

Sterling B2B Integrator



Services and Adapters for Connect:Direct

Version 5.2

Sterling B2B Integrator



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Note

Before using this information and the product it supports, read the information in "Notices" on page 97.

Copyright

This edition applies to Version 5 Release 2 of Sterling B2B Integrator and to all subsequent releases and modifications until otherwise indicated in new editions.

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Connect:Direct Services and Adapters

This document contains the services and adapters used for interoperability between IBM® Sterling B2B Integrator and IBM Sterling Connect:Direct®.

Sterling Connect:Direct Requester Adapter (V5.2.0 - 5.2.5)

This is an overview of the Sterling Connect:Direct Requester adapter:

System Name	Sterling Connect:Direct Requester Adapter
Graphical Process Modeler (GPM) categories	Cannot be configured in the GPM.
Description	Configures communication between Sterling B2B Integrator and a remote Sterling Connect:Direct server. It acts as a Sterling Connect:Direct client.
Business usage	Use this adapter to request that a remote Sterling Connect:Direct node perform specific operations. For example, to view work that is active in the Sterling Connect:Direct server (for example, SELECT PROCESS) or view events that have already occurred on the Sterling Connect:Direct server (for example, SELECT STATISTICS).
Usage example	The Sterling Connect:Direct Requester adapter is used to submit a process that initiates a sequence of steps on a remote Sterling Connect:Direct server.
Preconfigured?	Yes
Requires third party files?	The following third-party files are required: <ul style="list-style-type: none">• Sterling Connect:Direct Java Application Interface 1.0.02• CDJAL.jar (included with Sterling B2B Integrator)• Certicom SSL Library (included with Sterling B2B Integrator)
Platform availability	All supported platforms
Related services	Tightly integrated with the Sterling Connect:Direct Submit Process service, Sterling Connect:Direct Requester Select Process service, and Sterling Connect:Direct Requester Select Statistics service.
Application requirements	Must be used with a perimeter server. Configure it before setting up this adapter.
Initiates business processes?	No
Invocation	Runs as part of a business process.
Business process context considerations	None
Returned status values	None
Restrictions	None
Persistence level	None

Testing considerations	Restart Sterling B2B Integrator after configuring and enabling the adapter to confirm that it can successfully connect to the remote Sterling Connect:Direct server using a supported Sterling Connect:Direct service.
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Implementing the Sterling Connect:Direct Requester Adapter

To implement the Sterling Connect:Direct Requester Adapter:

1. Create a Sterling Connect:Direct Requester adapter configuration. For information, see *Managing Services and Adapters*.
2. Configure the Sterling Connect:Direct Requester adapter.
3. Use the Sterling Connect:Direct Requester adapter in a business process.

Sterling Connect:Direct Requester Adapter and SSL

The Sterling Connect:Direct Requester Adapter cannot handle empty SSL records and may have issues establishing Secure+ (SSL/TLS) sessions for these ciphers when it encounters empty SSL records:

- RSA_WITH_3DES_EDE_CBC_SHA
- RSA_WITH_AES_128_CBC_SHA
- RSA_WITH_AES_256_CBC_SHA
- RSA_WITH_DES_CBC_SHA

Configure Sterling B2B Integrator to disable empty record generation when using the Sterling Connect:Direct Requester Adapter and these ciphers. Disabling empty record generation affects all SSL/TLS communications with the application.

To disable empty SSL records, update the `SERVER_ACFLAGS` and `JAVA_SERVER_ASI` settings in the `tmp.sh.in` file. The update must be inserted after the line that says: `#:includewildcard &INSTALL_DIR;/bin/tmp.sh*_ext.in`. After you update the file, you must run the `setupfiles` command and restart the Sterling B2B Integrator instance.

For example:

1. Edit the `<installdir>/bin/tmp.sh.in` file and go to this line:

```
#:includewildcard &INSTALL_DIR;/bin/tmp.sh*_ext.in
```
2. Immediately after this line:

```
#:includewildcard &INSTALL_DIR;/bin/tmp.sh*_ext.in
```

 add these two lines:

```
SERVER_ACFLAGS="${SERVER_ACFLAGS} -DDisableSSLEmptyRecords=true "
```

```
JAVA_SERVER_ASI="${JAVA_SERVER_ASI} -DDisableSSLEmptyRecords=true "
```

Note: You must have a space after the word `true` and before the closing double quotation marks on both of these lines.

3. Run this command:
 - For Microsoft Windows: `setupfiles.cmd`
 - For UNIX: `setupfiles.sh`
4. Restart Sterling B2B Integrator.

Sterling Connect:Direct Requester Adapter Settings

To configure the Sterling Connect:Direct Requester adapter, specify the following settings in Sterling B2B Integrator:

Field	Description
Name	Unique and meaningful name for the adapter configuration. Required.
Description	Meaningful description for the adapter configuration, for reference purposes. Required.
Select a Group	<p>Group of services or adapters of the same type that can act as peers. A Service Group name is used in BPML in place of the Service Configuration name. Service Groups show up in the GPM as if they were Service Configurations. Select a Service Group to associate with this adapter. Valid values are:</p> <ul style="list-style-type: none"> • None – You do not want to include this configuration in a group at this time (default) • Create New Group – You can enter a name for a new group in this field, which is then created along with this configuration. • Select Group – If you have already created one or more groups for this service type, they are displayed in the list. Select a group from the list. <p>For more information about service groups see Managing Services and Adapters.</p>
Remote Sterling Connect:Direct Server Address	The IP address that the remote Sterling Connect:Direct server connects to. Required. Valid values are 0.0.0.0 to 255.255.255.254 (default is 127.0.0.1).
Remote Sterling Connect:Direct Server Port	The port number that the remote Sterling Connect:Direct server listens on for API connections. Required. Valid are any numeric values (default is 1364).
Remote Sterling Connect:Direct User ID	The user ID used to log on to the Sterling Connect:Direct server. Required.
Remote Sterling Connect:Direct User Password	The password used to log on to the Sterling Connect:Direct server. Required.
Select Sterling Connect:Direct Perimeter Services Option	The Perimeter server to use. Required. Default value is Local Node1.
Encryption using Secure Plus	<p>Whether Sterling Connect:Direct Secure Plus should be active. Required. Valid values are Enabled and Disabled (default).</p> <p>If Enabled is selected, the following fields are displayed:</p> <ul style="list-style-type: none"> • CA Certificates • Cipher Suites • SSL or TLS
CA Certificates	List of Sterling Connect:Direct Secure Plus CA certificates. Required if Select Sterling Connect:Direct Secure Plus is enabled.
Cipher Suites	List of Sterling Connect:Direct Secure Plus Cipher suites. Required if Select Sterling Connect:Direct Secure Plus is enabled.

Field	Description
SSL or TLS	Whether Secure Sockets Layer (SSL) or TLS should be used. Required if Select Sterling Connect:Direct Secure Plus is enabