Sterling Integrator Business Process* on page 50

Create a Sterling Integrator Business Process

When you use Sterling Integrator to copy a file to Connect:Direct, you execute a Sterling Integrator business process that contains Connect:Direct Server adapter services to send the primary document to Connect:Direct.

Use the following procedure to create the Sterling Integrator business process:

1. Log in to Sterling Integrator and launch the Graphical Process Modeler from the Home screen.

2. Enter your Sterling Integrator User ID and password in the Log In dialog box.

3. If the BPML stencil is not visible in the GPM, navigate to the View menu and select Stencil > BPML.

   This will add the BPML stencil to the GPM.

4. From the View menu, select Stencil > Applications > Sterling Commerce > Connect:Direct.

   This will add the Connect:Direct stencil to the GPM.

5. From the File menu, select New to open a new business process.

6. Drag and drop the following icons from the BPML and Connect:Direct stencils into the Business Process window in the following order, from left to right:

   ◆ Start

   ◆ CD Server Begin Session Service

   ◆ CD Server CopyTo Service

   ◆ CD Server End Session Service

   ◆ End

7. To link the icons:

   a. Click the arrow on the right side of the Start icon and drag it to the arrow on the left side of the CD Server Begin Session Service icon.

   b. Click the arrow on the right side of the CD Server Begin Session Service icon and drag it to the arrow on the left side of the CD Server CopyTo Service icon.

   c. Click the arrow on the right side of the CD Server CopyTo Service icon and drag it to the arrow on the left side of the CD Server End Session Service icon.

   d. Click the arrow on the right side of the CD Server End Session Service icon and drag it to the arrow on the left side of the End icon.

8. Configure the CD Server Begin Session Service using the following procedure:

   a. Double-click the CD Server Begin Session Service icon.

      The CD Server Begin Session Service functions like the Connect:Direct Process statement. It initiates a session on a specified remote Connect:Direct node.

b. In the Service Editor-CD Server Begin Session Service window, select CDServerBeginSession from the Config drop-down list. The Message To Service tab is displayed.

In this step you specify the pre-defined CDServerBeginSession configuration for the CD Server Begin Session Service. You can override configuration values in the Service Editor.

c. Select your Connect:Direct Server adapter node name as the Value for LocalCDNodeName.

d. Type the remote Connect:Direct node name as the Value for RemoteCDNodeName.

e. Type the Connect:Direct User ID as the Value for RemoteUserId.

Note: You must add the Connect:Direct User ID to your Connect:Direct User Authorities.

---

f. Type the password for the Connect:Direct User ID as the Value for RemotePasswd.

g. Select No as the Value for UsingObscuredPasswd.

9. Click the Message From Service tab.

10. Select Allow message write for Input Msg.

11. Click Add and add the following information to the new record:

   ◆ In the Name box, type BeginSessionResults.

   ◆ In the Value field, type *.

◆ Select the Use XPATH? check box.

12. Configure the CD Server CopyTo Service using the following procedure:

   a. Double-click the CD Server CopyTo Service icon. This opens the Service Editor window.

       The CD Server CopyTo Service functions like the Connect:Direct Copy statement. It copies a file from the PNODE to the SNODE.

   b. In the Service Editor-CD Server CopyTo Service window, select CDServerCopyTo from the Config drop-down list.

       In this step you specify the pre-defined CDServerCopyTo configuration to use for the CD Server CopyTo Service. You can override configuration values in the Service Editor.

       > **Note:** To see all parameters available in the CopyTo service, see *Settings for Connect:Direct Server CopyTo Service* on page 137.

   c. Type rpl as the Value for RemoteDISP.

       This is equivalent to DISP=RPL in a Connect:Direct Copy statement.

   d. Type the destination file name as the Value for RemoteFileName.

   e. Type //BeginSessionResults/SessionToken/node() as the Value for SessionToken and select the Use XPATH? box.

       The Session Token is created by the CD Server Begin Session Service and identifies the session that is established with the remote Connect:Direct node. The SessionToken value in the CD Server CopyTo Service ensures that this service copies the file using the session initiated by the CD Server Begin Session Service.

13. Configure the CD Server End Session Service using the following procedure:

   a. Double-click the CD Server End Session Service icon.

       The CD Server End Session Service functions like the Connect:Direct End statement. It terminates the session with the remote Connect:Direct node. If the CD Server End Session does not execute, the session remains open.

b. In the Service Editor-CD Server End Session Service window, select
    CDServerEndSession from the Config drop-down list.

    In this step you specify the pre-defined CDServerEndSession configuration to use for the
    CD Server End Session Service. You can override configuration values in the Service
    Editor.

c. Type //BeginSessionResults/SessionToken/node() as the Value for SessionToken and
    select the Use XPATH? box.

    The SessionToken value in the CD Server End Session Service ensures that this service
    closes the session initiated by the CD Server Begin Session Service.

14. From the File menu, select Save. In the Validate dialog box, click Yes to validate the business
    process.

15. On the Save dialog box, type your business process file name in the File Name box and click
    Save.

    Remember where you save this file.

Note: *Sample Business Processes* on page 105, contains the following examples involving the basic
scenario of copying a file to a remote Connect:Direct server from Sterling Integrator:

Check Your Business Process into Sterling Integrator

Use the following procedure to check your business process into Sterling Integrator:

1. Log in to Sterling Integrator.

2. From the Business Process menu, select Manager.

3. On the Business Process Manager page, in the Create Process Definition pane, click Go!.

4. Type your business process name in the Name box.

5. Under Select an input mode for defining the new process, select Check in Business Process
    created by the graphical modeling tool and click Next.

6. On the Check-in page, click Browse and navigate to your business process file that you saved
    in step 15 of the previous procedure.

7. Type a short description of your business process in the Description box and click Next.

8. On the Process Levels page, select the Set onfault processing check box.

9. Set the Persistence Level to Full.

10. Set the Event Reporting Level to Full.

11. Set the Recovery Level to Auto Resume and click Next.

If Sterling Integrator stops responding during a copy transaction and the recovery level is set to Auto Resume, the business process resumes automatically at the next Sterling Integrator start up.

12. On the Deadline Settings page, click Next.

13. On the Life Span page, click Next.

14. On the Confirm page, select the Enable Business Process box.

15. Click Finish.

Submit and Monitor Your Sterling Integrator Business Process

Use the following procedure to submit your Sterling Integrator business process:

1. Log in to Sterling Integrator.

2. From the Business Process menu, select Manager.

3. In the Search pane, type your business process name in the Process Name box and click Go!.

4. On the Business Process Manager page, click Execution Manager.

5. On the Execution Manager page, click Execute to launch the Execute Business Process Input dialog box.

6. Click Browse and navigate to your source file on your local system and click Open.

    This is the file that the business process will copy to the Connect:Direct server.

7. Click Go! to submit the business process.

    The Execute Business Process page is displayed.

8. Close the Execute Business Process page.

Monitor with Sterling Integrator

Use the following procedure to monitor your business process with Sterling Integrator:

1. From the Business Process menu, select Monitor > Advanced Search > Business Processes.

2. In the Search Using Business Process Name pane, select your business process name in the Business Processes list and click Go!.

   The Monitor page displays the following information:

Label	Description
Status	Status of the business process—a green traffic light signals a successful execution
ID	The business process ID number
Name	The business process name
State	The current state of the business process

   If the Status indicates unsuccessful execution, refer to *Troubleshooting* on page 161.

3. Click the ID number to see details about the business process execution.

   The Business Process Detail page displays the following information for each step:

Label	Description
Step	The business process step number
Service	The Sterling Integrator service name used in the step
Status	The status of the step
Advanced Status	Additional status information
Started	The time and date the step started
Ended	The time and date the step ended
Status Report	A link to the status report for the step
Document	A link to documents in use by the step
Instance Data	A link to process data for the step

4. Click the Status Report link for the Connect:Direct Server Primitive CopyTo Service.

   The Status Report displays a short summary of the CopyTo operation including the destination file name and number of bytes copied.

5. Click the Document info link for the Connect:Direct Server Primitive CopyTo Service.

   The PrimaryDocument page displays the contents of the Primary Document.

6. Close the PrimaryDocument page.

7. From the Business Process Detail page, click the Instance Data info link for the Connect:Direct Server Primitive CopyTo Service.

    The Process Data page displays process data for the business process. The data is presented in XML format and contains several fields and values, such as:

    ◆   Remote Node—node name of the remote Connect:Direct server

    ◆   Remote User—Connect:Direct User ID

    ◆   Remote File Name—your destination file

8. The last step in the Business process Detail page is the CD Server End Session Service. The Status indicates that it successfully terminates the Connect:Direct session.

Note: You can also monitor your business processes from the Business Processes menu by navigating to Monitor > Advanced Search > Documents or Monitor > Advanced Search > Communication Sessions.

Monitor with Connect:Direct

You can use the Connect:Direct Select Statistics to monitor your Sterling Integrator to Connect:Direct business process.

If the Connect:Direct process is successful, the Select Statistics detail will report the following:

Attribute	Value
Message ID	SCPA000I
Message Text	Copy operation successful
Destination File	*<default download directory>\<your destination file>*

If the Connect:Direct process is not successful, refer to *Troubleshooting* on page 161.

Use Sterling Integrator to Copy a File from Connect:Direct

Use Sterling Integrator to Copy a File from Connect:Direct

This chapter describes how to use Sterling Integrator to copy a file from Connect:Direct. The Sterling Integrator business process invokes the Connect:Direct Server adapter (PNODE) which copies the file from the Connect:Direct node (SNODE) and passes it back to the business process. The business process functions much like a Connect:Direct process.
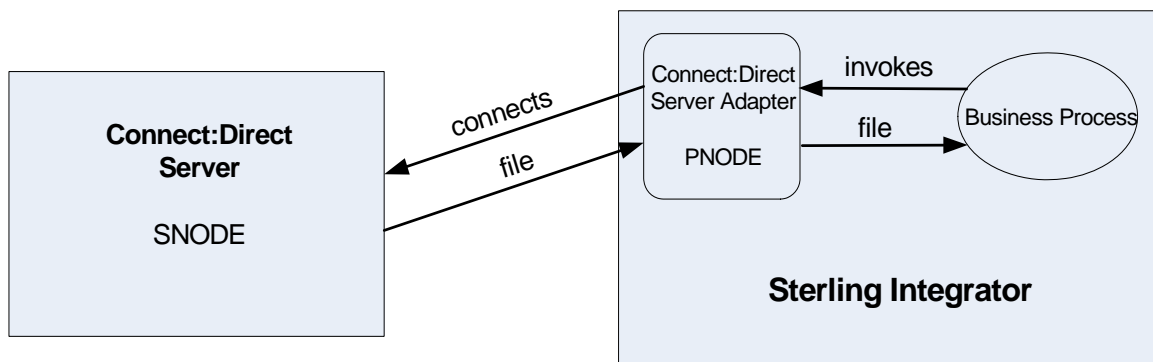
Use the following workflow to copy a file from Sterling Integrator to a Connect:Direct server:

✦ *Create a Sterling Integrator Business Process* on page 53

✦ *Check Your Business Process into Sterling Integrator* on page 57

✦ *Submit and Monitor Your Sterling Integrator Business Process* on page 58

Create a Sterling Integrator Business Process

When you use Sterling Integrator to copy a file from Connect:Direct, you execute a Sterling Integrator business process that contains Connect:Direct Server adapter services to copy the file from Connect:Direct.

Use the following procedure to create the Sterling Integrator business process:

1. Log in to Sterling Integrator and launch the Graphical Process Modeler from the Home screen.

2. Enter your Sterling Integrator User ID and password in the Log In dialog box.

3. If the BPML stencil is not visible in the GPM, navigate to the View menu and select Stencil > BPML.

   This will add the BPML stencil to the GPM.

4. From the View menu, select Stencil > Applications > Sterling Commerce > Connect:Direct.

   This will add the Connect:Direct stencil to the GPM.

5. From the File menu, select New to open a new business process.

6. Drag and drop the following icons from the BPML and Connect:Direct stencils into the Business Process window in the following order, from left to right:

   ◆ Start

   ◆ CD Server Begin Session Service

   ◆ CD Server CopyFrom Service

   ◆ CD Server End Session Service

   ◆ End

7. To link the icons:

   a. Click the arrow on the right side of the Start icon and drag it to the arrow on the left side of the CD Server Begin Session Service icon.

   b. Click the arrow on the right side of the CD Server Begin Session Service icon and drag it to the arrow on the left side of the CD Server CopyFrom Service icon.

   c. Click the arrow on the right side of the CD Server CopyFrom Service icon and drag it to the arrow on the left side of the CD Server End Session Service icon.

   d. Click the arrow on the right side of the CD Server End Session Service icon and drag it to the arrow on the left side of the End icon.

8. Configure the CD Server Begin Session Service using the following procedure:

   a. Double-click the CD Server Begin Session Service icon.

      The CD Server Begin Session Service functions like the Connect:Direct Process statement. It initiates a session on a specified remote Connect:Direct node.

    b.   In the Service Editor-CD Server Begin Session Service window, select CDServerBeginSession from the Config drop-down list. The Message To Service tab is displayed.

        In this step you specify the pre-defined CDServerBeginSession configuration for the CD Server Begin Session Service. You can override configuration values in the Service Editor.

Note: To see all parameters available in the CopyFrom service, see *Settings for Connect:Direct Server CopyFrom Service* on page 144.

    c.   Select your Connect:Direct Server adapter node name as the Value for LocalCDNodeName.

    d.   Type the remote Connect:Direct node name as the Value for RemoteCDNodeName.

    e.   Type the Connect:Direct User ID as the Value for RemoteUserId.

> **Note:**   You must add the Connect:Direct User ID to your Connect:Direct User Authorities.

    f.   Type the password for the Connect:Direct User ID as the Value for RemotePasswd.

    g.   Select No as the Value for UsingObscuredPasswd.

9.   Click the Message From Service tab.

10. Select Allow message write for Input Msg.

11. Click Add and add the following information to the new record:

   ◆   In the Name box, type BeginSessionResults.

   ◆   In the Value field, type *.

◆   Select the Use XPATH? check box.

12. Configure the CD Server CopyFrom Service using the following procedure:

   a.   Double-click the CD Server CopyFrom Service icon. This opens the Service Editor window.

   The CD Server CopyFrom Service functions like the Connect:Direct Copy statement. It copies a file from the SNODE to the PNODE.

   b.   In the Service Editor-CD Server CopyFrom Service window, select CDServerCopyFrom from the Config drop-down list.

   In this step you specify the pre-defined CDServerCopyFrom configuration to use for the CD Server CopyFrom Service. You can override configuration values in the Service Editor.

   c.   Type the source file name as the Value for RemoteFileName.

   This file must reside on the file system of the Connect:Direct node.

   d.   Type //BeginSessionResults/SessionToken/node() as the Value for SessionToken and select the Use XPATH? box.

   The Session Token is created by the CD Server Begin Session Service and identifies the session that is established with the remote Connect:Direct node. The SessionToken value in the CD Server CopyFrom Service ensures that this service copies the file using the session initiated by the CD Server Begin Session Service.

13. Configure the CD Server End Session Service using the following procedure:

   a.   Double-click the CD Server End Session Service icon.

   The CD Server End Session Service functions like the Connect:Direct Pend statement used on the Windows and UNIX platforms. It terminates the session with the remote Connect:Direct node. If the CD Server End Session does not execute, the session remains open.

b. In the Service Editor-CD Server End Session Service window, select CDServerEndSession from the Config drop-down list.

In this step you specify the pre-defined CDServerEndSession configuration to use for the CD Server End Session Service. You can override configuration values in the Service Editor.

c. Type //BeginSessionResults/SessionToken/node() as the Value for SessionToken and select the Use XPATH? box.

The SessionToken value in the CD Server End Session Service ensures that this service closes the session initiated by the CD Server Begin Session Service.

14. From the File menu, select Save. In the Validate dialog box, click Yes to validate the business process.

15. On the Save dialog box, type your business process file name in the File Name box and click Save.

Remember where you save this file.

Note: To see a sample business process, refer to *Use Sterling Integrator to Copy a File from Connect:Direct* on page 120.

Check Your Business Process into Sterling Integrator

Use the following procedure to check your business process into Sterling Integrator:

1. Log in to Sterling Integrator.

2. From the Business Process menu, select Manager.

3. On the Business Process Manager page, in the Create Process Definition pane, click Go!.

4. Type your business process name in the Name box.

5. Under Select an input mode for defining the new process, select Check in Business Process created by the graphical modeling tool and click Next.

6. On the Check-in page, click Browse and navigate to your business process file that you saved in step 15 of the previous procedure.

7. Type a short description of your business process in the Description box and click Next.

8. On the Process Levels page, select the Set onfault processing check box.

9. Set the Persistence Level to Full.

10. Set the Event Reporting Level to Full.

11. Set the Recovery Level to Auto Resume and click Next.

If Sterling Integrator stops responding during a copy transaction and the recovery level is set to Auto Resume, the business process resumes automatically at the next Sterling Integrator start up.
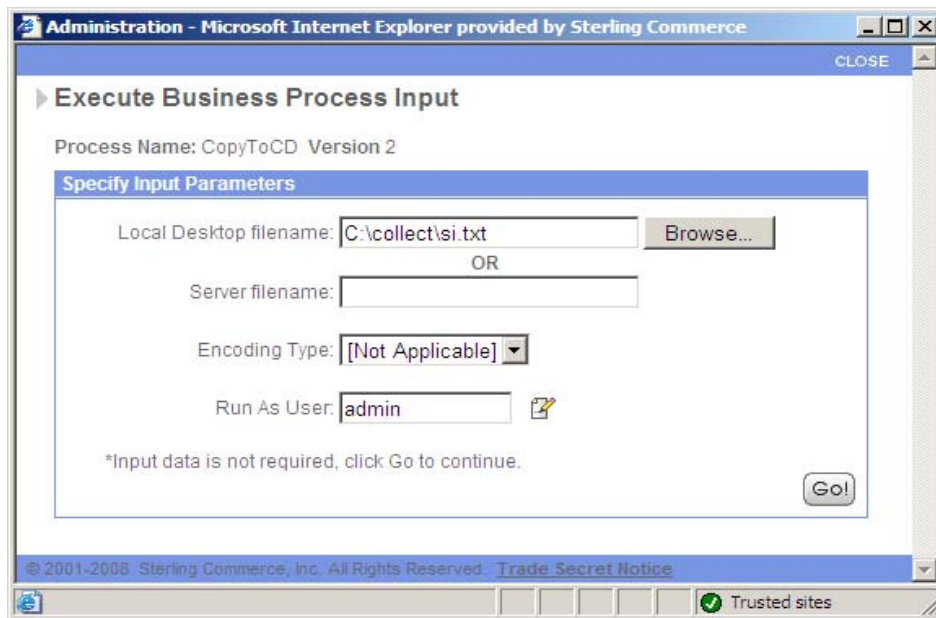
12. On the Deadline Settings page, click Next.

13. On the Life Span page, click Next.

14. On the Confirm page, select the Enable Business Process box.

15. Click Finish.

Submit and Monitor Your Sterling Integrator Business Process

Use the following procedure to submit your Sterling Integrator business process:

1. Log in to Sterling Integrator.

2. From the Business Process menu, select Manager.

3. In the Search pane, type your business process name in the Process Name box and click Go!.

4. On the Business Process Manager page, click Execution Manager.

5. On the Execution Manager page, click Execute to launch the Execute Business Process Input dialog box.

6. Click Go! to submit the business process.

   The Execute Business Process page is displayed.

7. Close the Execute Business Process page.

Monitor with Sterling Integrator

Use the following procedure to monitor your business process with Sterling Integrator:

1. From the Business Process menu, select Monitor > Advanced Search > Business Processes.

2. In the Search Using Business Process Name pane, select your business process name in the Business Processes list and click Go!.

   The Monitor page displays the following information:

Label	Description
Status	Status of the business process—a green traffic light signals a successful execution
ID	The business process ID number
Name	The business process name
State	The current state of the business process

   If the Status indicates unsuccessful execution, refer to *Troubleshooting* on page 161.

3. Click the ID number to see details about the business process execution.

   The Business Process Detail page displays the following information for each step:

Label	Description
Step	The business process step number

Label	Description
Service	The Sterling Integrator service name used in the step
Status	The status of the step
Advanced Status	Additional status information
Started	The time and date the step started
Ended	The time and date the step ended
Status Report	A link to the status report for the step
Document	A link to documents in use by the step
Instance Data	A link to process data for the step

4. Click the Status Report link for the Connect:Direct Server Primitive CopyFrom Service.

   The Status Report displays a short summary of the CopyFrom operation including the source file name and number of bytes copied.

5. Click the Document info link for the Connect:Direct Server Primitive CopyFrom Service.

   The PrimaryDocument page displays the contents of the Primary Document.

6. Close the PrimaryDocument page.

7. From the Business Process Detail page, click the Instance Data info link for the Connect:Direct Server Primitive CopyFrom Service.

   The Process Data page displays process data for the business process. The data is presented in XML format and contains several fields and values, such as:

   - ◆ Remote Node—node name of the remote Connect:Direct server

   - ◆ Remote User—Connect:Direct User ID

   - ◆ Remote File Name—your source file

8. The last step in the Business process Detail page is the CD Server End Session Service. The Status indicates that it successfully terminates the Connect:Direct session.

Note: You can also monitor your business processes from the Business Processes menu by navigating to Monitor > Advanced Search > Documents or Monitor > Advanced Search > Communication Sessions.

Monitor with Connect:Direct

You can use the Connect:Direct Select Statistics to monitor your Sterling Integrator to Connect:Direct business process.

If the Connect:Direct process is successful, the Select Statistics detail will report the following:

Attribute	Value
Message ID	SCPA000I
Message Text	Copy operation successful
Source File	*<default upload directory>\<your source file>*

If the Connect:Direct process is not successful, refer to *Troubleshooting* on page 161.

Add Error Handling to a Sterling Integrator Business Process

Add Error Handling to a Sterling Integrator Business Process

This chapter describes how to add error handling to an existing Sterling Integrator business process. The business process passes a document to the Connect:Direct Server adapter (PNODE) which copies the file to the Connect:Direct node (SNODE). The error handling ensures that the Connect:Direct session closes if an error is encountered during the session.

You can add OnFault Groups to your business processes to capture specific errors and take appropriate actions in the business process based on those errors. OnFault Groups allow you to add business process logic to handle specific and general error conditions. If you do not use OnFault Groups, your business process will quit on the step where the error occurs with no error handling.

Business Process Version Management

Sterling Integrator uses version management for implementing business process. As you make changes to an existing business process and create variations of that business process, you need to be sure that the business process that runs is the appropriate version.

The first time you check in a business process, the data you enter creates a business process definition—a uniquely named copy of the process that is stored in Sterling Integrator. The business process stored in Sterling Integrator is independent of any .bp file of the process that you save in a local directory.

At any time, you can open an existing business process, modify and save it, and then either check in the new version to Sterling Integrator, or save the modified copy of the process in Sterling Integrator as a new process altogether. All previously checked-in versions of business processes continue to be stored in Sterling Integrator. This enables you to revert to using an older version should the need arise.

Use the following workflow to update your business process with error handling:

1. *Check Out the Business Process* on page 62
2. *Edit the Business Process* on page 62
3. *Check In Your Business Process* on page 64

4.   *Submit and Monitor Your Sterling Integrator Business Process* on page 65

Check Out the Business Process

When you check out an existing business process with the Source Manager, you lock the business process and prevent other users from modifying it at the same time.

Use the following procedure to check out your existing business process that copies a file from Sterling Integrator to Connect:Direct:

1.   Log in to Sterling Integrator.

2.   From the Business Process menu, select Manager.

3.   On the Business Process Manager page, in the Search pane, type the existing business process name in the Process Name box and click Go.

4.   Click Source Manager for your business process.

5.   On the Source Manager page, click check out for the version of the business process you want to check out.

6.   Click OK in the dialog box to lock the file for editing.

7.   In the File Download dialog box, click Save to save a copy of the business process to your local file system.

8.   In the Save As dialog box, navigate to the directory where you want to save the business process, type the business process file name in the File name box, and click Save.

Edit the Business Process

In this scenario, you add an OnFault Group to handle errors in your business process.

Use the following procedure to edit the Sterling Integrator business process:

1.   Log in to Sterling Integrator and launch the Graphical Process Modeler from the Home screen.

2.   Enter your Sterling Integrator User ID and password in the Log In dialog box.

3.   If the BPML stencil is not visible in the GPM, navigate to the View menu and select Stencil > BPML.

   This will add the BPML stencil to the GPM.

4.   If the Connect:Direct stencil is not visible in the GPM, navigate to the View menu and select Stencil > Applications > Sterling Commerce > Connect:Direct.

   This will add the Connect:Direct stencil to the GPM.

5.   From the File menu, select Open, navigate to the existing business process file and click Open.

6.   Drag and drop the following icons from the BPML stencil into the Business Process window:

   ◆   Sequence Start

   ◆   OnFault Group

   ◆   Sequence End

7. To arrange and link the icons:

    a. Click the link between the CD Server Begin Session Service icon and CD Server CopyTo Service icon and press Delete to remove the link.

    b. Place the Sequence Start icon between the CD Server Begin Session Service icon and the CD Server CopyTo Service icon.

    c. Click the arrow on the right side of the CD Server Begin Session Service icon and drag it to the arrow on the left side of the Sequence Start icon.

    d. Click the arrow on the right side of the Sequence Start icon and drag it to the arrow on the left side of the CD Server CopyTo Service icon.

    e. Click the link between the CD Server End Session Service icon and End icon and press Delete to remove the link.

    f. Place the Sequence End icon between the CD Server End Session Service icon and the End icon.

    g. Click the arrow on the right side of the End Sequence icon and drag it to the arrow on the left side of the End icon.

    h. Place the OnFault Group icon below and to the right of the Begin Sequence icon.

    i. Click the arrow on the right side of the Begin Sequence icon and drag it to the arrow on the left side of the OnFault Group.
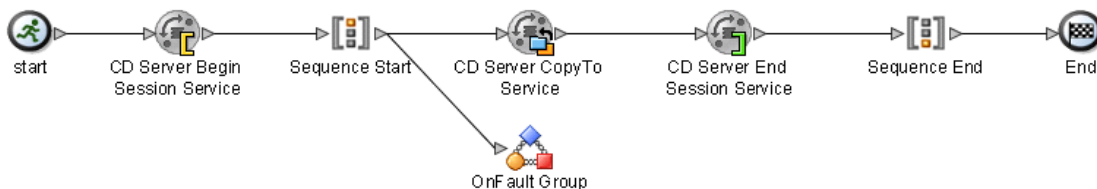
8. Configure the OnFault Group using the following procedure:

    a. Double-click the OnFault Group icon. This opens the Property Editor window and Layers window.

    The OnFault element contains a fault handling activity. If an error occurs between the Sequence Start and Sequence End, the fault handling activity is invoked. In this example, the fault handling activity contains a CD Server End Session Service to ensure that the session ends if there is an error. If the OnFault Group is not included in this business process and an error occurs on the CD Server CopyTo Service, the business process would stop before the CD Server End Service and the session would stay active.

    b. In the Layers Window, click the Default icon to open the fault handling activity in the business process window.

    The business process window contains an OnFault Start icon and an OnFault End icon.

    c. Drag and drop the CD Server End Session icon from the Connect:Direct stencil into the Business Process window and place it between the OnFault Start icon and the OnFault End icon.

d.   Click the arrow on the right side of the OnFault Start icon and drag it to the arrow on the left side of the CD Server End Session Service icon.

e.   Click the arrow on the right side of the CD Server End Session Service icon and drag it to the arrow on the left side of the OnFault End icon.

f.   Double-click the CD Server End Session Service icon.

g.   In the Service Editor-CD Server End Session Service window, select CDServerEndSession from the Config drop-down list.

In this step you specify the pre-defined CDServerEndSession configuration to use for the CD Server End Session Service. You can override configuration values in the Service Editor.

h.   Type //BeginSessionResults/SessionToken/node() as the Value for SessionToken and select the Use XPATH? box.

The SessionToken value in the CD Server End Session Service ensures that this service closes the session initiated by the CD Server Begin Session Service.

9.   From the File menu, select Save. In the Validate dialog box, click Yes to validate the business process.

10. On the Save dialog box, type your business process file name in the File Name box and click Save. Remember where you save this file.

> **Note:**   To see a sample business process, refer to *Add Error Handling to the Business Process* on page 122.

Check In Your Business Process

Use the following procedure to check the revised business process into Sterling Integrator:

1.   Log in to Sterling Integrator.

2.   From the Business Process menu, select Manager.

3.   On the Business Process Manager page, in the Search pane, type your business process name in the Process Name box and click Go!.

4.   Click Source Manager for your business process.

5.   On the Source Manager page, select Go! to Check in an updated definition for this business process.

6.   On the Process Definition Check-in page, click Browse and navigate to the business process file that you saved in step 10 of the previous procedure.

7. Type a short description of the business process changes in the Description box and click Next.

8. On the Process Levels page, select the Set onfault processing check box.

9. Set the Persistence Level to Full.

10. Set the Event Reporting Level to Full.

11. Set the Recovery Level to Auto Resume and click Next.

    If Sterling Integrator stops responding during a copy transaction and the recovery level is set to Auto Resume, the business process resumes automatically at the next Sterling Integrator start up.

12. On the Deadline Settings page, click Next.

13. On the Life Span page, click Next.

14. On the Set Default Version page, select the updated version of the business process.

15. On the Confirm page, select the Enable Business Process box.

16. Click Finish.

Submit and Monitor Your Sterling Integrator Business Process

Submit and monitor your revised Sterling business process to verify that it still works. The OnFault Group should not execute and the execution results should be the same as they were before you modified the business process.

In order to test the OnFault logic, you must cause the CD Server CopyTo Service to fail.

Use the following procedure to test the revised business process OnFault logic:

1. Modify the Connect:Direct User ID in Connect:Direct. In the Functional Authorities, set the Download directory for the account to a nonexistent directory.

2. Submit the revised business process.

    ◆ The CD Server CopyTo Service fails and the business process executes the OnFault logic.

    ◆ The CD Server End Session Service contained in the fault handling logic ends the Connect:Direct session.

Use the following procedure to submit your Sterling Integrator business process:

1. Log in to Sterling Integrator.

2. From the Business Process menu, select Manager.

3. In the Search pane, type your business process name in the Process Name box and click Go!.

4. On the Business Process Manager page, click Execution Manager.

5. On the Execution Manager page, click Execute for the revised business process to launch the Execute Business Process Input dialog box.

6. Click Browse and navigate to your source file on your local system and click Open.

7. Click Go! to submit your business process. The Execute Business Process page is displayed.

8. Close the Execute Business Process page.

Monitor with Sterling Integrator

Use the following procedure to monitor your business process with Sterling Integrator:

1. From the Business Process menu, select Monitor > Advanced Search > Business Processes.

2. In the Search Using Business Process Name pane, select your business process name in the Business Processes list and click Go!.

    The Monitor page displays the following information:

Label	Description
Status	Status of the business process—a green traffic light signals a successful execution
ID	The business process ID number
Name	The business process name
State	The current state of the business process

If the Status indicates unsuccessful execution, refer to *Troubleshooting* on page 161.

3. Click the ID number to see details about the business process execution.

The Business Process Detail page displays the following information for each step:

Label	Description
Step	The business process step number
Service	The Sterling Integrator service name used in the step
Status	The status of the step
Advanced Status	Additional status information
Started	The time and date the step started
Ended	The time and date the step ended
Status Report	A link to the status report for the step
Document	A link to documents in use by the step
Instance Data	A link to process data for the step

4. Check the Status and Advanced Status for the Connect:Direct Server CopyTo Service.

The CopyTo service generates an error and reports *Check the file permissions or path on Remote Connect:Direct*.

Step	Service	Status	Advanced Status	Started	Ended	Status Report	Document	Instance Data
10	Connect:Direct Server CopyTo Service	Success	Inline Begin CDInterop_CopyToWithLoop	02/24/2009 4:07:22 PM	02/24/2009 4:07:22 PM	None	None	None
11*	Echo Service	Success	None	02/24/2009 4:07:22 PM	02/24/2009 4:07:22 PM	None	ⓘ info	ⓘ info
12*	Assign Service	Success	None	02/24/2009 4:07:22 PM	02/24/2009 4:07:22 PM	None	ⓘ info	ⓘ info
13*	Assign Service	Success	None	02/24/2009 4:07:22 PM	02/24/2009 4:07:22 PM	None	ⓘ info	ⓘ info
14*	Connect:Direct Server Primitive CopyTo Service	Error	Check the file permissions or path on Remote Connect:Direct	02/24/2009 4:07:22 PM	02/24/2009 4:07:22 PM	None	ⓘ info	ⓘ info
15	Connect:Direct Server CopyTo Service	Error	Check the file permissions or path on Remote Connect:Direct	02/24/2009 4:07:22 PM	02/24/2009 4:07:22 PM	ⓘ info	ⓘ info	ⓘ info
16	Decision Engine Service	Success	5	02/24/2009 4:07:22 PM	02/24/2009 4:07:22 PM	None	ⓘ info	ⓘ info
17	Connect:Direct Server End Session Service	Success	None	02/24/2009 4:07:22 PM	02/24/2009 4:07:22 PM	ⓘ info	ⓘ info	ⓘ info

5. The next step in the Business Process Detail is the Decision Engine Service.

   This step is invoked by the error handling of the OnFault Group in the business process. The Status for this step indicates that the Decision Engine Service is successfully able to invoke the OnFault error handling.

6. The last step in the Business Process Detail is the CD Server End Session Service.

   The Status for this step indicates that it successfully closes the Connect:Direct session.

Note: You can also monitor your business processes from the Business Processes menu by navigating to Monitor > Advanced Search > Documents or Monitor > Advanced Search > Communication Sessions.

Monitor with Connect:Direct

You can use the Connect:Direct Select Statistics to monitor your revised Sterling Integrator to Connect:Direct business process.

If the Connect:Direct process is unsuccessful, the Select Statistics detail will report the error, such as the one shown for a Windows system:

Attribute	Value
Message ID	LSFN001 (if Connect:Direct is installed on a Windows system)
Message Text	Unable to open file <*your destination file*> - Fdbk=3
Destination File	<*revised download directory*>\<*your destination file*>

If the Connect:Direct process is not successful, refer to *Troubleshooting* on page 161.

Chapter 9

Add Secure+ Option

Add Secure+ Option

The Connect:Direct Secure+ Option provides enhanced security for Connect:Direct and Sterling Integrator Connect:Direct Server adapter. When you enable the Secure+ Option, the files are encrypted using SSL or TLS during transfer. This chapter describes how to configure the Sterling Integrator Connect:Direct Server adapter to work with the Connect:Direct Secure+ Option to enable encrypted file transfers.

The Secure+ Option for Connect:Direct is an optional component. Before configuring the Connect:Direct Server adapter to work with Secure+ Option, it is assumed the following conditions are already in place:

✦ Your Connect:Direct node is licensed for Secure+ Option and it is installed on your system.

✦ You have the required certificates for implementing Secure+ Option.

> **Note:** You can use the Sterling Certificate Wizard to generate certificate signing requests, self-signed certificates, key certificate files and certificate chains. The online help in the Sterling Certificate Wizard product will step you through the process.

✦ You have configured the local and remote nodes for Connect:Direct Secure+ Option following the instructions specific to the platform you are using. After submitting the parameters file and preparing Connect:Direct for operation, you have validated and tested connections between you and your business partners to establish secure communications and then tested to make sure you can change your security defaults for a session.

Use the following workflow to implement Secure+ Option:

✦ *Configure Secure+ Option in Sterling Integrator* on page 70

✦ *Copy a File Using Connect:Direct Secure+ Option* on page 73

✦ *Copy a File Using Your Sterling Integrator Business Process* on page 74

Configure Secure+ Option in Sterling Integrator

Use the following procedure to check in the Connect:Direct root CA certificate with Sterling Integrator:

1. From the Trading Partner menu, select Digital Certificates > CA.
2. In the Check in New Certificate pane, click Go!.
3. On the Get Certificate page, click Browse and navigate to the Connect:Direct CA root certificate.
4. On the Choose File dialog box, click Open. The dialog box closes and returns you to the Get Certificate page.
5. Click Next to advance to the Naming page.
6. Make a note of the Certificate Name and click Next.
7. On the Confirm page, click Finish.

Use the following procedure to check in the Key Certificate file for your Connect:Direct Server adapter:

Note: You can use a self-signed certificate that you create in Sterling Integrator or Certificate Wizard as your system certificate for testing purposes. Self-signed certificates are not recommended for production use.

---

1. From the Trading Partner menu, select Digital Certificates > System.
2. In the Check in pane, click Go! for Key Certificate.
3. On the Key Certificate Data page, type a descriptive name in the Certificate Name box.
4. In the Private Key Password box, type the passphrase associated with the Sterling Integrator Connect:Direct Server adapter private key.

   You created this passphrase when you generated your CSR.

5. Click Browse and navigate to the private key file.
6. On the Choose File dialog box, click Open. The dialog box closes and you return to the Key Certificate Data page.
7. Click Next to advance to the Validate When Used page.
8. Click Next to advance to the Confirm Page.
9. Click Finish.

Note: If you plan to configure different Secure+ settings for individual nodes, you might need to check in additional CA certificates and Key Certificate files.

Modify the Connect:Direct Server Adapter Configuration to Use Secure+

Use the following procedure to modify a Connect:Direct Server adapter in Sterling Integrator to enable it to use Secure+:

1. From the Deployment menu, select Services > Configuration.

2. To select an existing Connect:Direct Server adapter, use the Search or List pane to display and select the adapter, and click Go!.

3. Select edit on the Services Configuration page and then click Next until you see Encryption page.

4. Configure the following fields for this scenario.

Field	Value to Enter	Description
Encryption using Secure+	Enabled.	Whether Secure+ is enabled. Required. Valid values are Enabled and Disabled. Default is Disabled.
Enable Netmap Node Override	Select Yes for this scenario. Configure Secure+ at the adapter level and allow node level settings to override the adapter Secure+ settings.	If Yes, specifies that remote node netmap security settings override the adapter security settings. Required. Valid values are Yes and No. Default is No.
CA Certificates	Select the CA certificate you checked in above. This is the CA root certificate for the Connect:Direct server.	Drop-down menu that contains a list of trusted Certificate Authority public certificates. Only displayed if "Encryption using Secure+" is enabled. Required if Encryption using Secure+ is enabled. Valid values are all CA certificates in this installation of your application.
System Certificate	Select the System certificate you checked in above. This is the certificate for the Connect:Direct Server adapter node.	List of private keys and public certificates signed by the trading partner trusted certificate authority. This represents the certificate for the local node (this adapter). Only displayed if Encryption using Secure+ is enabled. Required if Encryption using Secure+ is enabled. Valid values are all system certificates in this installation of your application.
Certificate Common Name	If you want to verify the Common Name of the Connect:Direct CA certificate, specify it here. This feature is only available if you use signed certificates. Coordinate this with the remote Connect:Direct administrator.	Value to be compared with the Common Name (CN) field from the remote node's certificate during TLS/SSL handshake in order to enhance certificate authentication. Only displayed if Encryption using Secure+ is enabled. May be overridden at the node level. Note: To see the actual CNs being compared during the handshake, set the Perimeter Services logging level to ALL.

Field	Value to Enter	Description
Cipher Suites	Select which cipher suites you wish to use. Coordinate this list with the remote Connect:Direct administrator. Best practice is to list cipher suites in strongest to weakest order.	Indicates cipher suites available to support varying encryption levels. Multiple selections allowed. Selections can be rank ordered. Only displayed if "Encryption using Secure+" is enabled. Required if "Encryption using Secure+" is enabled. Valid values are all available cipher suites in this installation of your application.
SSL or TLS	Select SSL or TLS. Coordinate this choice with the remote Connect:Direct administrator.	Indicates if Secure+ is enabled using SSL or TLS. Only displayed if "Encryption using Secure+" is enabled. Required if "Encryption using Secure+" is enabled. Valid values are SSL and TLS. Default is SSL.
Require Client Authentication	Select Yes or No for client authentication. Coordinate this choice with the Connect:Direct administrator.	Indicates whether authentication occurs at the client level. Valid values are: Yes No

Modify the Netmap Node Configuration to Override Secure+ Configuration (Optional)

At this point, Secure+ is configured for the Connect:Direct Server adapter at the adapter level. All remote nodes will use these Secure+ settings. If you want to override any or all of the adapter level Secure+ settings for a remote node, modify the Secure+ node settings for that node using the following procedure:

Note: You must select Enable Netmap Node Override for the Connect:Direct Server adapter to use this option.

1. From the Deployment menu, select Adapter Utilities > C:D Netmaps > C:D Nodes.

2. To select an existing Connect:Direct Node, use the Search or List pane to display and select the Node, and click Go!.

3. Select edit next to the node name on the C:D Nodes page.

4. Do one of the following:

   ◆ To disable Secure+ encryption for this node, select the Secure+ Option Disabled button.

   ◆ To modify Secure+ encryption for this node, select the Secure+ Option Enabled button, and click Next. Edit the fields you want to override using information in the following table:

Field	Value to Enter	Description
CA Certificates	Select the CA root certificate you checked in above for the Connect:Direct server.	Drop-down menu that contains a list of trusted Certificate Authority public certificates. Only displayed if "Encryption using Secure+" is enabled. Required if Encryption using Secure+ is enabled. Valid values are all CA certificates in this installation of your application.
System Certificate	Select the System certificate you checked in above for the Connect:Direct Server adapter node.	List of private keys and public certificates signed by the trading partner trusted certificate authority. This represents the certificate for the local node (this adapter). Only displayed if Encryption using Secure+ is enabled. Required if Encryption using Secure+ is enabled. Valid values are all system certificates in this installation of your application.
Certificate Common Name	If you want to verify the Common Name of the Connect:Direct CA certificate, specify it here. This feature is only available if you use signed certificates. Coordinate this with the remote Connect:Direct administrator.	Value to be compared with the Common Name (CN) field from the remote node's certificate during TLS/SSL handshake in order to enhance certificate authentication. Only displayed if Encryption using Secure+ is enabled. May be overridden at the node level. Note: To see the actual CNs being compared during the handshake, set the Perimeter Services logging level to ALL.
Cipher Suites	Select which cipher suites you wish to use. Coordinate this list with the remote Connect:Direct administrator. Best practice is to list cipher suites in strongest to weakest order.	Indicates cipher suites available to support varying encryption levels. Multiple selections allowed. Selections can be rank ordered. Only displayed if "Encryption using Secure+" is enabled. Required if "Encryption using Secure+" is enabled. Valid values are all available cipher suites in this installation of your application.
SSL or TLS	Select SSL or TLS. Coordinate this choice with the remote Connect:Direct administrator.	Indicates if Secure+ is enabled using SSL or TLS. Only displayed if "Encryption using Secure+" is enabled. Required if "Encryption using Secure+" is enabled. Valid values are SSL and TLS. Default is SSL.
Require Client Authentication	Select Yes or No for client authentication. Coordinate this choice with the Connect:Direct administrator.	Indicates whether authentication occurs at the client level. Valid values are: Yes No

Copy a File Using Connect:Direct Secure+ Option

Secure+ is configured and enabled on Connect:Direct and Sterling Integrator. You do not have to modify your Connect:Direct process to encrypt the file with Secure+.

Submit your existing Connect:Direct process to copy a file to Sterling Integrator. You can monitor the process results from Connect:Direct or Sterling Integrator as before.

Copy a File Using Your Sterling Integrator Business Process

You do not have to modify your Sterling Integrator business process to encrypt the file with Secure+.

Submit and monitor your revised Sterling business process that contains the OnFault Group to verify that it still works. The OnFault Group should not execute and the execution results should be the same as they were before you modified the business process.

Use Sterling Integrator to Submit a Connect:Direct Process

Use Sterling Integrator to Submit a Connect:Direct Process

This chapter describes how to modify the Sterling Integrator business process to submit a process on the Connect:Direct node after the file is copied. The Connect:Direct process copies the file received from Sterling Integrator to a z/OS system.

Use the following workflow to submit a Connect:Direct process with Sterling Integrator:

✦ *Create Connect:Direct Process* on page 75

✦ *Check Out the Business Process* on page 76

✦ *Edit the Business Process* on page 76

✦ *Check In Your Business Process* on page 78

✦ *Submit and Monitor Your Sterling Integrator Business Process* on page 78

Create Connect:Direct Process

Create a Connect:Direct process that copies the file received from the Sterling Integrator node to a remote Connect:Direct node similar to the following example.

This process is invoked by the Sterling Integrator business process.

```
COPY2ZOS PROCESS
  SNODE=RemoteNode

STEP1 COPY
  FROM (
  FILE=sourceFile
  )
  TO (
  FILE=destinationFile
  DISP=RPL
  )

PEND
```

Check Out the Business Process

When you check out an existing business process with the Source Manager, you lock the business process and prevent other users from modifying it at the same time.

Use the following procedure to check out your business process that contains the OnFault Group from Sterling Integrator:

1. Log in to Sterling Integrator.

2. From the Business Process menu, select Manager.

3. On the Business Process Manager page, in the Search pane, type your business process name in the Process Name box and click Go!.

4. Click Source Manager for your business process.

5. On the Source Manager page, click check out for the version of the business process you want to check out.

6. Click OK in the dialog box to lock the file for editing.

7. In the File Download dialog box, click Save to save a copy of the business process to your local file system.

8. In the Save As dialog box, navigate to the directory where you want to save the business process, type the business process file name in the File name box, and click Save.

Edit the Business Process

In this scenario, you add a CD Server Submit Service to the business process. The business process copies a file to the Connect:Direct server and then submits a process on that same server.

Use the following procedure to edit the Sterling Integrator business process:

1. Log in to Sterling Integrator and launch the Graphical Process Modeler from the Home screen.

2. Enter your Sterling Integrator User ID and password in the Log In dialog box.

3. If the Connect:Direct stencil is not visible in the GPM, navigate to the View menu and select Stencil > Applications > Sterling Commerce > Connect:Direct.

   This will add the Connect:Direct stencil to the GPM.

4. From the File menu, select Open, navigate to the CopyToCD.bp file and click Open.

5. Drag and drop the CD Server Submit Service icon from the Connect:Direct stencil into the Business Process window.

6. To arrange and link the icons:

   a. Click the link between the CD Server CopyTo Service icon and CD Server End Session Service icon and press Delete to remove the link.

   b. Place the CD Server Submit Service icon between the CD Server CopyTo Service icon and the CD Server End Session Service icon.

   c. Click the arrow on the right side of the CD Server CopyTo Service icon and drag it to the arrow on the left side of the CD Server Submit Service icon.

   d. Click the arrow on the right side of the CD Server Submit Service icon and drag it to the arrow on the left side of the CD Server End Session Service icon.
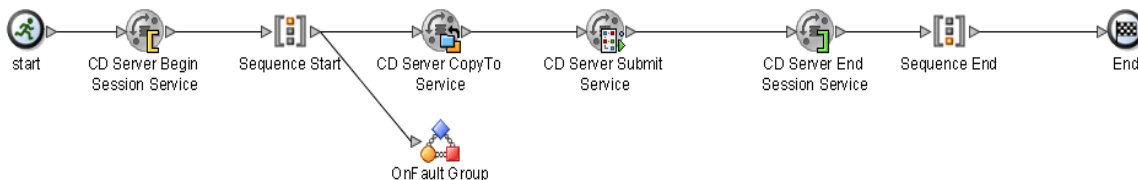
7. Configure the CD Server Submit Service using the following procedure:

   a. Double-click the CD Server Submit Service icon. This opens the Service Editor window.

      The CD Server Submit Service acts like a Submit statement in a Connect:Direct process. Use this service to submit a Connect:Direct process on a remote Connect:Direct server.

   b. In the Service Editor-CD Server Submit Service window, select CDServerSubmit from the Config drop-down list.

      In this step you specify the pre-defined CDServerSubmit configuration to use for the CD Server Submit Service. You can override configuration values in the Service Editor.

   c. Type the Connect:Direct process file name as the Value for RemoteProcessFile.

   d. Type //BeginSessionResults/SessionToken/node() as the Value for SessionToken and select the Use XPATH? box.

      The SessionToken value in the CD Server Submit Service ensures that this service submits the Connect:Direct process using the session initiated by the CD Server Begin Session Service.

8. From the File menu, select Save. In the Validate dialog box, click Yes to validate the business process.

9. On the Save dialog box, type the business process name in the File Name box and click Save. Remember where you save this file.

Note: To see a sample business process, refer to *Use Sterling Integrator to Submit a Connect:Direct Process* on page 124.

Check In Your Business Process

Use the following procedure to check the revised business process into Sterling Integrator:

1. Log in to Sterling Integrator.

2. From the Business Process menu, select Manager.

3. On the Business Process Manager page, in the Search pane, type the business process name in the Process Name box and click Go!.

4. Click Source Manager for the business process.

5. On the Source Manager page, select Go! to Check in an updated definition for this business process.

6. On the Process Definition Check-in page, click Browse and navigate to the business process file that you saved in step 9 of the previous procedure.

7. Type a short description of the updated business process in the Description box and click Next.

8. On the Process Levels page, select the Set onfault processing check box.

9. Set the Persistence Level to Full.

10. Set the Event Reporting Level to Full.

11. Set the Recovery Level to Auto Resume and click Next.

    If Sterling Integrator stops responding during a copy transaction and the recovery level is set to Auto Resume, the business process resumes automatically at the next Sterling Integrator start up.

12. On the Deadline Settings page, click Next.

13. On the Life Span page, click Next.

14. On the Set Default Version page, select the updated version of the business process.

15. On the Confirm page, select the Enable Business Process box.

16. Click Finish.

Submit and Monitor Your Sterling Integrator Business Process

Before you submit your revised Sterling business process, modify the Connect:Direct User ID in Connect:Direct. In the Functional Authorities, set the Download directory back to its original setting so that the CD Server CopyTo Service does not fail.

Use the following procedure to submit your Sterling Integrator business process:

1. Log in to Sterling Integrator.

2. From the Business Process menu, select Manager.

3. In the Search pane, type the business process name in the Process Name box and click Go!.

4. On the Business Process Manager page, click Execution Manager.

5. On the Execution Manager page, click Execute for the revised business process to launch the Execute Business Process Input dialog box.

6. Click Browse and navigate to your source file on your local system and click Open.

7. Click Go! to submit the business process.

The Execute Business Process page is displayed.

8. Close the Execute Business Process page.

Monitor with Sterling Integrator

Use the following procedure to monitor your business process with Sterling Integrator:

1. From the Business Process menu, select Monitor > Advanced Search > Business Processes.

2. In the Search Using Business Process Name pane, select your business process in the Business Processes list and click Go!.

The Monitor page displays the following information:

Label	Description
Status	Status of the business process—a green traffic light signals a successful execution
ID	The business process ID number
Name	The business process name
State	The current state of the business process

If the Status indicates unsuccessful execution, refer to *Troubleshooting* on page 161.

3. Click the ID number to see details about the business process execution.

    The Business Process Detail page displays the following information for each step:

Label	Description
Step	The business process step number
Service	The Sterling Integrator service name used in the step
Status	The status of the step
Advanced Status	Additional status information
Started	The time and date the step started
Ended	The time and date the step ended
Status Report	A link to the status report for the step
Document	A link to documents in use by the step
Instance Data	A link to process data for the step

4. The Status for the Connect:Direct Server Submit Service is Success. This indicates only that the Connect:Direct process was successfully submitted. It does not provide a completion status for the process. You must use the Connect:Direct Statistics to verify completion status for the process.

5. The last step in the Business Process Detail is the CD Server End Session Service. The Status for this step indicates that it successfully closes the Connect:Direct session.

> **Note:**   You can also monitor your business processes from the Business Processes menu by navigating to Monitor > Advanced Search > Documents or Monitor > Advanced Search > Communication Sessions.

Monitor with Connect:Direct

You can use the Connect:Direct Select Statistics to monitor your revised Sterling Integrator to Connect:Direct business process.

If the Connect:Direct process is successfully submitted, the Select Statistics detail will indicate this and show information similar to the following:

Attribute	Value
Message ID	LSMG407I (if Connect:Direct is installed on a Windows system)
Message Text	SUBMIT within a process step completed successfully
Source File	*<default process directory>\<Connect:Direct process file>*

If the Connect:Direct process completes successfully, the Select Statistics will indicate this and show information similar to the following:

Attribute	Value
Message ID	LSMG252I (if Connect:Direct is installed on a Windows system)
Message Text	A user process has completed successfully
Process Name	*Connect:Direct process name*

If the Connect:Direct process is not successfully submitted or executed, refer to *Troubleshooting* on page 161.

Chapter 11

Use Sterling Integrator to Start a Connect:Direct Run Job

Use Sterling Integrator to Start a Connect:Direct Run Job

This chapter describes how to modify the Sterling Integrator business process to start a program on the Connect:Direct server using a Run Job after a file is copied. The Connect:Direct Server adapter does not verify the validity of the submitted program and does not wait for the submitted job to complete. The program runs as a separate process.

Use the following workflow to start a Connect:Direct Run Job from Sterling Integrator:

✦ *Check Out the Business Process* on page 83

✦ *Edit the Business Process* on page 84

✦ *Check In Your Business Process* on page 85

✦ *Submit and Monitor Your Sterling Integrator Business Process* on page 86

Check Out the Business Process

When you check out an existing business process with the Source Manager, you lock the business process and prevent other users from modifying it at the same time.

Use the following procedure to check out your business process that contains the CD Server Submit Service from Sterling Integrator:

1. Log in to Sterling Integrator.

2. From the Business Process menu, select Manager.

3. On the Business Process Manager page, in the Search pane, type your business process name in the Process Name box and click Go!.

4. Click Source Manager for your business process.

5. On the Source Manager page, click check out for the version of the business process you want to check out.

6. Click OK in the dialog box to lock the file for editing.

7. In the File Download dialog box, click Save to save a copy of the business process to your local file system.

8. In the Save As dialog box, navigate to the directory where you want to save the business process, type the business process file name in the File name box, and click Save.

Edit the Business Process

In this scenario, you replace the CD Server Submit Service with the CD Server Run Job Service in your business process. The business process copies a file to the Connect:Direct server and then starts a Connect:Direct Run Job on that server.

The Run Job in this scenario is for a Connect:Direct for Windows SNODE. If your SNODE is not a Connect:Direct for Windows system, create a Run Job similar to the following example appropriate for your SNODE platform.

Use the following procedure to edit the Sterling Integrator business process:

1. Log in to Sterling Integrator and launch the Graphical Process Modeler from the Home screen.

2. Enter your Sterling Integrator User ID and password in the Log In dialog box.

3. If the Connect:Direct stencil is not visible in the GPM, navigate to the View menu and select Stencil > Applications > Sterling Commerce > Connect:Direct.

    This will add the Connect:Direct stencil to the GPM.

4. From the File menu, select Open, navigate to the business process file and click Open.

5. Drag and drop the CD Server Run Job Service icon from the Connect:Direct stencil into the Business Process window.

6. To arrange and link the icons:

    a. Click the CD Server Submit Service icon and press Delete to remove it.

    b. Place the CD Server Run Job Service icon between the CD Server CopyTo Service icon and the CD Server End Session Service icon.

    c. Click the arrow on the right side of the CD Server CopyTo Service icon and drag it to the arrow on the left side of the CD Server Run Job Service icon.

    d. Click the arrow on the right side of the CD Server Run Job Service icon and drag it to the arrow on the left side of the CD Server End Session Service icon.
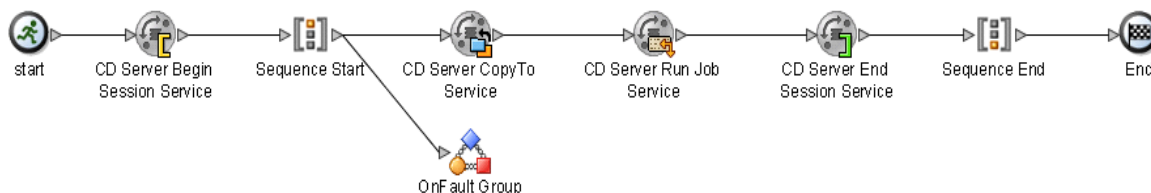
7. Configure the CD Server Run Job Service using the following procedure:

a. Double-click the CD Server Run Job Service icon. This opens the Service Editor window.

The CD Server Run Job Service acts like a Run Job statement in a Connect:Direct process. Use this service to start a Connect:Direct Run Job on a remote Connect:Direct server.

b. In the Service Editor-CD Server Run Job Service window, select CDServerRunJob from the Config drop-down list.

In this step you specify the pre-defined CDServerRunJob configuration to use for the CD Server Run Job Service. You can override configuration values in the Service Editor.

c. Type pgm(*path*/*filename*) desktop(yes) as the Value for Sysopts, where *path* is the full directory path and *filename* is the file name of the program or script you wish to run in the Run Job.

d. Type //BeginSessionResults/SessionToken/node() as the Value for SessionToken and select the Use XPATH? box.

The SessionToken value in the CD Server Run Job Service ensures that this service starts the Connect:Direct Run Job using the session initiated by the CD Server Begin Session Service.

8. From the File menu, select Save. In the Validate dialog box, click Yes to validate the business process.

9. On the Save dialog box, type the business process name in the File Name box and click Save. Remember where you save this file.

Note: To see a sample business process, refer to *Use Sterling Integrator to Start a Connect:Direct Run Job* on page 126.

Check In Your Business Process

Use the following procedure to check the revised business process into Sterling Integrator:

1. Log in to Sterling Integrator.

2. From the Business Process menu, select Manager.

3. On the Business Process Manager page, in the Search pane, type the business process name in the Process Name box and click Go!.

4. Click Source Manager for your business process.

5. On the Source Manager page, select Go! to Check in an updated definition for this business process.

6. On the Process Definition Check-in page, click Browse and navigate to the business process file that you saved in step 9 of the previous procedure.

7. Type a short description of your business process in the Description box and click Next.

8. On the Process Levels page, select the Set onfault processing check box.

9. Set the Persistence Level to Full.

10. Set the Event Reporting Level to Full.

11. Set the Recovery Level to Auto Resume and click Next.

    If Sterling Integrator stops responding during a copy transaction and the recovery level is set to Auto Resume, the business process resumes automatically at the next Sterling Integrator start up.

12. On the Deadline Settings page, click Next.

13. On the Life Span page, click Next.

14. On the Set Default Version page, select the updated version of the business process.

15. On the Confirm page, select the Enable Business Process box.

16. Click Finish.

Submit and Monitor Your Sterling Integrator Business Process

Use the following procedure to submit your Sterling Integrator business process:

1. Log in to Sterling Integrator.

2. From the Business Process menu, select Manager.

3. In the Search pane, type your business process name in the Process Name box and click Go!.

4. On the Business Process Manager page, click Execution Manager.

5. On the Execution Manager page, click Execute for the revised business process to launch the Execute Business Process Input dialog box.

6. Click Browse and navigate to the source file on your local system and click Open.

7. Click Go! to submit the business process.

    The Execute Business Process page is displayed.

8. Close the Execute Business Process page.

The program, application, or script runs on the Connect:Direct server.

Monitor with Sterling Integrator

Use the following procedure to monitor your business process with Sterling Integrator:

1. From the Business Process menu, select Monitor > Advanced Search > Business Processes.

2. In the Search Using Business Process Name pane, select your business process name in the Business Processes list and click Go!.

   The Monitor page displays the following information:

Label	Description
Status	Status of the business process—a green traffic light signals a successful execution
ID	The business process ID number
Name	The business process name
State	The current state of the business process

   If the Status indicates unsuccessful execution, refer to *Troubleshooting* on page 161.

3. Click the ID number to see details about the business process execution.

   The Business Process Detail page displays the following information for each step:

Label	Description
Step	The business process step number
Service	The Sterling Integrator service name used in the step
Status	The status of the step
Advanced Status	Additional status information
Started	The time and date the step started
Ended	The time and date the step ended
Status Report	A link to the status report for the step
Document	A link to documents in use by the step
Instance Data	A link to process data for the step

4. The Status for the Connect:Direct Server Run Job Service is Success. This indicates only that the Connect:Direct Run Job successfully started. It does not provide a completion status for the application invoked by the Run Job.

17	Connect:Direct Server CopyTo Service	Success	Inline End	03/03/2009 9:57:29 AM	03/03/2009 9:57:29 AM	node1 [-]	None	None	None
18	Connect:Direct Server Run Job Service	Success	None	03/03/2009 9:57:29 AM	03/03/2009 9:57:41 AM	node1 [-]	ⓘ info	ⓘ info	ⓘ info
19	Connect:Direct Server End Session Service	Success	None	03/03/2009 9:57:41 AM	03/03/2009 9:57:41 AM	node1 [-]	ⓘ info	ⓘ info	ⓘ info

5. The last step in the Business Process Detail is the CD Server End Session Service. The Status for this step indicates that it successfully closes the Connect:Direct session.

Note: You can also monitor your business processes from the Business Processes menu by navigating to Monitor > Advanced Search > Documents or Monitor > Advanced Search > Communication Sessions.

Monitor with Connect:Direct

You can use the Connect:Direct Select Statistics to monitor your revised Sterling Integrator to Connect:Direct business process.

If the Connect:Direct Run Job starts successfully, the Select Statistics detail will indicate this and show information similar to the following:

Attribute	Value
Message ID	LSMG400I (if Connect:Direct is installed on a Windows system)
Message Text	A user RUNJOB step completed successfully
Source File	pgm(*path*/*filename*) desktop(yes)

If the Connect:Direct process is not successful, refer to *Troubleshooting* on page 161.

Use Sterling Integrator to Start a Connect:Direct Run Task

Use Sterling Integrator to Start a Connect:Direct Run Task

This chapter describes how to modify your Sterling Integrator business process to start and wait on a program on the Connect:Direct server via a Run Task after the source file is copied. The program may be a program or script. The Connect:Direct Server adapter does not verify the validity of the submitted program, but it does wait for the submitted job to complete before moving to the next service in the business process. The program or script runs as a separate process.

Use the following workflow to start a Connect:Direct Run Task from Sterling Integrator:

✦ *Check Out the Business Process* on page 89
✦ *Edit the Business Process* on page 90
✦ *Check In Your Business Process* on page 91
✦ *Submit and Monitor Your Sterling Integrator Business Process* on page 92

Check Out the Business Process

When you check out an existing business process with the Source Manager, you lock the business process and prevent other users from modifying it at the same time.

Use the following procedure to check out your business process that contains the CD Server Run Job Service from Sterling Integrator:

1. Log in to Sterling Integrator.

2. From the Business Process menu, select Manager.

3. On the Business Process Manager page, in the Search pane, type your business process name in the Process Name box and click Go!.

4. Click Source Manager for your business process.

5. On the Source Manager page, click check out for the version of the business process you want to check out.

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6. Click OK in the dialog box to lock the file for editing.

7. In the File Download dialog box, click Save to save a copy of the business process to your local file system.

8. In the Save As dialog box, navigate to the directory where you want to save the business process, type the business process file name in the File name box, and click Save.

Edit the Business Process

In this scenario, you replace the CD Server Run Job Service with the CD Server Run Task Service in your business process. The business process copies a file to the Connect:Direct server and then starts a Connect:Direct Run Task on that server. The business process waits for the Run Task to complete before the CD Server End Session Service terminates the Connect:Direct session.

The Run Task in this scenario is for a Connect:Direct for Windows SNODE. If your SNODE is not a Connect:Direct for Windows system, create a Run Task similar to the following example appropriate for your SNODE platform.

Use the following procedure to edit the Sterling Integrator business process:

1. Log in to Sterling Integrator and launch the Graphical Process Modeler from the Home screen.

2. Enter your Sterling Integrator User ID and password in the Log In dialog box.

3. If the Connect:Direct stencil is not visible in the GPM, navigate to the View menu and select Stencil > Applications > Sterling Commerce > Connect:Direct.

    This will add the Connect:Direct stencil to the GPM.

4. From the File menu, select Open, navigate to the business process file and click Open.

5. Drag and drop the CD Server Run Task Service icon from the Connect:Direct stencil into the Business Process window.

6. To arrange and link the icons:

    a. Click the CD Server Run Job Service icon and press Delete to remove it.

    b. Place the CD Server Run Task Service icon between the CD Server CopyTo Service icon and the CD Server End Session Service icon.

    c. Click the arrow on the right side of the CD Server CopyTo Service icon and drag it to the arrow on the left side of the CD Server Run Task Service icon.

    d. Click the arrow on the right side of the CD Server Run Task Service icon and drag it to the arrow on the left side of the CD Server End Session Service icon.
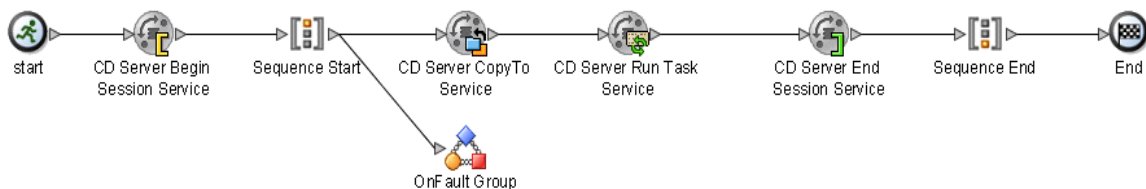
7. Configure the CD Server Run Task Service using the following procedure:

   a. Double-click the CD Server Run Task Service icon. This opens the Service Editor window.

      The CD Server Run Task Service acts like a Run Task statement in a Connect:Direct process. Use this service to start a Connect:Direct Run Task on a remote Connect:Direct server and wait for it to complete before executing the next service in a business process.

   b. In the Service Editor-CD Server Run Task Service window, select CDServerRunTask from the Config drop-down list.

      In this step you specify the pre-defined CDServerRunTask configuration to use for the CD Server Run Task Service. You can override configuration values in the Service Editor.

   c. Type pgm(path/filename) desktop(yes) as the Value for SystemOpts, where path is the full directory path and filename is the file name of the program or script you wish to run in the Run Task. (SystemOpts is the equivalent of Sysopts.)

      Note: Do not enclose the value specified for SystemOpts in double quotes.

      ---

   d. Type //BeginSessionResults/SessionToken/node() as the Value for SessionToken and select the Use XPATH? box.

      The SessionToken value in the CD Server Run Task Service ensures that this service starts the Connect:Direct Run Task using the session initiated by the CD Server Begin Session Service.

8. From the File menu, select Save. In the Validate dialog box, click Yes to validate the business process.

9. On the Save dialog box, type the business process file name in the File Name box and click Save. Remember where you save this file.

Note: To see a sample business process, refer to *Use Sterling Integrator to Start a Connect:Direct Run Task* on page 128. To see a more complex example involving Connect:Direct for z/OS, see *Use Sterling Integrator to Copy a File to Connect:Direct for z/OS (Advanced)* on page 132.

Check In Your Business Process

Use the following procedure to check the revised business process into Sterling Integrator:

1. Log in to Sterling Integrator.

2. From the Business Process menu, select Manager.

3. On the Business Process Manager page, in the Search pane, type the business process name in the Process Name box and click Go!.

4. Click Source Manager for your business process.

5. On the Source Manager page, select Go! to Check in an updated definition for this business process.

6. On the Process Definition Check-in page, click Browse and navigate to the business process file that you saved in step 9 of the previous procedure.

7.   Type a short description of your business process in the Description box and click Next.

8.   On the Process Levels page, select the Set onfault processing check box.

9.   Set the Persistence Level to Full.

10. Set the Event Reporting Level to Full.

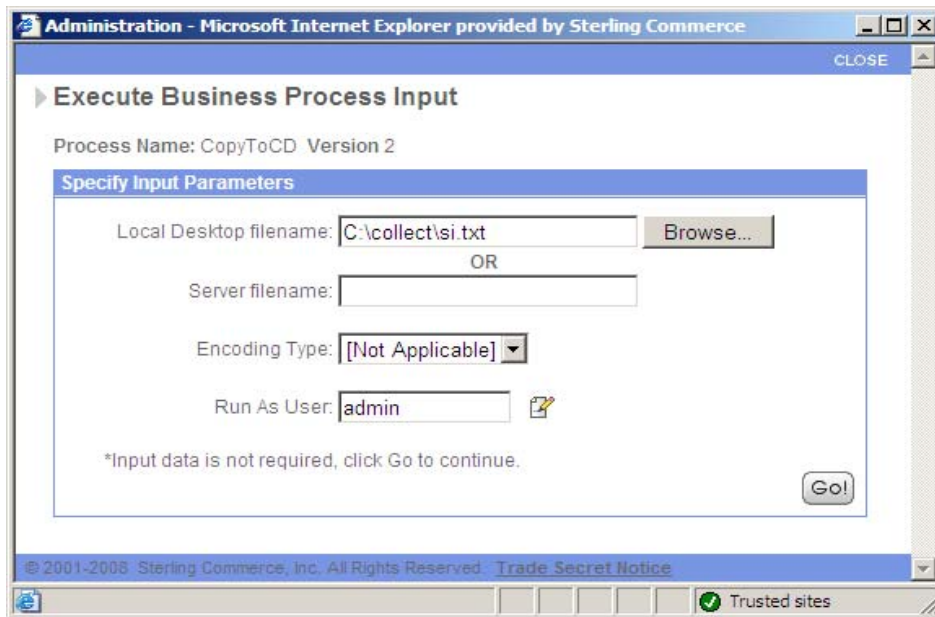11. Set the Recovery Level to Auto Resume and click Next.

     If Sterling Integrator stops responding during a copy transaction and the recovery level is set
     to Auto Resume, the business process resumes automatically at the next Sterling Integrator
     start up.

12. On the Deadline Settings page, click Next.

13. On the Life Span page, click Next.

14. On the Set Default Version page, select the updated version of the business process.

15. On the Confirm page, select the Enable Business Process box.

16. Click Finish.

Submit and Monitor Your Sterling Integrator Business Process

Use the following procedure to submit your Sterling Integrator business process:

1.   Log in to Sterling Integrator.

2.   From the Business Process menu, select Manager.

3.   In the Search pane, type your business process name in the Process Name box and click Go!.

4.   On the Business Process Manager page, click Execution Manager.

5.   On the Execution Manager page, click Execute for the revised business process to launch the
     Execute Business Process Input dialog box.

6. Click Browse and navigate to the source file on your local system and click Open.

7. Click Go! to submit the business process. The Execute Business Process page is displayed.

8. Close the Execute Business Process page.

Monitor with Sterling Integrator

Use the following procedure to monitor your business process with Sterling Integrator:

1. From the Business Process menu, select Monitor > Advanced Search > Business Processes.

2. In the Search Using Business Process Name pane, select your business process in the Business Processes list and click Go!.

   The Monitor page displays the following information:

Label	Description
Status	Status of the business process—a green traffic light signals a successful execution
ID	The business process ID number
Name	The business process name
State	The current state of the business process

   If the Status indicates unsuccessful execution, refer to *Troubleshooting* on page 161.

3. Click the ID number to see details about the business process execution.

    The Business Process Detail page displays the following information for each step:

Label	Description
Step	The business process step number
Service	The Sterling Integrator service name used in the step
Status	The status of the step
Advanced Status	Additional status information
Started	The time and date the step started
Ended	The time and date the step ended
Status Report	A link to the status report for the step
Document	A link to documents in use by the step
Instance Data	A link to process data for the step

The Status for the Connect:Direct Server Run Task Service is not reported until the application or script completes. The Business Process Detail screen shows that the Connect:Direct Server Run Task Service is *In progress...*

4. When you close the application or script, The CD Server Run Task Service completes and the last step in the business process, the CD Server End Session Service, terminates the Connect:Direct session.

Note: You can also monitor your business processes from the Business Processes menu by navigating to Monitor > Advanced Search > Documents or Monitor > Advanced Search > Communication Sessions.

Monitor with Connect:Direct

You can use the Connect:Direct Select Statistics to monitor your revised Sterling Integrator to Connect:Direct business process.

If the Connect:Direct Run Task completes successfully, the Select Statistics detail will indicate this and show information similar to the following:

Attribute	Value
Message ID	LSMG402 (if Connect:Direct is installed on a Windows system)
Message Text	A user RUNTASK step completed. Exit code = 0
Source File	pgm(*path*/*filename*) desktop(yes)

If the Connect:Direct process is not successful, refer to *Troubleshooting* on page 161.

Hide the Connect:Direct Password in the Business Process

Hide the Connect:Direct Password in the Business Process

This chapter describes how to hide the value of the user password in your business process. Modify your Sterling Integrator business process by adding an Obscure Data - Process Data Values Service before the CD Server Begin Session Service.

Use the following workflow to hide the Connect:Direct password in the business process:

✦ *Configure the Obscure Data - Process Data Values Service* on page 97

✦ *Check Out the Business Process* on page 98

✦ *Edit the Business Process* on page 98

✦ *Check In Your Business Process* on page 99

✦ *Submit and Monitor Your Sterling Integrator Business Process* on page 100

Configure the Obscure Data - Process Data Values Service

Use the following procedure to configure the Obscure Data - Process Data Values Service:

1. Log in to Sterling Integrator.

2. From the Deployment menu, select Services > Configuration.

3. On the Services Configuration page, click Go! in the Create New Service pane.

4. In the Service Type box, type Obscure Data - Process Data Values and click Next.

Note:	Alternately, you can navigate to Obscure Data - Process Data Values by clicking one of the navigation buttons next to the Service Type box.

5. On the Name page, in the Name box, type CDClientObscureParameter.

6. In the Description box, type a short description of what you are obscuring and click Next.

7. On the Parameters page, in the first Parameter Name box, type the Connect:Direct User ID.

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8.   In the first Parameter Value box, type the password for the Connect:Direct User ID and click Next.

9.   On the Confirm page, click Finish.

Check Out the Business Process

When you check out an existing business process with the Source Manager, you lock the business process and prevent other users from modifying it at the same time.

Use the following procedure to check out your business process that contains the CD Server Run Task Service from Sterling Integrator:

1.   Log in to Sterling Integrator.

2.   From the Business Process menu, select Manager.

3.   On the Business Process Manager page, in the Search pane, type your business process name in the Process Name box and click Go!.

4.   Click Source Manager for your business process.

5.   On the Source Manager page, click check out for the version of the business process you want to check out.

6.   Click OK in the dialog box to lock the file for editing.

7.   In the File Download dialog box, click Save to save a copy of the business process to your local file system.

8.   In the Save As dialog box, navigate to the directory where you want to save the business process, type the business process file name in the File name box, and click Save.

Edit the Business Process

In this scenario, add the Obscure Data - Process Data Values to your business process. The Obscure Data - Process Data Values retrieves the remote password from the CDClientObscureParameter configuration. The CD Server Begin Session Service gets the remote password from the Obscure Data - Process Data Value. The remote password is not revealed in the business process.

Use the following procedure to edit the Sterling Integrator business process:

1.   Log in to Sterling Integrator and launch the Graphical Process Modeler from the Home screen.

2.   Enter your Sterling Integrator User ID and password in the Log In dialog box.

3.   If the All Services stencil is not visible in the GPM, navigate to the View menu and select Stencil > All Services.

   This will add the All Services stencil to the GPM.

4.   From the File menu, select Open, navigate to your business process file and click Open.

5.   Drag and drop the Obscure Data - Process Data Values icon from the Connect:Direct stencil into the Business Process window.

6. To arrange and link the icons:

   a. Click the arrow between the start icon and the CD Server Begin Session Service icon and press Delete to remove it.

   b. Place the Obscure Data - Process Data Values icon between the start icon and the CD Server Begin Session Service icon.

   c. Click the arrow on the right side of the start icon and drag it to the arrow on the left side of the Obscure Data - Process Data Values icon.

   d. Click the arrow on the right side of the Obscure Data - Process Data Values icon and drag it to the arrow on the left side of the CD Server Begin Session Service icon.
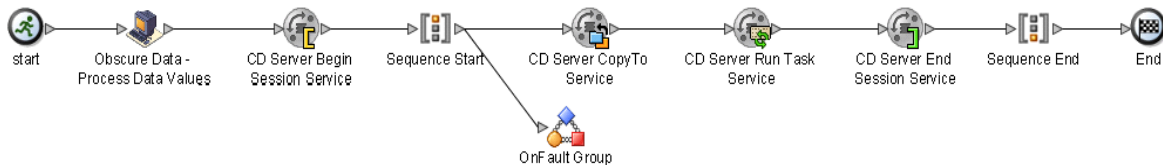
7. Configure the Obscure Data - Process Data Values using the following procedure:

   a. Double-click the Obscure Data - Process Data Values icon. This opens the Service Editor window.

   b. In the Service Editor-Obscure Data - Process Data Values window, select CDClientObscureParameter from the Config drop-down list.

   In this step you specify the CDClientObscureParameter configuration to use for the Obscure Data - Process Data Values. You can override configuration values in the Service Editor.

8. Edit the CD Server Begin Session Service using the following procedure:

   a. Double-click the CD Server Begin Session Service icon.

   b. Select Yes as the Value for UsingObscuredPasswd.

   c. Type *CDUserID*/text( ) as the Value for the RemotePasswd and select the Use XPATH? box. *CDUserID* is the Connect:Direct User ID.

9. From the File menu, select Save. In the Validate dialog box, click Yes to validate the business process.

10. On the Save dialog box, type your business process file name in the File Name box and click Save.

   Remember where you save this file.

Note: To see a sample business process, refer to *Hide the Connect:Direct Password in the Business Process* on page 130.

Check In Your Business Process

Use the following procedure to check the revised business process into Sterling Integrator:

---

1. Log in to Sterling Integrator.

2. From the Business Process menu, select Manager.

3. On the Business Process Manager page, in the Search pane, type your business process name in the Process Name box and click Go!.

4. Click Source Manager for your business process.

5. On the Source Manager page, select Go! to Check in an updated definition for this business process.

6. On the Process Definition Check-in page, click Browse and navigate to your business process file that you saved in step 10 of the previous procedure.

7. Type Added Obscure Data - Process Data Values to hide password in the Description box and click Next.

8. On the Process Levels page, select the Set onfault processing check box.

9. Set the Persistence Level to Full.

10. Set the Event Reporting Level to Full.

11. Set the Recovery Level to Auto Resume and click Next.

    If Sterling Integrator stops responding during a copy transaction and the recovery level is set to Auto Resume, the business process resumes automatically at the next Sterling Integrator start up.

12. On the Deadline Settings page, click Next.

13. On the Life Span page, click Next.

14. On the Set Default Version page, select the updated version of the business process.

15. On the Confirm page, select the Enable Business Process box.

16. Click Finish.

Submit and Monitor Your Sterling Integrator Business Process

Use the following procedure to submit your Sterling Integrator business process:

1. Log in to Sterling Integrator.

2. From the Business Process menu, select Manager.

3. In the Search pane, type your business process in the Process Name box and click Go!.

4. On the Business Process Manager page, click Execution Manager.

5. On the Execution Manager page, click Execute for the revised business process to launch the Execute Business Process Input dialog box.

6. Click Browse and navigate to the source file on your local system and click Open.
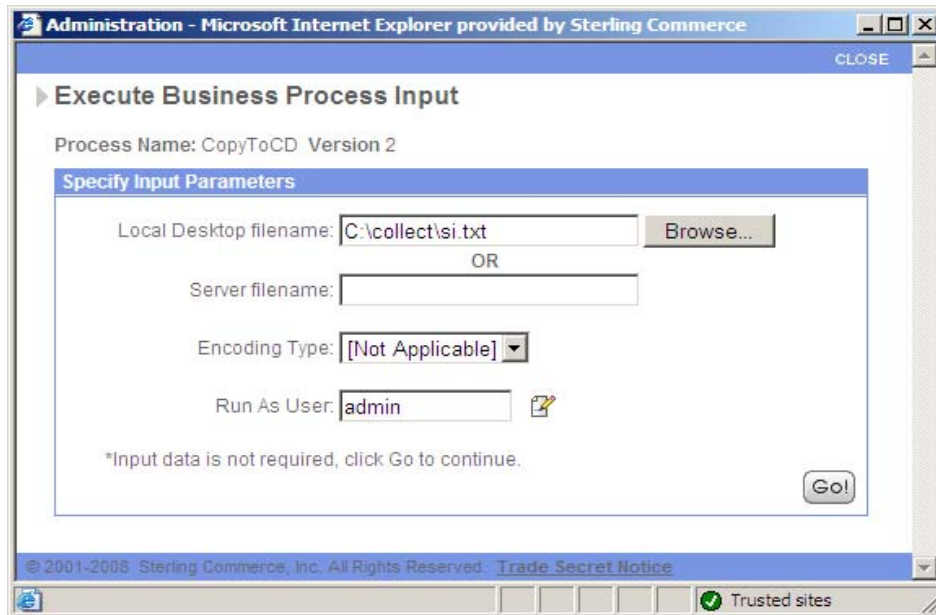
7. Click Go! to submit your business process.

The Execute Business Process page is displayed.

8. Close the Execute Business Process page.

The application or script runs on the Connect:Direct server.

Monitor with Sterling Integrator

If you modify your business process with the Obscure Data - Process Data Values correctly, the business process execution results will be unchanged.

Use the following procedure to monitor your business process with Sterling Integrator:

1. From the Business Process menu, select Monitor > Advanced Search > Business Processes.

2. In the Search Using Business Process Name pane, select your business process in the Business Processes list and click Go!.

The Monitor page displays the following information:

Label	Description
Status	Status of the business process—a green traffic light signals a successful execution
ID	The business process ID number
Name	The business process name
State	The current state of the business process

If the Status indicates unsuccessful execution, refer to *Troubleshooting* on page 161.

3. Click the ID number to see details about the business process execution.

The Business Process Detail page displays the following information for each step:

Label	Description
Step	The business process step number
Service	The Sterling Integrator service name used in the step
Status	The status of the step
Advanced Status	Additional status information
Started	The time and date the step started
Ended	The time and date the step ended
Status Report	A link to the status report for the step
Document	A link to documents in use by the step
Instance Data	A link to process data for the step

4. The Status for the Connect:Direct Server Run Task Service is not reported until the application or script completes. The Business Process Detail screen shows that the Connect:Direct Server Run Task Service is *In progress...*

5. When you close the application or script, The CD Server Run Task Service completes and the last step in the business process, the CD Server End Session Service, terminates the Connect:Direct session.

Note: You can also monitor your business processes from the Business Processes menu by navigating to Monitor > Advanced Search > Documents or Monitor > Advanced Search > Communication Sessions.

Monitor with Connect:Direct

You can use the Connect:Direct Select Statistics to monitor your revised Sterling Integrator to Connect:Direct business process.

If the Connect:Direct Run Task completes successfully, the Select Statistics detail will indicate this and show information similar to the following:

Attribute	Value
Message ID	LSMG402I (if Connect:Direct is installed on a Windows system)
Message Text	A user RUNTASK step completed. Exit code = 0
Source File	pgm(*path*/*filename*) desktop(yes)

If the Connect:Direct process is not successful, refer to *Troubleshooting* on page 161.

Sample Business Processes

Here are the examples that focus on the Sterling Integrator side:

✦ *Use Connect:Direct to Copy a File to Sterling Integrator* on page 106

✦ *Use Connect:Direct to Retrieve a File from Sterling Integrator* on page 107

✦ *Use Sterling Integrator to Copy a File to a Connect:Direct for z/OS Node* on page 109

✦ *Use Sterling Integrator to Copy a File to a Connect:Direct for Windows Node* on page 111

✦ *Use Sterling Integrator to Copy a File to a Connect:Direct for UNIX Node* on page 113

✦ *Use Sterling Integrator to Copy a File to a Connect:Direct HP NonStop Node* on page 115

✦ *Use Sterling Integrator to Copy a File to a Connect:Direct for i5/OS Node* on page 118

✦ *Use Sterling Integrator to Copy a File from Connect:Direct* on page 120

✦ *Add Error Handling to the Business Process* on page 122

✦ *Use Sterling Integrator to Submit a Connect:Direct Process* on page 124

✦ *Use Sterling Integrator to Start a Connect:Direct Run Job* on page 126

✦ *Use Sterling Integrator to Start a Connect:Direct Run Task* on page 128

✦ *Hide the Connect:Direct Password in the Business Process* on page 130

✦ *Use Sterling Integrator to Copy a File to Connect:Direct for z/OS (Advanced)* on page 132

For more information about the Connect:Direct side, particularly on the Connect:Direct Process language and how to tailor it to communicate with Sterling Integrator, refer to S*terling Integrator Connect:Direct Server Adapter Syntax* and *Sterling Integrator-Connect:Direct Server Adapter Examples* on the Connect:Direct Process Language Web Site in the MFT Connect:Direct documentation library.

Use Connect:Direct to Copy a File to Sterling Integrator

In the Connect:Direct for Windows process, the Connect:Direct server (PNODE) copies the orders.txt file to the Sterling Integrator Connect:Direct Server adapter (SNODE) which invokes the ReceiveFromCD business process and passes the file to the business process. The Connect:Direct Server adapter node name is SI50. The destination filename on Sterling Integrator is daily.txt.

```
CDSAMPLE PROCESS
     SNODE=SI50
     SNODEID=(myUserID,myPassword)

STEP1 COPY
     FROM (
            FILE=C:\orders.txt
     )
     TO (
            FILE=/businessprocess/ReceiveFromCD/daily.txt
            DISP=RPL
     )

PEND
```

In the Sterling Integrator ReceiveFromCD business process, shown in BPML, the Get Document Information Service obtains file information about the primary document and places it into process data. You can add additional services to this business process to perform operations such as translating the file or copying the file to another server using FTP.

Note: The Sterling Integrator Graphical Process Modeler (GPM) is used as the primary means to perform most of the common user tasks described in the User Guide. To see BPML source code like the example shown below, select View > Source while using the GPM. To see the business process as depicted in the GPM user interface, select View > Graph.

```
<process name = "ReceiveFromCD">
  <operation name="Get Document Information Service">
    <participant name="GetDocumentInfoService"/>
    <output message="GetDocumentInfoServiceTypeInputMessage">
      <assign to="." from="*"></assign>
    </output>
    <input message="inmsg">
      <assign to="." from="*"></assign>
    </input>
  </operation>

</process>
```

Use Connect:Direct to Retrieve a File from Sterling Integrator

In the Connect:Direct for Windows process, the Connect:Direct server (PNODE) pulls a file from a Sterling Integrator Connect:Direct Server adapter (SNODE). The Connect:Direct node connects to the Sterling Integrator Connect:Direct Server adapter which invokes the RespondToCD business process which sends the sample.txt file back to Connect:Direct. The Connect:Direct Server Adapter node name is SI50. The destination file name on the Connect:Direct server is orders.txt.

```
CDSAMPLE PROCESS
     SNODE=SI50
     SNODEID=(myUserID,myPassword)

STEP1 COPY
     FROM (
           FILE=/businessprocess/RespondToCD/sample.txt
     )
     TO (
           FILE=C:\orders.txt
           DISP=RPL
     )

PEND
```

In the RespondToCD business process, shown in BPML, the business process retrieves a file, passes this file to the Connect:Direct Server adapter, and sends the file back to the Connect:Direct node. The business process functions much like a Connect:Direct process.

In the first operation of the RespondToCD business process, the File System Adapter collects (reads) the daily.txt file from the Sterling Integrator local file system. This file becomes the primary document of the business process.

In the next operation of the business process, the CD Server BP Response Service passes the primary document back to the Connect:Direct node (PNODE).

Note: The Sterling Integrator Graphical Process Modeler (GPM) is used as the primary means to perform most of the common user tasks described in the User Guide. To see BPML source code like the example shown below, select View > Source while using the GPM. To see the business process as depicted in the GPM user interface, select View > Graph.

```
<process name = "RespondToCD">
  <sequence>

    <operation name="File System Adapter">
      <participant name="CollectForCD"/>
      <output message="FileSystemInputMessage">
        <assign to="Action">FS_COLLECT</assign>
        <assign to="filter">daily.txt</assign>
        <assign to="collectionFolder">C:\Collection</assign>
        <assign to="deleteAfterCollect">false</assign>
        <assign to="." from="*"></assign>
      </output>
      <input message="inmsg">
        <assign to="." from="*"></assign>
      </input>
    </operation>

<operation name="CD Server BP Response Service">
      <participant name="CDServerBPResponse"/>
      <output message="CDServerBPResponseServiceTypeInputMessage">
        <assign to="." from="*"></assign>
      </output>
      <input message="inmsg">
        <assign to="." from="*"></assign>
      </input>
    </operation>

  </sequence>
</process>
```

Use Sterling Integrator to Copy a File to a Connect:Direct for z/OS Node

In this sample, shown in BPML, the Sterling Integrator CopyToCDMainframeNode business process passes a document to the Connect:Direct Server adapter (PNODE) which copies the file to the Connect:Direct for z/OS node (SNODE). The business process functions much like a Connect:Direct process.

In the first operation of the CopyToCDMainframeNode business process, the File System Adapter collects (reads) the daily.txt file from the Sterling Integrator local file system. This file becomes the primary document of the business process.

The second operation uses the CD Server Begin Session Service to establish a connection to the remote Connect:Direct node, CDZOS. The local node name of the Connect:Direct Server adapter is Dal1CDSA. The Begin Session Service uses the remote user ID of cduser to authenticate to the Connect:Direct server. The Session Token created by the CD Server Begin Session Service identifies the session that is established with the remote Connect:Direct node. The SessionToken value in the CD Server CopyTo Service ensures that this service copies the file using the session initiated by the CD Server Begin Session Service.

The third operation uses the CD Server CopyTo Service to copy the primary document to a specific unit (3380) and volume (serial number is SYS009) on the Connect:Direct for z/OS server. SPACE information is also provided (4096, (200,40)...ROUND). The destination file name is SAMPLE.ZOS.FILE.

The last operation uses the CD Server End Session Service to terminate the session with the Connect:Direct server.

Note: The Sterling Integrator Graphical Process Modeler (GPM) is used as the primary means to perform most of the common user tasks described in the User Guide. To see BPML source code like the example shown below, select View > Source while using the GPM. To see the business process as depicted in the GPM user interface, select View > Graph.

```
<process name="CopyToCDMainframeNode">
  <sequence>

    <operation name="File System Adapter">
      <participant name="CollectForCD"/>
      <output message="FileSystemInputMessage">
        <assign to="Action">FS_COLLECT</assign>
        <assign to="filter">daily.txt</assign>
        <assign to="collectionFolder">C:\Collection</assign>
        <assign to="deleteAfterCollect">false</assign>
        <assign to="." from="*"></assign>
      </output>
      <input message="inmsg">
        <assign to="." from="*"></assign>
      </input>
    </operation>
```

```
    <operation name="CD Server Begin Session Service">
      <participant name="CDServerBeginSession"/>
      <output message="CDServerBeginSessionServiceTypeInputMessage">
        <assign to="." from="*"></assign>
        <assign to="RemoteUserId">cduser</assign>
        <assign to="ProcessName">Copyto</assign>
        <assign to="LocalCDNodeName">Dal1CDSA</assign>
        <assign to="RemoteCDNodeName">CDZOS</assign>
        <assign to="RemotePasswd">xxxxxxxx/assign>
        <assign to="UsingObscuredPasswd">NO</assign>
      </output>
      <input message="inmsg">
        <assign to="." from="*"></assign>
        <assign to="BeginSessionResults" from="*"></assign>
      </input>
    </operation>

    <operation name="CD Server CopyTo Service">
      <participant name="CDServerCopyTo"/>
      <output message="CDServerCopyToServiceTypeInputMessage">
        <assign to="." from="*"></assign>
        <assign to="RemoteUNIT">3380</assign>
        <assign to="RemoteVOL">(SER=SYS009)</assign>
        <assign to="RemoteDISP">(NEW,CATLG)</assign>
        <assign to="RemoteFileName">SAMPLE.ZOS.FILE</assign>
        <assign to="RemoteSPACE">(4096,(200,40),,,ROUND)</assign>
        <assign to="SessionToken"
 from="//BeginSessionResults/SessionToken/node()"></assign>
      </output>
      <input message="inmsg">
        <assign to="." from="*"></assign>
      </input>
    </operation>

    <operation name="CD Server End Session Service">
      <participant name="CDServerEndSession"/>
      <output message="CDServerEndSessionServiceTypeInputMessage">
        <assign to="." from="*"></assign>
        <assign to="SessionToken">//BeginSessionResults/SessionToken/node()</assign>
      </output>
      <input message="inmsg">
        <assign to="." from="*"></assign>
      </input>
    </operation>

  </sequence>
</process>
```

Use Sterling Integrator to Copy a File to a Connect:Direct for Windows Node

In this sample, shown in BPML, the Sterling Integrator CopyToCDWin business process passes a document to the Connect:Direct Server adapter (PNODE) which copies the file to the Connect:Direct for Windows node (SNODE). The business process functions much like a Connect:Direct process.

In the first operation of the CopyToCDWin business process, the File System Adapter collects (reads) the daily.txt file from the Sterling Integrator local file system. This file becomes the primary document of the business process.

The second operation uses the CD Server Begin Session Service to establish a connection to the remote Connect:Direct for Windows node, CDWIN. The local node name of the Connect:Direct Server adapter is SI51CD. The Begin Session Service uses the remote user ID of cduser to authenticate to the Connect:Direct server.

The third operation uses the CD Server CopyTo Service to copy the primary document to the remote Connect:Direct server. The Sysopts specifies that the file is not translated. The destination file name is cd.txt. The Session Token created by the CD Server Begin Session Service identifies the session that is established with the remote Connect:Direct node. The SessionToken value in the CD Server CopyTo Service ensures that this service copies the file using the session initiated by the CD Server Begin Session Service.

The fourth operation uses the CD Server End Session Service to terminate the session with the Connect:Direct server.

Note: The Sterling Integrator Graphical Process Modeler (GPM) is used as the primary means to perform most of the common user tasks described in the User Guide. To see BPML source code like the example shown below, select View > Source while using the GPM. To see the business process as depicted in the GPM user interface, select View > Graph.

```
<process name="CopyToCDWin">
  <sequence>

<operation name="File System Adapter">
      <participant name="CollectForCD"/>
      <output message="FileSystemInputMessage">
        <assign to="Action">FS_COLLECT</assign>
        <assign to="filter">daily.txt</assign>
        <assign to="collectionFolder">C:\Collection</assign>
        <assign to="deleteAfterCollect">false</assign>
        <assign to="." from="*"></assign>
      </output>
      <input message="inmsg">
        <assign to="." from="*"></assign>
      </input>
    </operation>
```

```
      <operation name="CD Server Begin Session Service">
        <participant name="CDServerBeginSession"/>
        <output message="CDServerBeginSessionServiceTypeInputMessage">
          <assign to="LocalCDNodeName">SI51CD</assign>
          <assign to="RemoteCDNodeName">CDWIN</assign>
          <assign to="RemotePasswd">xxxxxxxx</assign>
          <assign to="RemoteUserId">cduser</assign>
          <assign to="UsingObscuredPasswd">NO</assign>
          <assign to="." from="*"></assign>
        </output>
        <input message="inmsg">
          <assign to="." from="*"></assign>
        </input>
      </operation>

      <operation name="CD Server CopyTo Service">
        <participant name="CDServerCopyTo"/>
        <output message="CDServerCopyToServiceTypeInputMessage">
          <assign to="RemoteFileName">C:\cd.txt</assign>
          <assign to="Sysopts">xlate(no)</assign>
          <assign to="SessionToken"
from="//BeginSessionResults/SessionToken/node()"></assign>
          <assign to="." from="*"></assign>
        </output>
        <input message="inmsg">
          <assign to="." from="*"></assign>
        </input>
      </operation>

      <operation name="CD Server End Session Service">
        <participant name="CDServerEndSession"/>
        <output message="CDServerEndSessionServiceTypeInputMessage">
          <assign to="SessionToken"
from="//BeginSessionResults/SessionToken/node()"></assign>
          <assign to="." from="*"></assign>
        </output>
        <input message="inmsg">
          <assign to="." from="*"></assign>
        </input>
      </operation>
    </sequence>
</process>
```

Connect:Direct Server Adapter User Guide

Use Sterling Integrator to Copy a File to a Connect:Direct for UNIX Node

In this sample, shown in BPML, the Sterling Integrator CopyToCDUX business process passes a document to the Connect:Direct Server adapter (PNODE) which copies the file to the Connect:Direct for UNIX node (SNODE). The business process functions much like a Connect:Direct process.

In the first operation of the CopyToCDUX business process, the File System Adapter collects (reads) the invoice.dly file from the Sterling Integrator local file system. This file becomes the primary document of the business process.

The second operation uses the CD Server Begin Session Service to establish a connection to the remote Connect:Direct for UNIX node, CDUX. The local node name of the Connect:Direct Server adapter is SI51CD. The Begin Session Service uses the remote user ID of cduser to authenticate to the Connect:Direct server.

The third operation uses the CD Server CopyTo Service to copy the primary document to the remote Connect:Direct server. The destination file name is daily.inv. The Sysopts specifies that the file datatype of the file is text and the file is not translated. The Session Token created by the CD Server Begin Session Service identifies the session that is established with the remote Connect:Direct node. The SessionToken value in the CD Server CopyTo Service ensures that this service copies the file using the session initiated by the CD Server Begin Session Service.

The fourth operation uses the CD Server End Session Service to terminate the session with the Connect:Direct server.

Note: The Sterling Integrator Graphical Process Modeler (GPM) is used as the primary means to perform most of the common user tasks described in the User Guide. To see BPML source code like the example shown below, select View > Source while using the GPM. To see the business process as depicted in the GPM user interface, select View > Graph.

```
<process name="CopyToCDUX">
  <sequence>

<operation name="File System Adapter">
      <participant name="CollectForCD"/>
      <output message="FileSystemInputMessage">
        <assign to="Action">FS_COLLECT</assign>
        <assign to="filter">invoice.dly</assign>
        <assign to="collectionFolder">/daily/tran</assign>
        <assign to="deleteAfterCollect">false</assign>
        <assign to="." from="*"></assign>
      </output>
      <input message="inmsg">
        <assign to="." from="*"></assign>
      </input>
    </operation>
```

```
     <operation name="CD Server Begin Session Service">
       <participant name="CDServerBeginSession"/>
       <output message="CDServerBeginSessionServiceTypeInputMessage">
         <assign to="LocalCDNodeName">SI51CD</assign>
         <assign to="RemoteCDNodeName">CDUX</assign>
         <assign to="RemotePasswd">xxxxxxxx</assign>
         <assign to="RemoteUserId">cduser</assign>
         <assign to="UsingObscuredPasswd">NO</assign>
         <assign to="." from="*"></assign>
       </output>
       <input message="inmsg">
         <assign to="." from="*"></assign>
       </input>
     </operation>

     <operation name="CD Server CopyTo Service">
       <participant name="CDServerCopyTo"/>
       <output message="CDServerCopyToServiceTypeInputMessage">
         <assign to="RemoteFileName">/invoices/daily.inv</assign>
         <assign to="Sysopts">:datatype=text:xlate=no:</assign>
         <assign to="SessionToken"
 from="//BeginSessionResults/SessionToken/node()"></assign>
         <assign to="." from="*"></assign>
       </output>
       <input message="inmsg">
         <assign to="." from="*"></assign>
       </input>
     </operation>

     <operation name="CD Server End Session Service">
       <participant name="CDServerEndSession"/>
       <output message="CDServerEndSessionServiceTypeInputMessage">
         <assign to="SessionToken"
 from="//BeginSessionResults/SessionToken/node()"></assign>
         <assign to="." from="*"></assign>
       </output>
       <input message="inmsg">
         <assign to="." from="*"></assign>
       </input>
     </operation>
   </sequence>
</process>
```

Connect:Direct Server Adapter User Guide

Use Sterling Integrator to Copy a File to a Connect:Direct HP NonStop Node

In this sample, shown in BPML, the Sterling Integrator CopyToCDHPNonStop business process passes a document to the Connect:Direct Server adapter (PNODE) which copies the file to the Connect:Direct HP NonStop node (SNODE). The business process functions much like a Connect:Direct process.

In the first operation of the CopyToCDHPNonStop business process, the File System Adapter collects (reads) the daily.txt file from the Sterling Integrator local file system. This file becomes the primary document of the business process.

The second operation uses the CD Server Begin Session Service to establish a connection to the remote Connect:Direct HP NonStop node, CDHPNS. The local node name of the Connect:Direct Server adapter is SI51CD. The Begin Session Service uses the remote user ID of cduser to authenticate to the Connect:Direct server.

The third operation uses the CD Server Run Task Service to delete any previous copy of the HP NonStop file. The PURGE $VOL.SUBVOL.CDSATEST! command is passed to the File Utility Program (FUP) which deletes $VOL.SUBVOL.CDSATEST on the HP NonStop system.

The fourth operation uses the CD Server CopyTo Service to copy the primary document to the remote Connect:Direct server. The destination file name is $VOL.SUBVOL.CDSATEST. BinaryMode is set to NO to send the file as text and the Sysopts are SET TYPE E,REC 80 to create an 80 byte record of file type E. CDDisposition is set to NEW because any previous version of the file is deleted. The Session Token created by the CD Server Begin Session Service identifies the session that is established with the remote Connect:Direct node. The SessionToken value in the CD Server CopyTo Service ensures that this service copies the file using the session initiated by the CD Server Begin Session Service.

The last operation uses the CD Server End Session Service to terminate the session with the Connect:Direct server.

Note: The Sterling Integrator Graphical Process Modeler (GPM) is used as the primary means to perform most of the common user tasks described in the User Guide. To see BPML source code like the example shown below, select View > Source while using the GPM. To see the business process as depicted in the GPM user interface, select View > Graph.

```
<process name="CopyToCDHPNonStop">
  <sequence>

    <operation name="File System Adapter">
      <participant name="CollectForCD"/>
      <output message="FileSystemInputMessage">
        <assign to="Action">FS_COLLECT</assign>
        <assign to="filter">daily.txt</assign>
        <assign to="deleteAfterCollect">false</assign>
        <assign to="." from="*"></assign>
      </output>
      <input message="inmsg">
        <assign to="." from="*"></assign>
      </input>
    </operation>

    <operation name="CD Server Begin Session Service">
      <participant name="CDServerBeginSession"/>
      <output message="CDServerBeginSessionServiceTypeInputMessage">
        <assign to="LocalCDNodeName">SI51CD</assign>
        <assign to="RemoteCDNodeName">CDHPNS</assign>
        <assign to="RemotePasswd">xxxxxxxx</assign>
        <assign to="RemoteUserId">cduser</assign>
        <assign to="UsingObscuredPasswd">NO</assign>
        <assign to="." from="*"></assign>
      </output>
      <input message="inmsg">
        <assign to="." from="*"></assign>
      </input>
    </operation>

<operation name="CD Server Run Task Service">
        <participant name="CDServerRunTask"/>
        <output message="CDServerRunTaskServiceTypeInputMessage">
          <assign to="SessionToken"
from="//BeginSessionResults/SessionToken/node()"></assign>
          <assign to="Program">FUP</assign>
          <assign to="SystemOpts">PURGE $VOL.SUBVOL.CDSATEST!</assign>
          <assign to="." from="*"></assign>
        </output>
        <input message="inmsg">
          <assign to="." from="*"></assign>
        </input>
      </operation>
```

```
     <operation name="CD Server CopyTo Service">
       <participant name="CDServerCopyTo"/>
       <output message="CDServerCopyToServiceTypeInputMessage">
         <assign to="RemoteFileName">$VOL.SUBVOL.CDSATEST</assign>
         <assign to="BinaryMode">NO</assign>
         <assign to="Sysopts">SET TYPE E,REC 80</assign>
         <assign to="CDDisposition">NEW</assign>
         <assign to="SessionToken"
 from="//BeginSessionResults/SessionToken/node()"></assign>
         <assign to="." from="*"></assign>
       </output>
       <input message="inmsg">
         <assign to="." from="*"></assign>
       </input>
     </operation>

     <operation name="CD Server End Session Service">
       <participant name="CDServerEndSession"/>
       <output message="CDServerEndSessionServiceTypeInputMessage">
         <assign to="SessionToken"
 from="//BeginSessionResults/SessionToken/node()"></assign>
         <assign to="." from="*"></assign>
       </output>
       <input message="inmsg">
         <assign to="." from="*"></assign>
       </input>
     </operation>
   </sequence>
</process>
```

Use Sterling Integrator to Copy a File to a Connect:Direct for i5/OS Node

In this sample, shown in BPML, the Sterling Integrator CopyToCDi5OS business process passes a document to the Connect:Direct Server adapter (PNODE) which copies the file to the Connect:Direct for i5/OS node (SNODE). The business process functions much like a Connect:Direct process.

In the first operation of the CopyToCDi5OS business process, the Mailbox Extract Begin Service retrieves the test1.zip message from the Sterling Integrator mailbox system. This file becomes the primary document of the business process.

The second operation uses the CD Server Begin Session Service to establish a connection to the remote Connect:Direct for i5/OS node, CDi5OS. The local node name of the Connect:Direct Server adapter is SI51CD. The Begin Session Service uses the remote user ID of cduser to authenticate to the Connect:Direct server.

The third operation uses the CD Server CopyTo Service to copy the primary document to the remote Connect:Direct server. The destination file name is test3.zip. BinaryMode is set to YES to send the file in binary mode and the Sysopts set TEXTFILE to NO to create a text file. CDDisposition is set to RPL and CheckpointInterval is set to 1000. The Session Token created by the CD Server Begin Session Service identifies the session that is established with the remote Connect:Direct node. The SessionToken value in the CD Server CopyTo Service ensures that this service copies the file using the session initiated by the CD Server Begin Session Service.

The fourth operation uses the CD Server End Session Service to terminate the session with the Connect:Direct server.

Note: The Sterling Integrator Graphical Process Modeler (GPM) is used as the primary means to perform most of the common user tasks described in the User Guide. To see BPML source code like the example shown below, select View > Source while using the GPM. To see the business process as depicted in the GPM user interface, select View > Graph.

```
<process name="CopyToCDi5OS">
  <sequence>

<operation name="Mailbox ExtractBegin Service">
     <participant name="MailboxExtractBegin"/>
     <output message="ExtractBeginRequest">
       <assign to="MessageName">test1.zip</assign>
       <assign to="MessageId">36</assign>
       <assign to="CommitNow">Yes</assign>
       <assign to="." from="*"></assign>
     </output>
     <input message="inmsg">
       <assign to="." from="*"></assign>
     </input>
    </operation>
```

Connect:Direct Server Adapter User Guide

```
      <operation name="CD Server Begin Session Service">
        <participant name="CDServerBeginSession"/>
        <output message="CDServerBeginSessionServiceTypeInputMessage">
          <assign to="LocalCDNodeName">SI51CD</assign>
          <assign to="RemoteCDNodeName">CDi5OS</assign>
          <assign to="RemotePasswd">xxxxxxxx</assign>
          <assign to="RemoteUserId">cduser</assign>
          <assign to="UsingObscuredPasswd">NO</assign>
          <assign to="." from="*"></assign>
        </output>
        <input message="inmsg">
          <assign to="." from="*"></assign>
        </input>
      </operation>

      <operation name="CD Server CopyTo Service">
        <participant name="CDServerCopyTo"/>
        <output message="CDServerCopyToServiceTypeInputMessage">
          <assign to="RemoteFileName">/home/qadata/test3.zip</assign>
          <assign to="BinaryMode">YES</assign>
          <assign to="Sysopts">TEXTFILE(*NO)</assign>
          <assign to="CheckpointInterval">1000</assign>
          <assign to="CDDisposition">RPL</assign>
          <assign to="SessionToken"
 from="//BeginSessionResults/SessionToken/node()"></assign>
          <assign to="." from="*"></assign>
        </output>
        <input message="inmsg">
          <assign to="." from="*"></assign>
        </input>
      </operation>

      <operation name="CD Server End Session Service">
        <participant name="CDServerEndSession"/>
        <output message="CDServerEndSessionServiceTypeInputMessage">
          <assign to="SessionToken"
 from="//BeginSessionResults/SessionToken/node()"></assign>
          <assign to="." from="*"></assign>
        </output>
        <input message="inmsg">
          <assign to="." from="*"></assign>
        </input>
      </operation>
    </sequence>
</process>
```

Use Sterling Integrator to Copy a File from Connect:Direct

In this sample, shown in BPML, the Sterling Integrator CopyFromCD business process invokes the Connect:Direct Server adapter (PNODE) which copies the file from the Connect:Direct node (SNODE) back to the business process as the primary document. The business process functions much like a Connect:Direct process.

The first operation uses the CD Server Begin Session Service to establish a connection to the remote Connect:Direct node, CDWIN. The local node name of the Connect:Direct Server adapter is SI51CD. The Begin Session Service uses the remote user ID of cduser to authenticate to the Connect:Direct server.

The second operation uses the CD Server CopyFrom Service to copy the source file from the remote Connect:Direct server. The source file name is sample.txt. The Session Token created by the CD Server Begin Session Service identifies the session that is established with the remote Connect:Direct node. The SessionToken value in the CD Server CopyTo Service ensures that this service copies the file using the session initiated by the CD Server Begin Session Service.

The third operation uses the CD Server End Session Service to terminate the session with the Connect:Direct server.

The last operation uses the MailboxAdd service to store the file sample.txt as a message in mailbox /box1.

Note: The Sterling Integrator Graphical Process Modeler (GPM) is used as the primary means to perform most of the common user tasks described in the User Guide. To see BPML source code like the example shown below, select View > Source while using the GPM. To see the business process as depicted in the GPM user interface, select View > Graph.

```
<process name="CopyFromCD">
  <sequence>

    <operation name="CD Server Begin Session Service">
      <participant name="CDServerBeginSession"/>
      <output message="CDServerBeginSessionServiceTypeInputMessage">
        <assign to="LocalCDNodeName">SI51CD</assign>
        <assign to="RemoteCDNodeName">CDWIN</assign>
        <assign to="RemotePasswd">xxxxxxxx</assign>
        <assign to="RemoteUserId">cduser</assign>
        <assign to="UsingObscuredPasswd">NO</assign>
        <assign to="." from="*"></assign>
      </output>
      <input message="inmsg">
        <assign to="." from="*"></assign>
      </input>
    </operation>
```

```
      <operation name="CD Server CopyFrom Service">
        <participant name="CDServerCopyFrom"/>
        <output message="CDServerCopyFromServiceTypeInputMessage">
          <assign to="RemoteFileName">sample.txt</assign>
          <assign to="SessionToken"
 from="//BeginSessionResults/SessionToken/node()"></assign>
          <assign to="." from="*"></assign>
        </output>
        <input message="inmsg">
          <assign to="." from="*"></assign>
        </input>
      </operation>

      <operation name="CD Server End Session Service">
        <participant name="CDServerEndSession"/>
        <output message="CDServerEndSessionServiceTypeInputMessage">
          <assign to="SessionToken"
 from="//BeginSessionResults/SessionToken/node()"></assign>
          <assign to="." from="*"></assign>
        </output>
        <input message="inmsg">
          <assign to="." from="*"></assign>
        </input>
      </operation>

<!-- Add Msg to  mailbox -->
  <operation name="Mailbox Add Service">
      <participant name="MailboxAdd"/>
      <output message="AddRequest">
      <assign to="." from="*"></assign>
      <assign to="MailboxPath">/box1</assign>
      <assign to="MessageName">sample.txt</assign>
      </output>
      <input message="inmsg">
      <assign to="AddResults" from="*"></assign>
      </input>
    </operation>

</sequence>
</process>
```

Add Error Handling to the Business Process

In this sample, shown in BPML, add error handling to the Sterling Integrator business process you created that passes a document to the Connect:Direct Server adapter (PNODE) which copies the file to the Connect:Direct node (SNODE). The error handling ensures that the Connect:Direct session closes if an error is encountered during the session.

The onFault branch contains an instance of the CD Server End Session Service. If an error occurs after the Begin Session Service, the onFault logic is invoked and the End Session Service terminates the session with the Connect:Direct server.

Note: The Sterling Integrator Graphical Process Modeler (GPM) is used as the primary means to perform most of the common user tasks described in the User Guide. To see BPML source code like the example shown below, select View > Source while using the GPM. To see the business process as depicted in the GPM user interface, select View > Graph.

```
<process name="CopyToCD">
  <sequence>
    <operation name="File System Adapter">
      <participant name="CollectForCD"/>
      <output message="FileSystemInputMessage">
        <assign to="Action">FS_COLLECT</assign>
        <assign to="filter">daily.txt</assign>
        <assign to="collectionFolder">C:\Collection</assign>
        <assign to="deleteAfterCollect">false</assign>
        <assign to="." from="*"></assign>
      </output>
      <input message="inmsg">
        <assign to="." from="*"></assign>
      </input>
    </operation>

    <operation name="CD Server Begin Session Service">
      <participant name="CDServerBeginSession"/>
      <output message="CDServerBeginSessionServiceTypeInputMessage">
        <assign to="LocalCDNodeName">SI51CD</assign>
        <assign to="RemoteCDNodeName">CDWIN</assign>
        <assign to="RemotePasswd">xxxxxxxx</assign>
        <assign to="RemoteUserId">cduser</assign>
        <assign to="UsingObscuredPasswd">NO</assign>
        <assign to="." from="*"></assign>
      </output>
      <input message="inmsg">
        <assign to="." from="*"></assign>
      </input>
    </operation>
```

```
    <sequence>
      <operation name="CD Server CopyTo Service">
        <participant name="CDServerCopyTo"/>
        <output message="CDServerCopyToServiceTypeInputMessage">
          <assign to="RemoteFileName">cd.txt</assign>
          <assign to="SessionToken"
from="//BeginSessionResults/SessionToken/node()"></assign>
          <assign to="." from="*"></assign>
        </output>
        <input message="inmsg">
          <assign to="." from="*"></assign>
        </input>
      </operation>

      <operation name="CD Server End Session Service">
        <participant name="CDServerEndSession"/>
        <output message="CDServerEndSessionServiceTypeInputMessage">
          <assign to="SessionToken"
from="//BeginSessionResults/SessionToken/node()"></assign>
          <assign to="." from="*"></assign>
        </output>
        <input message="inmsg">
          <assign to="." from="*"></assign>
        </input>

      </operation>
      <onFault>
        <operation name="CD Server End Session Service">
          <participant name="CDServerEndSession"/>
          <output message="CDServerEndSessionServiceTypeInputMessage">
            <assign to="SessionToken"
from="//BeginSessionResults/SessionToken/node()"></assign>
            <assign to="." from="*"></assign>
          </output>
          <input message="inmsg">
            <assign to="." from="*"></assign>
          </input>
        </operation>

      </onFault>
    </sequence>
  </sequence>
</process>
```

Use Sterling Integrator to Submit a Connect:Direct Process

In this sample, shown in BPML, modify the Sterling Integrator business process to submit a process on the Connect:Direct node after the file is copied. The Connect:Direct process copies the file received from Sterling Integrator to a z/OS system.

The CD Server Submit Service is placed after the CD Server CopyTo Service. The Submit Service submits a Connect:Direct process called Copy2ZOS.cdp.

Note: The Sterling Integrator Graphical Process Modeler (GPM) is used as the primary means to perform most of the common user tasks described in the User Guide. To see BPML source code like the example shown below, select View > Source while using the GPM. To see the business process as depicted in the GPM user interface, select View > Graph.

```
<process name="CopyToCD_Submit">
  <sequence>

    <operation name="File System Adapter">
      <participant name="CollectForCD"/>
      <output message="FileSystemInputMessage">
        <assign to="Action">FS_COLLECT</assign>
        <assign to="filter">daily.txt</assign>
        <assign to="collectionFolder">C:\Collection</assign>
        <assign to="deleteAfterCollect">false</assign>
        <assign to="." from="*"></assign>
      </output>
      <input message="inmsg">
        <assign to="." from="*"></assign>
      </input>
    </operation>

    <operation name="CD Server Begin Session Service">
      <participant name="CDServerBeginSession"/>
      <output message="CDServerBeginSessionServiceTypeInputMessage">
        <assign to="LocalCDNodeName">SI51CD</assign>
        <assign to="RemoteCDNodeName">CDWIN</assign>
        <assign to="RemotePasswd">xxxxxxxx</assign>
        <assign to="RemoteUserId">cduser</assign>
        <assign to="UsingObscuredPasswd">NO</assign>
        <assign to="." from="*"></assign>
      </output>
      <input message="inmsg">
        <assign to="." from="*"></assign>
      </input>
    </operation>
```

```
    <sequence name="Sequence Start">
      <operation name="CD Server CopyTo Service">
        <participant name="CDServerCopyTo"/>
        <output message="CDServerCopyToServiceTypeInputMessage">
          <assign to="RemoteFileName">cd.txt</assign>
          <assign to="SessionToken"
from="//BeginSessionResults/SessionToken/node()"></assign>
          <assign to="." from="*"></assign>
        </output>
        <input message="inmsg">
          <assign to="." from="*"></assign>
        </input>
      </operation>

      <operation name="CD Server Submit Service">
        <participant name="CDServerSubmit"/>
        <output message="CDServerSubmitServiceTypeInputMessage">
          <assign to="RemoteProcessFile">Copy2ZOS.cdp</assign>
          <assign to="SessionToken"
from="//BeginSessionResults/SessionToken/node()"></assign>
          <assign to="." from="*"></assign>
        </output>
        <input message="inmsg">
          <assign to="." from="*"></assign>
        </input>
      </operation>

      <operation name="CD Server End Session Service">
        <participant name="CDServerEndSession"/>
        <output message="CDServerEndSessionServiceTypeInputMessage">
          <assign to="SessionToken"
from="//BeginSessionResults/SessionToken/node()"></assign>
          <assign to="." from="*"></assign>
        </output>
        <input message="inmsg">
          <assign to="." from="*"></assign>
        </input>
      </operation>
      <onFault>
        <operation name="CD Server End Session Service">
          <participant name="CDServerEndSession"/>
          <output message="CDServerEndSessionServiceTypeInputMessage">
            <assign to="SessionToken"
from="//BeginSessionResults/SessionToken/node()"></assign>
            <assign to="." from="*"></assign>
          </output>
          <input message="inmsg">
            <assign to="." from="*"></assign>
          </input>
        </operation>

      </onFault>
    </sequence>
  </sequence>
</process>
```

Use Sterling Integrator to Start a Connect:Direct Run Job

In this sample, shown in BPML, modify the Sterling Integrator business process to start a program on the Connect:Direct server using a Run Job after a file is copied. The Connect:Direct Server adapter does not verify the validity of the submitted program and does not wait for the submitted job to complete. The program runs as a separate process.

The CD Server Run Job Service is placed after the CopyTo Service. The Run Job Service passes *pgm(C:\Windows\notepad.exe) desktop(yes)* to the remote Connect:Direct server via Sysopts. This causes the Windows Notepad application to run on the Connect:Direct server.

Note: The Sterling Integrator Graphical Process Modeler (GPM) is used as the primary means to perform most of the common user tasks described in the User Guide. To see BPML source code like the example shown below, select View > Source while using the GPM. To see the business process as depicted in the GPM user interface, select View > Graph.

```
<process name="CopyToCD_RunJob">
  <sequence>

    <operation name="File System Adapter">
      <participant name="CollectForCD"/>
      <output message="FileSystemInputMessage">
        <assign to="Action">FS_COLLECT</assign>
        <assign to="filter">daily.txt</assign>
        <assign to="collectionFolder">C:\Collection</assign>
        <assign to="deleteAfterCollect">false</assign>
        <assign to="." from="*"></assign>
      </output>
      <input message="inmsg">
        <assign to="." from="*"></assign>
      </input>
    </operation>

    <operation name="CD Server Begin Session Service">
      <participant name="CDServerBeginSession"/>
      <output message="CDServerBeginSessionServiceTypeInputMessage">
        <assign to="LocalCDNodeName">SI51CD</assign>
        <assign to="RemoteCDNodeName">CDWIN</assign>
        <assign to="RemotePasswd">xxxxxxxx</assign>
        <assign to="RemoteUserId">cduser</assign>
        <assign to="UsingObscuredPasswd">NO</assign>
        <assign to="." from="*"></assign>
      </output>
      <input message="inmsg">
        <assign to="." from="*"></assign>
      </input>
    </operation>
```

```
    <sequence name="Sequence Start">
      <operation name="CD Server CopyTo Service">
        <participant name="CDServerCopyTo"/>
        <output message="CDServerCopyToServiceTypeInputMessage">
          <assign to="RemoteFileName">cd.txt</assign>
          <assign to="SessionToken"
from="//BeginSessionResults/SessionToken/node()"></assign>
          <assign to="." from="*"></assign>
        </output>
        <input message="inmsg">
          <assign to="." from="*"></assign>
        </input>
      </operation>

<operation name="CD Server Run Job Service">
        <participant name="CDServerRunJob"/>
        <output message="CDServerRunJobServiceTypeInputMessage">
          <assign to="SessionToken"
from="//BeginSessionResults/SessionToken/node()"></assign>
          <assign to="Sysopts">pgm(C:\Windows\notepad.exe) desktop(yes)</assign>
          <assign to="." from="*"></assign>
        </output>
        <input message="inmsg">
          <assign to="." from="*"></assign>
        </input>
      </operation>

      <operation name="CD Server End Session Service">
        <participant name="CDServerEndSession"/>
        <output message="CDServerEndSessionServiceTypeInputMessage">
          <assign to="SessionToken"
from="//BeginSessionResults/SessionToken/node()"></assign>
          <assign to="." from="*"></assign>
        </output>
        <input message="inmsg">
          <assign to="." from="*"></assign>
        </input>
      </operation>
      <onFault>
        <operation name="CD Server End Session Service">
          <participant name="CDServerEndSession"/>
          <output message="CDServerEndSessionServiceTypeInputMessage">
            <assign to="SessionToken"
from="//BeginSessionResults/SessionToken/node()"></assign>
            <assign to="." from="*"></assign>
          </output>
          <input message="inmsg">
            <assign to="." from="*"></assign>
          </input>
        </operation>

      </onFault>
    </sequence>
  </sequence>
</process>
```

Use Sterling Integrator to Start a Connect:Direct Run Task

In this sample, shown in BPML, modify the Sterling Integrator business process to start and wait on a program on the Connect:Direct server via a Run Task after the source file is copied. The program may be a program or script. The Connect:Direct Server adapter does not verify the validity of the submitted program, but it does wait for the submitted job to complete before moving to the next service in the business process. The program or script runs as a separate process.

The CD Server Run Task Service is placed after the CopyTo Service. The Run Task Service passes pgm(C:\Windows\notepad.exe) desktop(yes) to the remote Connect:Direct server via the SystemOpts parameter. (SystemOpts is the equivalent of Sysopts.) This causes the Windows Notepad application to run on the Connect:Direct server.

Note: Do not enclose the value specified for SystemOpts in double quotes.

Note: The Sterling Integrator Graphical Process Modeler (GPM) is used as the primary means to perform most of the common user tasks described in the User Guide. To see BPML source code like the example shown below, select View > Source while using the GPM. To see the business process as depicted in the GPM user interface, select View > Graph.

```
<process name="CopyToCD_RunTask">
  <sequence>

    <operation name="File System Adapter">
      <participant name="CollectForCD"/>
      <output message="FileSystemInputMessage">
        <assign to="Action">FS_COLLECT</assign>
        <assign to="filter">daily.txt</assign>
        <assign to="collectionFolder">C:\Collection</assign>
        <assign to="deleteAfterCollect">false</assign>
        <assign to="." from="*"></assign>
      </output>
      <input message="inmsg">
        <assign to="." from="*"></assign>
      </input>
    </operation>

    <operation name="CD Server Begin Session Service">
      <participant name="CDServerBeginSession"/>
      <output message="CDServerBeginSessionServiceTypeInputMessage">
        <assign to="LocalCDNodeName">SI51CD</assign>
        <assign to="RemoteCDNodeName">CDWIN</assign>
        <assign to="RemotePasswd">xxxxxxxx</assign>
        <assign to="RemoteUserId">cduser</assign>
        <assign to="UsingObscuredPasswd">NO</assign>
        <assign to="." from="*"></assign>
      </output>
      <input message="inmsg">
        <assign to="." from="*"></assign>
      </input>
    </operation>
```

```
    <sequence name="Sequence Start">
      <operation name="CD Server CopyTo Service">
        <participant name="CDServerCopyTo"/>
        <output message="CDServerCopyToServiceTypeInputMessage">
          <assign to="RemoteFileName">cd.txt</assign>
          <assign to="SessionToken"
from="//BeginSessionResults/SessionToken/node()"></assign>
          <assign to="." from="*"></assign>
        </output>
        <input message="inmsg">
          <assign to="." from="*"></assign>
        </input>
      </operation>

      <operation name="CD Server Run Task Service">
        <participant name="CDServerRunTask"/>
        <output message="CDServerRunTaskServiceTypeInputMessage">
          <assign to="SessionToken"
from="//BeginSessionResults/SessionToken/node()"></assign>
          <assign to="SystemOpts">pgm(C:\Windows\notepad.exe)
desktop(yes)</assign>
          <assign to="." from="*"></assign>
        </output>
        <input message="inmsg">
          <assign to="." from="*"></assign>
        </input>
      </operation>

      <operation name="CD Server End Session Service">
        <participant name="CDServerEndSession"/>
        <output message="CDServerEndSessionServiceTypeInputMessage">
          <assign to="SessionToken"
from="//BeginSessionResults/SessionToken/node()"></assign>
          <assign to="." from="*"></assign>
        </output>
        <input message="inmsg">
          <assign to="." from="*"></assign>
        </input>
      </operation>
      <onFault>
        <operation name="CD Server End Session Service">
          <participant name="CDServerEndSession"/>
          <output message="CDServerEndSessionServiceTypeInputMessage">
            <assign to="SessionToken"
from="//BeginSessionResults/SessionToken/node()"></assign>
            <assign to="." from="*"></assign>
          </output>
          <input message="inmsg">
            <assign to="." from="*"></assign>
          </input>
        </operation>

      </onFault>
    </sequence>
  </sequence>
</process>
```

Hide the Connect:Direct Password in the Business Process

In this sample, shown in BPML, modify the Sterling Integrator business process by adding an Obscure Data - Process Data Values Service before the CD Server Begin Session Service to hide the value of the user password.

The first operation in the business process is Obscure Data - Process Data Values. This service works with the CD Server Begin Session Service so that the password for the remote Connect:Direct User ID, cduser, is not revealed in the business process. The password is retrieved using the RemotePasswd parameter, which is set to cduser/text( )in the Begin Session Service.

Note: The Sterling Integrator Graphical Process Modeler (GPM) is used as the primary means to perform most of the common user tasks described in the User Guide. To see BPML source code like the example shown below, select View > Source while using the GPM. To see the business process as depicted in the GPM user interface, select View > Graph.

```
<process name="CopyToCD_HidePassword">
  <sequence>
    <operation name="File System Adapter">
      <participant name="CollectForCD"/>
      <output message="FileSystemInputMessage">
        <assign to="Action">FS_COLLECT</assign>
        <assign to="filter">daily.txt</assign>
        <assign to="collectionFolder">C:\Collection</assign>
        <assign to="deleteAfterCollect">false</assign>
        <assign to="." from="*"></assign>
      </output>
      <input message="inmsg">
        <assign to="." from="*"></assign>
      </input>
    </operation>

    <operation name="Obscure Data - Process Data Values">
      <participant name="CDClientObscureParameter"/>
      <output message="ObscureParameterInputMessage">
        <assign to="." from="*"></assign>
      </output>
      <input message="inmsg">
        <assign to="." from="*"></assign>
      </input>
    </operation>

    <operation name="CD Server Begin Session Service">
      <participant name="CDServerBeginSession"/>
      <output message="CDServerBeginSessionServiceTypeInputMessage">
        <assign to="LocalCDNodeName">SI51CD</assign>
        <assign to="RemoteCDNodeName">CDWIN</assign>
        <assign to="RemotePasswd" from="cduser/text()"></assign>
        <assign to="RemoteUserId">cduser</assign>
        <assign to="UsingObscuredPasswd">YES</assign>
        <assign to="." from="*"></assign>
      </output>
      <input message="inmsg">
        <assign to="BeginSessionResults" from="*"></assign>
      </input>
    </operation>
```

```
     <sequence name="Sequence Start">
        <operation name="CD Server CopyTo Service">
          <participant name="CDServerCopyTo"/>
          <output message="CDServerCopyToServiceTypeInputMessage">
            <assign to="RemoteFileName">cd.txt</assign>
            <assign to="SessionToken"
from="//BeginSessionResults/SessionToken/node()"></assign>
            <assign to="." from="*"></assign>
          </output>
          <input message="inmsg">
            <assign to="." from="*"></assign>
          </input>
        </operation>

        <operation name="CD Server Run Task Service">
          <participant name="CDServerRunTask"/>
          <output message="CDServerRunTaskServiceTypeInputMessage">
          <assign to="SessionToken"
from="//BeginSessionResults/SessionToken/node()"></assign>
            <assign to="SystemOpts">pgm(C:\Windows\notepad.exe)
desktop(yes)</assign>
            <assign to="." from="*"></assign>
          </output>
          <input message="inmsg">
            <assign to="." from="*"></assign>
          </input>
        </operation>

<operation name="CD Server End Session Service">
        <participant name="CDServerEndSession"/>
        <output message="CDServerEndSessionServiceTypeInputMessage">
          <assign to="SessionToken"
from="//BeginSessionResults/SessionToken/node()"></assign>
          <assign to="." from="*"></assign>
        </output>
        <input message="inmsg">
          <assign to="." from="*"></assign>
        </input>
      </operation>

      <onFault>
        <operation name="CD Server End Session Service">
          <participant name="CDServerEndSession"/>
          <output message="CDServerEndSessionServiceTypeInputMessage">
            <assign to="SessionToken"
from="//BeginSessionResults/SessionToken/node()"></assign>
            <assign to="." from="*"></assign>
          </output>
          <input message="inmsg">
            <assign to="." from="*"></assign>
          </input>
        </operation>

      </onFault>
    </sequence>
  </sequence>
</process>
```

Use Sterling Integrator to Copy a File to Connect:Direct for z/OS (Advanced)

In this sample, shown in BPML, the Sterling Integrator CopyToCDzOS business process passes a document to the Connect:Direct Server adapter (PNODE) which copies the file to the Connect:Direct for z/OS node (SNODE). The business process functions much like a Connect:Direct process. In this complex example containing nine operations, the operation numbers are shown in the BPML code and correspond to the following narrative.

In Operation 1 of the CopyToCDzOS business process, the File System Adapter collects (reads) the bp1mbin.txt file from the Sterling Integrator local file system. This file becomes the primary document of the business process.

Operation 2 uses the CD Server Begin Session Service to establish a connection to the remote Connect:Direct node, CD.ZOS. The local node name of the Connect:Direct Server adapter is SI51CD. The Begin Session Service uses the remote user ID of cduser to authenticate to the Connect:Direct server.

Operation 3 executes a CD Server Run Task service to delete and uncatalog the output file, CSDQA1.O.TESTFILE.SMS2, if that file already exists. In addition, this operation unallocates the CSDQA1.O.TESTFILE.SMS2 file.

> **Note:**   *SystemOpts* is the equivalent of *Sysopts*.
>
> Also, do not enclose the value specified for SystemOpts in double quotes.

Operation 4 uses the CD Server CopyTo Service to copy the primary document to the remote Connect:Direct for z/OS node. The CopyTo Service allocates an SMS managed file on z/OS with the following Remote parms:

✦   RemoteSMS—SMS parms passed to z/OS for allocation. This parm specifies that the z/OS system allocates this file with a DATACLAS of CSGWORK, STORCLAS of BENCH, MGMTCLAS of STANDARD, and uses kilobytes (K) as the allocation unit (AVGREC)

✦   RemoteDISP— the disposition of the new file.

✦   RemoteFileName—the name of the destination z/OS dataset.

✦   RemoteSPACE—defines the space requirements for the allocation.

Operation 5 uses the CD Server Run Task Service to execute the DMRTDYN utility program to perform the following functions:

✦   Allocate a file on the z/OS system with a DDname of OLDDD to be used as a basis for comparison to the output file

✦   Allocate the output file from the previous step with a DDname of NEWDD for a comparison.

✦   Allocate an output DD called OUTDD that holds the output report file for the Compare step instead of an actual file.

Operation 6 uses the CD Server Run Task Service to execute the ISRSUPC program, a compare utility. The ISRSUPC program compares the file allocated to OLDDD and the file allocated to NEWDD using the parms in the Sysopts. The results are written to the OUTDD.

Operation 7 uses the CD Server Run Task Service to execute DMRTDYN to deallocate OLDDD, NEWDD and OUTDD.

Operation 8 uses the CD Server End Session Service to terminate the session with the Connect:Direct server after the business process has executed successfully. To accommodate error processing, Operation 9 contains an onFault branch with its own instance of the CD Server End Session Service. If an error occurs after the Begin Session Service, the onFault logic is invoked and the End Session Service terminates the session with the Connect:Direct server.

Note: The Sterling Integrator Graphical Process Modeler (GPM) is used as the primary means to perform most of the common user tasks described in the User Guide. To see BPML source code like the example shown below, select View > Source while using the GPM. To see the business process as depicted in the GPM user interface, select View > Graph.

```
<process name="CopyTOCDzOS">

  <sequence name="Session Start">

    <operation name="File System Adapter">                      OPERATION 1
      <participant name="CDExtractionService"/>
      <output message="FileSystemInputMessage">
        <assign to="Action">FS_COLLECT</assign>
        <assign to="filter">bp1mbin.txt</assign>
        <assign to="collectionFolder">/collection</assign>
        <assign to="collectZeroByteFiles">true</assign>
        <assign to="deleteAfterCollect">false</assign>
        <assign to="docStorageType">fs</assign>
        <assign to="." from="*"></assign>
      </output>
      <input message="inmsg">
        <assign to="." from="*"></assign>
      </input>
    </operation>

    <operation name="CD Server Begin Session Service">          OPERATION 2
      <participant name="CDServerBeginSession"/>
      <output message="CDServerBeginSessionServiceTypeInputMessage">
        <assign to="RemoteUserId">cduser</assign>
        <assign to="LocalCDNodeName">SI51CD</assign>
        <assign to="RemoteCDNodeName">CD.ZOS</assign>
        <assign to="RemotePasswd">xxxx</assign>
        <assign to="." from="*"></assign>
      </output>
      <input message="inmsg">
        <assign to="." from="*"></assign>
        <assign to="BeginSessionResults" from="*"></assign>
      </input>
    </operation>
```

```
 <operation name="CD Server Run Task Service">                         OPERATION 3
      <participant name="CDServerRunTask"/>
      <output message="CDServerRunTaskServiceTypeInputMessage">
        <assign to="SystemOpts">C' ALLOC',C' DSN=CSDQA1.O.TESTFILE.SMS2',C'
DISP=(MOD,DELETE)',F'-1',C' UNALLOC',C' DSN=CSDQA1.O.TESTFILE.SMS2'</assign>
        <assign to="Program">DMRTDYN</assign>
        <assign to="SessionToken"
from="//BeginSessionResults/SessionToken/node()"></assign>
        <assign to="." from="*"></assign>
      </output>
      <input message="inmsg">
        <assign to="." from="*"></assign>
      </input>
    </operation>

    <operation name="CD Server CopyTo Service">                        OPERATION 4
      <participant name="CDServerCopyTo"/>
      <output message="CDServerCopyToServiceTypeInputMessage">
        <assign to="RemoteSMS">DATACLAS=CSGWORK AVGREC=K STORCLAS=BENCH
MGMTCLAS=STANDARD</assign>
        <assign to="RemoteDISP">(NEW,KEEP,DELETE)</assign>
        <assign to="RemoteFileName">CSDQA1.O.TESTFILE.SMS2</assign>
        <assign to="RemoteSPACE">(TRK,(18,2),RLSE)</assign>
        <assign to="SessionToken"
from="//BeginSessionResults/SessionToken/node()"></assign>
        <assign to="." from="*"></assign>
      </output>
      <input message="inmsg">
        <assign to="." from="*"></assign>
      </input>
    </operation>

    <operation name="CD Server Run Task Service">                      OPERATION 5
      <participant name="CDServerRunTask"/>
      <output message="CDServerRunTaskServiceTypeInputMessage">
        <assign to="SystemOpts">C' ALLOC',C' DSN=CSDQA1.TESTFILE.BENCH.M1',C'
DISP=SHR',C' DD=OLDDD',F'-1',C' ALLOC',C' DSN=CSDQA1.O.TESTFILE.SMS2',C' DISP=SHR',C'
DD=NEWDD',F'-1',C' ALLOC',C' DD=OUTDD',C' DUMMY',C' SYSOUT=A'</assign>
        <assign to="Program">DMRTDYN</assign>
        <assign to="SessionToken"
from="//BeginSessionResults/SessionToken/node()"></assign>
        <assign to="." from="*"></assign>
      </output>
      <input message="inmsg">
        <assign to="." from="*"></assign>
      </input>
    </operation>

    <operation name="CD Server Run Task Service">                      OPERATION 6
      <participant name="CDServerRunTask"/>
      <output message="CDServerRunTaskServiceTypeInputMessage">
        <assign to="SystemOpts">C' DELTAL',C' LINECMP',C'',C''</assign>
        <assign to="SessionToken"
from="//BeginSessionResults/SessionToken/node()"></assign>
        <assign to="Program">ISRSUPC</assign>
        <assign to="." from="*"></assign>
      </output>
      <input message="inmsg">
        <assign to="." from="*"></assign>
      </input>
    </operation>
```

```
 <operation name="CD Server Run Task Service">                      OPERATION 7
       <participant name="CDServerRunTask"/>
       <output message="CDServerRunTaskServiceTypeInputMessage">
         <assign to="SystemOpts">C' UNALLOC',C' DD=OLDDD',F'-1',C' UNALLOC',C'
DD=NEWDD',F'-1',C' UNALLOC',C' DD=OUTDD'</assign>
         <assign to="SessionToken"
from="//BeginSessionResults/SessionToken/node()"></assign>
         <assign to="Program">DMRTDYN</assign>
         <assign to="." from="*"></assign>
      </output>
      <input message="inmsg">
         <assign to="." from="*"></assign>
      </input>
    </operation>

    <operation name="CD Server End Session Service">                 OPERATION 8
      <participant name="CDServerEndSession"/>
      <output message="CDServerEndSessionServiceTypeInputMessage">
        <assign to="SessionToken"
from="//BeginSessionResults/SessionToken/node()"></assign>
         <assign to="." from="*"></assign>
      </output>
      <input message="inmsg">
         <assign to="." from="*"></assign>
      </input>
    </operation>

    <onFault>

      <operation name="CD Server End Session Service">               OPERATION 9
        <participant name="CDServerEndSession"/>
        <output message="CDServerEndSessionServiceTypeInputMessage">
          <assign to="SessionToken"
from="//BeginSessionResults/SessionToken/node()"></assign>
          <assign to="." from="*"></assign>
        </output>
        <input message="inmsg">
          <assign to="." from="*"></assign>
        </input>
      </operation>

    </onFault>

  </sequence>

</process>
```

Copy Options

Copy Options

There are many copy options available when you use the Connect:Direct Server CopyTo Service.

When you using the Sterling Integrator Connect:Direct Server adapter to copy a file to a remote Connect:Direct server, coordinate the copy options with the Connect:Direct administrator.

Settings for Connect:Direct Server CopyTo Service

When you configure the Connect:Direct Server CopyTo service, you must specify settings for the following fields in the Graphical Process Modeler. These fields are listed in alphabetical order.

Note: Sterling Integrator version 5.1 and later supports the most common set of parameters available in the Connect:Direct for z/OS Process Copy statement To clause to provide more functionality, such as enhanced file allocation and disposition options for the destination file on the remote Connect:Direct for z/OS node. To ensure that business processes created in earlier versions of Sterling Integrator continue to execute properly, parameters existing in versions 5.0 and earlier will still be supported. These old parameters, which cannot be mixed with new parameters in the same CopyTo service, are not included in the following table. For more information on both old and new Connect:Direct CopyTo Service parameters, refer to the Sterling Integrator Services and Adapters documentation in the [Sterling Integrator documentation library](#).

Note: For users familiar with the Connect:Direct Process language, the CD Server CopyTo Service parameters with the Remote prefix are equivalent to the parameters specified in the COPY TO clause of a COPY statement and refer to the destination file being copied to the Connect:Direct node. The parameters with the Local prefix correspond to the parameters specified in the COPY FROM clause and refer to the source file on the Sterling Integrator Connect:Direct Server adapter node.

Field	Description	Supported Remote Connect:Direct Platforms
BinaryMode	Specifies how the data from the source file on the local Connect:Direct Server adapter node will be transferred to the remote Connect:Direct node. Optional. Valid values are: ◆ Yes—file will be transferred in simple binary mode ◆ No—file will not be transferred in binary mode but rather in text mode (default) ◆ VB—copy will be performed as a variable block binary transfer with Connect:Direct on the z/OS platform	Yes—All platforms No—All platforms VB—z/OS platform
CDRecordType	Specifies the entry name of the type defaults file. The type defaults file contains the default file attributes used to allocate the destination file. The type defaults file is specified only when defaults are requested by the user.Optional. For more information on the type defaults file, see the Connect:Direct for z/OS user documentation.	z/OS platform
CheckpointInterval	Specifies the byte interval for checkpoint support, which allows restart of interrupted transmissions at the last valid checkpoint point and therefore reduces the time to retransmit the file. Optional. For more information, see *How Checkpoint Restart and Retry Processing Works* on page 158. Valid value is number of bytes, in one of the following formats: ◆ nnnnnnnnnn ◆ nK or nM ◆ nm or nk	All platforms
Compression	Specifies that the data is to be compressed, which reduces the amount of data transmitted as the file is copied from one node to another. The file will be automatically decompressed at the destination. Optional. Valid values are 1-9. Increasing the value indicates a greater attempt at compression and will consume more CPU. Values greater than 2 may not result in further compression.	All platforms
Config	Name of the service configuration. Required.	All platforms

Field	Description	Supported Remote Connect:Direct Platforms
LocalDocumentId	A valid document ID for an existing document in Application. When this field is left blank, the primary document provided to the business process is used. Optional.	All platforms
LocalFileNameLabel	Specifies a label for the name of the local file. This file name label is provided to the remote Connect:Direct node for informational purposes only. Optional.	All platforms
LocalFromCodePage	Specifies a code page supported by Java VM. Used in conjunction with the value of the LocalToCodePage parameter. The Connect:Direct Server adapter will apply a code page conversion to a document before transferring it to a remote Connect:Direct Server. This parameter is only valid with the following conditions: • Code page specified is supported by the local Java VM • Parameter LocalToCodePage is defined • Text mode file transfer (BinaryMode =No) Optional. Valid value is the name of a codepage supported by the local Java VM. For example: <assign to="LocalFromCodePage">Cp1251</assign> <assign to="LocalToCodePage">Cp1047</assign> This example will translate the local file from windows latin-1 to ibm ebcdic. See http://java.sun.com for a complete list of supported encodings.	All platforms
LocalStripBlanks	Specifies whether the Connect:Direct Server adapter will strip blanks from the end of records in the local file before sending them to the remote node. This option is only valid for Text mode file transfers (BinaryMode = No). Optional. Valid value is Yes or No (default).	All platforms

Field	Description	Supported Remote Connect:Direct Platforms
LocalToCodePage	Specifies a code page supported by Java VM. Used in conjunction with the value of the LocalFromCodePage parameter. The Connect:Direct Server adapter will apply a code page conversion to a document before transferring it to a remote Connect:Direct Server. This parameter is only valid with the following conditions: • Code page specified is supported by the local Java VM • Parameter LocalFromCodePage is defined • Text mode file transfer (BinaryMode =No) Optional. Valid value is the name of a codepage supported by the local Java VM. For example: \<assign to="LocalFromCodePage">Cp1251\</assign> \<assign to="LocalToCodePage">Cp1047\</assign> This example will translate the local file from windows latin-1 to ibm ebcdic. See http://java.sun.com for a complete list of supported encodings.	All platforms
LocalXlate	Specifies if the Connect:Direct Server adapter is to perform ASCII to EBCDIC translation before copying a file to a remote Connect:Direct Server. This option is only valid for Text mode file transfers (BinaryMode = No). Optional. Valid value is Yes (default) or No.	All platforms
RemoteBUFND	Specifies the number of I/O buffers VSAM will use for transmitting data between virtual and auxiliary storage. Optional. Used only on the z/OS platform. For more information on how to specify BUFND information, see the Connect:Direct for z/OS user documentation.	z/OS platform
RemoteDATAEXIT	Specifies a user-written program through which data is processed before being written to the destination file. Optional. Used only on the z/OS platform. Valid syntax is: exit-name	(exit-name [,parameter,...]) For more information on dataexits, see the Connect:Direct for z/OS user documentation.	z/OS platform

Field	Description	Supported Remote Connect:Direct Platforms
RemoteDCB	Specifies Data Control Block (DCB), a group of attributes to be used in allocating destination files on a z/OS system. Used only on the z/OS platform. Optional. Valid attributes are: ([model-file-name] [,BLKSIZE=no.-bytes] [,DEN=0 | 1 | 2 |3 | 4] [,DSORG=[PS | PO | DA | VSAM] [,KEYLEN=no.-bytes] [,LIMCT=no.-blocks-or-tracks] [,LRECL=no.-bytes] [,OPTCD=W | Q | Z] [,RECFM=record-format] [,RKP=first-byte-position-of-record-key]) For more information on DCB attributes , see the Connect:Direct for z/OS user documentation.	z/OS platform
RemoteDISP	Specifies how the destination file is to be created on the remote Connect:Direct server. Optional. Valid syntax for Connect:Direct for z/OS is: ([NEW | OLD | MOD | RPL | SHR], [KEEP | CATLG] , [KEEP | CATLG | DELETE]) | (NEW | OLD | MOD | RPL | SHR) | NEW | OLD | MOD | RPL | SHR For more information on the values and syntax valid for the Connect:Direct platform you are copying to, see your Connect:Direct documentation.	All platforms
RemoteFileName	Name that should be given to the file that is copied to the remote Connect:Direct server. Required. **Note:** You cannot use wildcards to copy multiple files from Sterling Integrator to Connect:Direct with a single CopyTo service.	All platforms

Field	Description	Supported Remote Connect:Direct Platforms
RemoteIOEXIT	Specifies a user-written program to be invoked to perform I/O requests on the source file before copying the source file to a destination file. Optional. Used only on the z/OS platform. Valid syntax is: exit-name | (exit-name [,parameter,...]) For more information on I/O exits, see the Connect:Direct for z/OS user documentation.	z/OS platform
RemoteLABEL	Specifies label information for the tape used for the destination file. Optional. Used only on the z/OS platform. Valid syntax is: ([file-sequence-number] ,[SL | AL | BLP | LTM | NL | AUL | NSL | SUL] ,[PASSWORD | NOPWREAD] ,[IN | OUT] ,[RETPD=nnnn | EXPDT=[yyddd | yyyy/ddd]]) For more information on how to specify label information, see the Connect:Direct for z/OS user documentation.	z/OS platform
RemoteMSVGP	Specifies the group of mass storage volumes that reside on a mass storage system (MSS) device. This must be a valid DD (data definition) name, ranging from 1-8 alphanumeric characters with the first character alphabetic. Optional. Used only on the z/OS platform. Valid value is MS-group-name.	z/OS platform

Field	Description	Supported Remote Connect:Direct Platforms
RemoteSMS	Specifies SMS attributes to use when creating the destination file. Optional. Used only on the z/OS platform. Valid attributes are: ◆ AVGREC=U | K | M ◆ DATACLAS=data-class-name ◆ DSNTYPE=PDS | LIBRARY | LARGE | EXTREQ | EXTPREF | BASIC ◆ KEYLEN=length in bytes ◆ KEYOFF=offset-to-key ◆ LIKE=model-data-set-name ◆ LRECL=number of bytes ◆ MGMTCLAS=management-class-name ◆ RECORG=KS | ES | RR | LS ◆ SECMODEL=(profile-name [,GENERIC]) ◆ STORCLAS=storage-class-name For more information on SMS attributes, see the Connect:Direct for z/OS user documentation.	z/OS platform
RemoteSPACE	Specifies the amount of storage to be allocated for new files on the destination node. If SPACE is specified, the RemoteDISP of the destination file must be NEW or RPL. Optional. Used only on the z/OS platform. Valid syntax is: (CYL | TRK | blk, (prim , [sec] , [dir]), [RLSE] , [CONTIG] , [ROUND]) | (av-rec-len , (primary-rcds , [secondary-rcds] , [dir])) For more information on how to specify SPACE information, see the Connect:Direct for z/OS user documentation.	z/OS platform

Field	Description	Supported Remote Connect:Direct Platforms
RemoteUNIT	Specifies the storage device or type along with the number of devices required. Optional. Used only on the z/OS platform. Valid syntax is: ([unit-address | device-type | group-name] , [unit-count | P] [,DEFER]) For more information on how to specify UNIT information, see the Connect:Direct for z/OS user documentation.	z/OS platform
RemoteVOL	Specifies one or more volume serial numbers containing the destination file and optional processing associated with the file. Optional. Used only on the z/OS platform. Valid syntax is: ([PRIVATE],[RETAIN] ,[volume-sequence-no] ,[volume-count] [,SER=(serial-no [,serial-no,...]) |SER=serial-no) |([SER=(serial-no ,[serial-no,...])) |(REF=dsn]) For more information on how to specify VOL information, see the Connect:Direct for z/OS user documentation.	z/OS platform
SessionToken	Identifies an established session between two Connect:Direct nodes. Required. Session integrity cannot be guaranteed if the session token is omitted. For examples of session token usage, refer to *Sample Business Processes* on page 105*.	All platforms
Sysopts	Remote system operations to be implemented on the remote Connect:Direct node. Optional. For example (for copying to Connect:Direct Windows only): Datatype(text) xlate(yes) For more information, see your Connect:Direct documentation.	All platforms Format of Sysopts varies by platform.

Settings for Connect:Direct Server CopyFrom Service

There are many copy options available when you use the Connect:Direct Server CopyFrom Service.

When you configure the Connect:Direct Server CopyFrom service, you must specify settings for the following fields in the Graphical Process Modeler. These fields are listed in alphabetical order.

Field	Description	Supported Remote Connect:Direct Platforms
BinaryMode	Specifies the mode for Connect:Direct File transfer. Optional. Valid values are: • Yes—simple binary mode • No—(default) - text mode • VB—a variable block binary transfer with Connect:Direct on z/OS	Yes—All platforms No—All platforms VB—z/OS platform
CheckpointInterval	Specifies the byte interval for checkpoint support, which allows restart of interrupted transmissions at the last valid checkpoint point and therefore reduces the time to retransmit the file. Optional. For more information, see *How Checkpoint Restart and Retry Processing Works* on page 158. Valid value is number of bytes, in one of the following formats: ◆ nnnnnnnnnn ◆ nK or nM ◆ nm or nk	All platforms
Compression	Specifies that the data is to be compressed, which reduces the amount of data transmitted as the file is copied from one node to another. The file will be automatically decompressed at the destination. Optional. Valid values are 1-9. Increasing the value indicates a greater attempt at compression and will consume more CPU. Values greater than 2 may not result in further compression.	All platforms
Config	Name of the service configuration. Required.	All platforms
DCB	Specifies Data Control Block (DCB), a group of attributes specified as name-value pairs separated by commas. Used only on the z/OS platform. Optional. Valid attributes are: ◆ recordlength ◆ blocksize ◆ recordformat ◆ datasetorganization **Note:** More DCB attributes are available but only these are supported in Application. Any other attribute will cause the copy to fail. For more information, see the Connect:Direct for z/OS user documentation.	z/OS platform

Field	Description	Supported Remote Connect:Direct Platforms
LocalDocumentName	Name of the document in Application to which the remote file should be copied. Optional.	All platforms
LocalFromCodePage	Specifies a code page supported by Java VM. Used in conjunction with the value of the LocalToCodePage parameter. The Connect:Direct Server adapter will apply a code page conversion to a document before transferring it to a remote Connect:Direct Server. This parameter is only valid with the following conditions: • Code page specified is supported by the local Java VM • Parameter LocalToCodePage is defined • Text mode file transfer (BinaryMode =No) Optional. Valid value is the name of a codepage supported by the local Java VM. For example: <assign to="LocalFromCodePage">Cp1251</assign> <assign to="LocalToCodePage">Cp1047</assign> This example will translate the local file from windows latin-1 to ibm ebcdic. See http://java.sun.com for a complete list of supported encodings.	All platforms
LocalStripBlanks	Specifies whether the Connect:Direct Server adapter will strip blanks from the end of records in a received remote file before creating a new document. This option is only valid for Text mode file transfers (BinaryMode = No). Optional. Valid value is Yes or No (default).	All platforms

Connect:Direct Server Adapter User Guide

Field	Description	Supported Remote Connect:Direct Platforms
LocalToCodePage	Specifies a code page supported by Java VM. Used in conjunction with the value of the LocalFromCodePage parameter. The Connect:Direct Server adapter will apply a code page conversion to a document before transferring it to a remote Connect:Direct Server. This parameter is only valid with the following conditions: • Code page specified is supported by the local Java VM • Parameter LocalFromCodePage is defined • Text mode file transfer (BinaryMode =No) Optional. Valid value is the name of a codepage supported by the local Java VM. For example: \<assign to="LocalFromCodePage">Cp1251\</assign> \<assign to="LocalToCodePage">Cp1047\</assign> This example will translate the local file from windows latin-1 to ibm ebcdic. See http://java.sun.com for a complete list of supported encodings.	All platforms
LocalXlate	Specifies if the Connect:Direct Server adapter is to perform ASCII to EBCDIC translation before creating a new document from the received remote file. This option is only valid for Text mode file transfers (BinaryMode = No). Optional. Valid value is Yes (default) or No.	All platforms
RemoteFileName	Name of the file that should be copied from the remote Connect:Direct server. Enter the legal characters in the file name. Required.	All platforms
SessionToken	Identifies an established session between two Connect:Direct nodes. Required. Session integrity cannot be guaranteed if the session token is omitted. For examples of session token usage, refer to *Sample Business Processes* on page 105.	All platforms

Field	Description	Supported Remote Connect:Direct Platforms
Sysopts	Remote system operations to be implemented on the remote Connect:Direct node. Optional. For example (for copying from Connect:Direct Windows only): Datatype(text) xlate(yes) For more information, see your Connect:Direct documentation.	All platforms Format of Sysopts varies by platform.

Clustering Considerations

Connect:Direct Server Adapter Configuration

When you configure a Connect:Direct Server adapter in a single node instance of Sterling Integrator, the best practice is to use the same name for the Connect:Direct Server adapter Name and the Connect:Direct Server Node Name.

When you configure a Connect:Direct Server adapter in a multiple node instance of Sterling Integrator, the best practice is to set up one Group Name for the Connect:Direct Server adapters. For example, in a two node cluster, the Connect:Direct Server adapter Node Names are NODE1.CD and NODE2.CD. Both of these nodes are put in one group called SI.CD. Provide SI.CD as the Connect:Direct Server Adapter Node Name for your remote Connect:Direct nodes. You will also use SI.CD as the LocalCDNodeName in the CD Server Begin Session Service in your business processes.

Note:	For additional information about the Connect:Direct Server adapter and multiple node instances of Sterling Integrator, refer to the [Sterling Integrator documentation library](#).

Monitoring Business Processes and Documents

The Sterling Integrator Admin Console enables you to view information about business processes that interact with remote Connect:Direct nodes. Correlation records are automatically maintained so that you can search for specific information (such as, business process IDs, document IDs, workflow IDs, and mailbox IDs). Each business process references a unique business process ID as its primary process identifier.

Tracking and Search Functions

The tracking and search functions available to track Sterling Integrator business processes, Connect:Direct processes, and Connect:Direct adapter activity are described in the following table:

Tracking Option	Description
Central Search	Use to search for live (active) business process instances that do not appear in the Current Processes. Search by Name, Status, or Date.
Current Processes	Lists the status of the ten most recent business process instances.
Current Activities	Search for Connect:Direct Server adapter activity by adapter configuration name or by when the activity registered within Sterling Integrator.
Advanced Search	
Business Processes	Search for active, archived or stored business processes. Search by business process instance ID, business process Name, State, or Date.
Documents	Search for active, archived or stored documents handled by a business process. Search by Time, Document ID, Sender or Receiver ID, Type, Status or Correlations.

Tracking Option	Description
Communication Sessions	Search for active, archived or stored communication sessions records. These records include the associated authentication, authorization, file transfer, or non-file transfer records, even if a document is not transferred and no data flow record is created. Search by Time, Communication Session ID, Process ID, End Point, Protocol and so forth.
Correlation	Search for active, archived or stored business processes by name-value pairs. This is a key tracking method in interoperability because you can search by values such as PNODE, SNODE, Connect:Direct Process Name and so forth.

When you find the business process you are interested in on any of these Monitor pages, you can obtain additional details by selecting the number in the ID column to open the Business Process Details page.

Business Process Detail

The Business Process Detail page is accessed from any page that contains the business process ID. This page provides a progress report about a specific business process instance. In addition, you can stop or restart the business process from this page.

Following is a partial list of the information you can obtain from this page:

✦ The business process definition (the BPML file)

✦ The current state of each step in a business process

✦ The date and time a business process started and ended

✦ The contents of the process data and the primary document at each step of the business process

Current Process Monitor

Selecting Business Processes > Current Processes opens the Monitor page with a list of the processes currently running in Sterling Integrator. A Green status indicates no errors or warnings occurred during processing. A Red status indicates errors or warnings encountered during processing. Use this page to:

✦ Review detailed processing information by clicking on the ID of the process

✦ View the business process definition by clicking on the Name of the process

✦ View the current state of a business process

✦ View the date and time a business process Started and Ended

Current Activities Monitor

Selecting Business Processes > Current Activities opens the Service Activity search page. The Service Activity page enables you to monitor activity of several adapters, including the Connect:Direct Server adapter. When you select an adapter to monitor, activity detail occurring on the adapter is displayed.

If the Connect:Direct Server adapter is used by a business process that has stopped running, you can use this feature to determine whether the adapter is preventing the business process from running.

The results of an activities search includes the following information:

✦ Session identifier

✦ Node name

✦ When the activity started and when it last updated

Correlation Search

Correlation searches are a key to relating a Connect:Direct Process with a Sterling Integrator business process. Whereas Connect:Direct identifies a process with a Process Number and a Process Name, Sterling Integrator identifies its business processes with an Instance ID. The Correlation Search enables you to search for Sterling Integrator processes using Connect:Direct identifiers.

Note: Correlations are created to identify related Sterling Integrator and Connect:Direct processes.

The Connect:Direct Server adapter and related services automatically write Sterling Integrator correlation records to enable searches for business processes and documents containing certain correlation identifiers.

The Correlation Search page enables you to search for business process activity according to six Connect:Direct specific name-value pairs, including:

✦ CD_LocalFileName

✦ CD_RemoteFileName

✦ CD_ProcessName

✦ CD_ProcessNum

✦ CD_PnodeName

✦ CD_SnodeName

Note: Do not perform a correlation search by Process Number only. A Process Number is unique to a single Connect:Direct server, therefore you may see the same Process Number used for different processes—each associated with a different node.

Session Establishment and Process Recovery

Session Establishment and Process Recovery

Sterling Integrator provides several parameters that allow you to customize features that govern how many sessions it establishes for a Connect:Direct Server adapter node and remote Connect:Direct nodes and how it performs retry processing in the case of a failed or interrupted file transfer. These parameters are discussed in *Setup Procedures* on page 11.

This appendix describes the processing that happens behind the scene when Sterling Integrator establishes sessions initially and re-establishes sessions in case of failures or interruptions during copy operations so you can fully understand how these features work and adjust your configuration settings if necessary. Subtopics include:

✦ *How Sessions for Business Processes Are Established* on page 155

✦ *How Checkpoint Restart and Retry Processing Works* on page 158

✦ *How File Allocation Retry Processing Works* on page 159

How Sessions for Business Processes Are Established

Before you transfer files or initiate processes between Connect:Direct servers and the Sterling Integrator Connect:Direct Server adapter, you configure those components in Sterling Integrator so that it knows who it will be communicating with. One of the required parameters you define for both Connect:Direct nodes and the Connect:Direct Server adapter is the maximum number of locally initiated sessions the Connect:Direct Server adapter may have active at any point in time. This parameter, *Max locally initiated (pnode) sessions allowed*, determines the maximum number of sessions available for establishing and re-establishing sessions, and plays a key role when business processes are suspended and resumed. If this value is also specified at the remote node-level, the effective session limit is the smaller of two values: the limit for the adapter and the session limit for the remote node.

When a Connect:Direct Server adapter initiates a data transfer between itself and a remote Connect:Direct node, it does so as part of a Sterling Integrator business process. If the business process invokes a Connect:Direct Server adapter service to establish a session and the local PNODE session limit has been met, the business process is suspended and placed in a queue of business

processes waiting for an available session. When a session has become available, it is assigned to a previously suspended business process, if any, on a first-come first-served basis.

The first (oldest) suspended business process is given the first chance to use the next free PNODE session for the Connect:Direct Server adapter. If no suspended business process can use the session or if no business processes are in the suspended business process queue, the freed session is returned to the available session count. If a PNODE session limit was also specified at the node level, the number of currently active sessions with the particular remote node and the total number of active PNODE sessions are both decremented when a freed session goes back to the available session count. To see an example of how session counts go up and down when business processes are suspended and resumed, see *Sample Scenario of Workflow Suspension Processing and Session Counts* on page 156.

If Sterling Integrator or a Connect:Direct Server adapter is terminated while business processes are suspending awaiting the next freed session, then an error is returned to the service invocation that caused the business process to be suspended.

If you suspect an error has occurred or that the execution of a business process has been delayed, you can check its status and the status of all related services. If a business process has been suspended, the message, *Session count exhausted, waiting for session availability*, is displayed for the Connect:Direct Server Begin Session Service, CopyTo, or CopyFrom service involved in establishing or re-establishing a session. When a session count becomes available, the message, *Session now available: resuming*, is displayed, and the Status Report screen will show how long the business process was suspended, for example, *Session now available, resuming after wait of 1 minutes 35 seconds*.

Sample Scenario of Workflow Suspension Processing and Session Counts

In this sample scenario, there are three entities, all of which are configured as shown below in Example 1:

✦ The Connect:Direct Server adapter (CDSA), which is invoked by business process X (BP-X) to establish sessions with NODEA or NODEB.

✦ NODEA is a remote Connect:Direct node that Sterling Integrator wants to communicate with

✦ NODEB is a remote Connect:Direct node that Sterling Integrator wants to communicate with

Example 1

CDSA session limit = 2
CDSA current sessions = 2

NODEA session limit = 2
NODEA current sessions = 1

NODEB session limit = 1
NODEB current sessions = 1

SUSPENDED WORKFLOW QUEUE = <empty>

In this scenario, the following sequence of events occurs:

✦ BP-X attempts to establish a new PNODE session with NODEB.

♦ Since NODEB is already at its session maximum, this triggers the workflow suspend mechanism.

♦ BP-X is placed on the suspended workflow queue to await a session count.

♦ The current session with NODEA terminates and is freed.

♦ CDSA looks for a suspended workflow that can use the newly freed session.

♦ BP-X cannot use the freed NODEA session because NODEB is still at its session maximum.

♦ The freed NODEA session is returned to the available session count, and BP-X continues to wait.

So, after this sequence of events, the situation is:

CDSA session limit = 2
CDSA current sessions = 1

NODEA session limit = 2
NODEA current sessions = 0

NODEB session limit = 1
NODEB current sessions = 1

SUSPENDED WORKFLOW QUEUE = BP-X

A new session can now be established with NODEA, but BP-X must still wait for the current session with NODEB to be freed before it can proceed.

Example 2

In this example, the session limit for NODEB has been bumped up one:

CDSA session limit = 2
CDSA current sessions = 2

NODEA session limit = 2
NODEA current sessions = 1

NODEB session limit = 2
NODEB current sessions = 1

SUSPENDED WORKFLOW QUEUE = <empty>

The following sequence of events occurs:

♦ BP-X attempts to establish a new PNODE session with NODEB.

♦ NODEB is not at its session maximum, but the overall Connect:Direct Server adapter is at its limit. As a result, the workflow suspend mechanism is triggered.

♦ BP-X is placed on the suspended workflow queue to await a session count.

♦ The current session with NODEA terminates and is freed.

♦ CDSA looks for a suspended workflow that can use the newly freed session.

♦ BP-X can use this session because both NODEB and the adapter now have a session available.

♦ BP-X is resumed and allowed to attempt session establishment with NODEB.

After this sequence of events transpires, the situation stands as this:

CDSA session limit = 2
CDSA current sessions = 2

NODEA session limit = 2
NODEA current sessions = 0

NODEB session limit = 2
NODEB current sessions = 2

SUSPENDED WORKFLOW QUEUE = <empty>

How Checkpoint Restart and Retry Processing Works

The checkpoint restart feature allows the restarting of copy operations that fail in certain ways, for example, due to network errors. The copy operation is resumed from a previously checkpointed location rather than having to start over from the beginning of the file transfer. Checkpoint restart behavior is controlled by the PNODE—SNODE settings have no effect.

To enable this feature, on the PNODE you must specify a value greater than 0 (0 disables automatic retries) using one of the following parameters:

✦   Number of long-term session retry attempts (the number of long-term retry attempts specified for the Connect:Direct Server adapter)

✦   Number of short-term session retry attempts (for the Connect:Direct Server adapter)

✦   Number of Retry attempts for establishing a session (in the Connect:Direct Server Begin Session Service used in a particular business process)

You must also specify the CheckpointInterval in the CopyTo and CopyFrom service of your business process.

Note: Certain errors fail without any retries, for example, when a required parameter is missing or invalid or a remote node is not in the netmap.

Both the *Interval between long-term session attempts (minutes)* and *Number of long-term session retry attempts* fields deal with long-term session establishment and re-establishment attempts. To use a shorter timeframe to establish and re-establish sessions, specify the following fields when configuring the Connect:Direct Server adapter:

✦   Number of short-term session retry attempts

✦   Interval between short-term session attempts (seconds)

If both the short-term and long-term retry parameters are specified, the values for the short-term parameters are used first, and if a session has still not been established (or re-established), the value for the long-term parameter is used if it is specified. For more information, see *Setup Procedures* on page 11.

Checkpoint restart is supported for both inbound and outbound file transfers. This feature is only supported for documents stored in the file system—it is not supported when document storage is set to Database or data encryption is enabled in Sterling Integrator.

Checkpoint restart can be enabled whether or not Secure+, compression, or any other communications session factor is enabled or disabled.

In a file transfer, the PNODE determines whether checkpointing will be performed and sets the checkpoint interval. These two parameters can be set as a global default (usually in an initialization parameter or property file) or overridden in the Connect:Direct Process (Copy step) or Sterling Integrator business process.

The checkpoint information is kept on the target node (the node receiving the file) until the file transfer completes successfully (in which case, this temporary record is destroyed) or kept for a specific period of time if the file transfer fails. When a file transfer fails, the checkpoint information is retained for a specified default length of time on the target system (30 days is common). In Sterling Integrator, this setting is configured by setting the ckptRemoveDate property in the noapp.properties property file located in the properties subdirectory of the installation.

If a remote Connect:Direct server or the network fails during a copy operation, the Connect:Direct Server adapter goes into retry mode using its own default long-term and short-term values and waits the specified amount of time and then resumes the copy. These values can be overridden by the following values, if specified, in the Connect:Direct Server Begin Session service:

✦ Number of long-term session retry attempts (BeginSessionMaxRetries)

✦ Interval between long-term session attempts (BeginSessionRetryInterval)

✦ Number of short-term session retry attempts (ShortTermMaxRetries)

✦ Interval between short-term session attempts (ShortTermRetryInterval)

Purging Checkpoint Data

By default, Sterling Integrator stores checkpoint information for 30 days, after which it is automatically purged. If your database has been corrupted, you must purge this checkpoint information by performing a cold restart. To purge all checkpoint data, each Connect:Direct Server adapter must be cold started.

To purge all the checkpoint records associated with a Connect:Direct Server adapter:

1. From the Business Processes menu, search for the adapter configuration.

2. Edit the configuration to set Server Start Option to Cold.

3. Save the changes and click Finish.

4. The Sterling Integrator adapter restarts. The checkpoint data is purged during startup.

5. Edit the configuration again to set Server Start Option to Warm to continue using Checkpoint Restart without a loss of information between multiple sessions.

How File Allocation Retry Processing Works

File Allocation Retry (FAR) processing allows CDSA to retry a Copy operation when one of a set of certain file allocation errors occurs in combination with a non-zero return code. This is most useful when CDSA initiates a file transfer with a remote Connect:Direct for z/OS system. FAR processing only affects locally initiated (PNODE) sessions that use the Connect:Direct Server CopyTo service or CopyFrom service.

When you enable FAR processing and CDSA receives one of a set of certain file allocation error messages and a non-zero return code from the remote Connect:Direct server during a copy

operation, CDSA retries the Copy operation subject to the existing short-term and long-term retry settings. If the condition that caused the FAR processing persists, retries are performed up to a maximum of the configured short-term and long-term retries only. The retry counters are not reset after a successful connection when triggered by FAR processing.

If the retry counts are exhausted, the CopyTo or CopyFrom service fails and returns an error to the Business Process that invoked it.

The set of FAR error messages, which include the commonly occurring Connect:Direct for z/OS retry-able file allocation errors, is pre-configured in the Sterling Integrator installation.

To enable FAR processing:

1. Log in to Sterling Integrator.
2. From the Deployment menu, select Services > Configuration.
3. From the Services Configuration page, search for the CDSA configuration.
4. On the InitParms screen, select the Retry Remote File Allocation Errors check box.
5. Save the changes and click Finish.
6. The Sterling Integrator adapter restarts. FAR processing is enabled.

FAR processing is disabled by default when you create a new CDSA configuration or import a CDSA configuration from an earlier version of Sterling Integrator or GIS.

Troubleshooting

Troubleshooting

Sterling Integrator and Connect:Direct are designed to work together, in a seamless and tightly integrated environment. However, as is the case with any application, occasions may occur when you need to troubleshoot certain components or functions.

This section provides general troubleshooting guidelines when configuring and using Sterling Integrator with Connect:Direct.

To troubleshoot general Connect:Direct functions, see the Connect:Direct documentation set for general troubleshooting information and instructions.

You may need to work with your Trading Partners or system administrators to troubleshoot the systems you are communicating with.

Verifying Connectivity

To verify connectivity between Connect:Direct and Sterling Integrator:

1. Check configurations on Connect:Direct and Sterling Integrator for compliance. In particular, look at the network maps on both systems.

2. Verify that the Connect:Direct nodes in question are active when a begin session is invoked.

3. Verify that perimeter services client connects to perimeter services server. If the client cannot connect, it causes the perimeter services-enabled Connect:Direct Server adapter to fail.

   Perimeter servers do not automatically reboot after a failure.

   To determine the status of the perimeter services client in Sterling Integrator:

   a. From the Sterling Integrator Operations menu, select Troubleshooter.

   b. Look for the Perimeter Servers area. It is usually at the bottom of the Troubleshooting page. This shows the state of the perimeter server clients which are defined in Sterling Integrator and whether they are on.

   Disconnected is displayed if no perimeter server is installed.

Exchange Process IDs

If either Connect:Direct or Sterling Integrator cannot exchange process identifiers, the process correlation in the various monitor user interfaces does not work for the particular instance of a process. When this occurs, correct the identifiers and restart the process.

Business Process Permissions

If you receive permissions-related error messages, make sure that adequate permissions have been assigned.

When a external request is received by Sterling Integrator to execute a business process, the user/proxy user must have business process permissions for the specific business process that is to be executed. That is, the business process itself must have permissions enabled when it is created. In addition, the Sterling user account must have:

✦ General business process execution permission. This is acquired by assigning the Business Processes group to the user account.

✦ Permission for the specific business process to be executed.

  The business process will display in the drop down with the mailboxes in the user account configuration windows.

Using the Graphical Process Modeler

The following restrictions apply to using the Graphical Process Modeler:

✦ Do not attempt simultaneous COPY operations for the same node.

✦ Issue a Close Session for each open session when session is finished.

Logging Files

More information, including audit messages and error messages, can be found in Sterling Integrator log files. Log files are available through the Operations > System > Logs menu.

The cdinterop.log files record details for all adapter activity and business processes that involve the Connect:Direct Server and Requester adapters and the related Connect:Direct services.

A new cdinterop.log is create each time the Sterling Integrator server is started. At midnight, the current log file is closed and a new one is created. In addition, when the size of the current log file reaches the maximum size specified in the cdinterop log file configuration screen, it is closed and a new log file is opened. The log file name includes a date and time stamp to make each name unique.

By default, the cdinterop.log file captures audit level messages, even when logging is not enabled. When the log is enabled, all transactions are recorded, including:

✦ Error messages

✦ Adapter startup and shutdown

✦ Adapter changes

✦ Security checks

Customizing the Connect:Direct Server Adapter Log Settings

You can enhance the logging for the Connect:Direct Server adapter using property files to reduce the footprint of the log files and processing overhead.

The log.properties file describes sets of properties required to define a logger used to log information to a file, including the cdinterop.log. This log.properties file should not be edited. If you need to override log.properties settings for the cdinterop.log, use the customer_overrides.properties file.

Caution: Overriding the log.properties settings for the cdinterop.log can have a dramatic impact on performance and log volume.

The customer_overrides.properties file is used to override property settings in other property files. Unlike the other property files and their associated .properties.in files, the customer_overrides.properties file is not changed during installation of Application upgrades or patches. To prevent having your customized settings overwritten, you should use the customer override property file whenever possible rather than editing the Application property files or .in files.

The customer_overrides.properties file is not part of the initial Application installation and must be created. It must be named **customer_overrides.properties**.

To override log.properties file settings for the cdinterop.log:

1. In the *install_dir*/properties directory, locate (or create, if necessary) the customer_overrides.properties file.

2. Open the customer_overrides.properties file in a text editor.

3. Add the cdinteropcdinterop.log properties that you want to override to the log.properties file, using the following format:

   logService.*PROPERTY_NAME=PROPERTY_VALUE*

   logService—Name used to reference the log.properties file.

   PROPERTY_NAME—Name of the property as used in the log.properties file.

   PROPERTY_VALUE—The value you want to assign to the property.

   For example, assume that you want to change the maximum number of cdinterop.log files to 5. To do so, override the cdinteroplogger.maxnumlogs property value in the log.properties file by adding the following line to the customer_overrides.properties file:

   ```
   logService.cdinteroplogger.maxnumlogs=5
   ```

4. Save and close the customer_overrides.properties file.

5. Stop and restart Application to use the new values.

6. Test your changes to ensure that the overrides give the desired results. If you have problems, contact Sterling Commerce Customer Support for assistance.

Configuration Settings

The following table describes properties used to configure the customer_overrides.properties file for the CDInterop logger:

Property	Description
logService.cdinteroplogger.logfilename	Specific name of the log file. Example: Application*installDir*/logs/cdinterop.log
logService.cdinteroplogger.rotatelogs	Flag indicating whether to rotate the log after it has reached its maximum size. Example: true
logService.cdinteroplogger.maxlogsize	Maximum size of logs of this type. Example: 100000
logService.cdinteroplogger.maxnumlogs	Maximum number of logs of this type. Example: 10
logService.cdinteroplogger.loglevel	A level value of the logger. Valid entries: ✦ NONE—Log nothing. ✦ CRITICAL—Log critical errors only. ✦ ERROR—Log errors only. ✦ WARN—Log errors and warnings. ✦ INFO—Log INFO and more severe. ✦ TIMING—Log errors, warnings, timing messages.
logService.cdinteroplogger.displayname	Display name for the logger. Example: Log.CDInterop
logService.cdinteroplogger.showsource	Flag indicating whether to show the java class that originated an error message. **Note:** This can have a dramatic impact on performance and log volume, so it should only be used to diagnose problems. Example: false

Turning on Logging

If the error is not in the existing logs, turn on the Sterling Integrator cdinterop.log to capture activity of the Connect:Direct Server adapter and the services:

1. Browse to Operation > System > Logs.
2. Scroll to the Environment section of the page.
3. Click the edit icon to the left of Connect:Direct Server and Requester Adapter and Services.
4. In the Environment window, select On next to Logging Level and click Save.

5. Attempt to recreate the problem.

6. View the cdinterop log for more informative entries.

Use Secure Point of Entry

Use Secure Point of Entry

Secure Point of Entry (SPOE) is a security mechanism for maintaining the privacy of sensitive user account information. Privacy is maintained by associating a pseudo-account with an authentic one. Remote Connect:Direct trading partners establish sessions using pseudo-accounts rather than authentic ones. In this way, sensitive user account information remains private. The cdinterop-spoe-policy.properties file describes settings for configuring the Secure Point-of-Entry (SPOE) for use with the Connect:Direct Server adapter for inbound requests from remote Connect:Direct PNODEs.

Sterling Integrator also supports Connect:Direct User Proxies as a PNODE whereby the business process can:

✦ Specify a RemoteUserId without a RemotePasswd.

✦ Not specify a RemoteUserId or a RemotePasswd. The Connect:Direct Server adapter will use the PNodeId (the user executing the business process).

✦ Specify a LocalUserId without a RemoteUserId or a RemotePasswd.

Use the following procedure to configure SPOE with the Connect:Direct Server adapter for inbound requests:

✦ *Enable SPOE Authentication from Remote Connect:Direct PNODEs* on page 167

✦ *Map Connect:Direct User IDs to Sterling Integrator User Accounts* on page 168

Enable SPOE Authentication from Remote Connect:Direct PNODEs

SPOE policy may be modified while Sterling Integrator is running. Changes take effect a few seconds following the change committal step. To enable SPOE authentication:

1. Make a copy of the SPOE Policy property file:

```
$ cd <install_dir>/properties
$ cp cdinterop-spoe-policy.properties cdinterop-spoe-policy.properties.copy
```

2. Use a text editor to make the desired changes to the cdinterop-spoe-policy.properties.copy file:

```
$ vi cdinterop-spoe-policy.properties.copy
```

Uncomment the spoe.policy=yes property.

3. Modify other settings in the cdinterop-spoe-policy.properties.copy file necessary for your situation.

   For more information about the cdinterop-spoe-policy.properties file, refer to the <u>Sterling Integrator documentation library</u>.

4. Save the file.

5. Commit the changes:

```
$ cd <install_dir>/properties
$ cp cdinterop-spoe-policy.properties.copy cdinterop-spoe-policy.properties
```

Map Connect:Direct User IDs to Sterling Integrator User Accounts

After you enable SPOE authentication for the Connect:Direct Server adapter, configure the cdinterop-spoe-auth.properties file to map external Connect:Direct user IDs to Sterling Integrator user accounts.

Configuration Settings

The following table describes properties used to configure the cdinterop-spoe-auth.properties file in Sterling Integrator:

Syntax	Description
spoe-user-id	Specifies a unique remote user identifier. The remote user may be specified by an asterisk (*) to enable this definition to match any user.
	Note: The asterisk does not perform similar to a wildcard character or regular expression operator. It is a special keyword having the meaning "any user."
nodename	Specifies the name of the remote Connect:Direct PNODE node. The node name may be specified by an asterisk (*) to enable this definition to match any node.
	Note: The asterisk does not perform similar to a wildcard character or regular expression operator. It is a special keyword having the meaning "any node."
gis-user-id	Specifies an existing Sterling Integrator user account.

Each entry associates a SPOE username and remote Connect:Direct node name with a Sterling Integrator user account. Each entry in the file consists of a single line of the form:

```
spoe-user-id@nodename=gis-user-id
```

The @ joins the user identifier with the node name to form the SPOE remote user identifier. No space is permitted either before or after it. The = associates the SPOE remote user identifier with the Sterling Integrator user account. No space is permitted either before or after it.

Examples

A remote user id 'user1' is mapped to the gis 'user2' account:

```
user1@cd.logistics=user2
```

Any remote id from the cd.chicago node is mapped to the gis account 'chicago':

```
*@cd.chicago=chicago
```

The remote id 'anonymous' from the *any* node is mapped to the Sterling Integrator 'anonymous' account:

```
anonymous@*=anonymous
```

Any remote id from the *any* node is mapped to the Sterling Integrator 'guest' account:

```
*@*=guest
```

Add, Modify, or Delete SPOE User Accounts

SPOE user accounts may be added, modified, or deleted while Sterling Integrator is running. Changes take effect a few seconds following the change committal step.

To change the cdinterop-spoe-auth.properties file:

1. Make a copy of the cdinterop-spoe-auth.properties file:

```
$ cd <install_dir>/properties
$ cp cdinterop-spoe-auth.properties cdinterop-spoe-auth.properties.copy
```

2. Use a text editor to make the desired changes to the cdinterop-spoe-auth.copy file:

```
$ vi cdinterop-spoe-auth.properties.copy
```

3. Save the file.

4. Commit the changes:

```
$ cd <install_dir>/properties
$ cp cdinterop-spoe-auth.properties.copy cdinterop-spoe-auth.properties
```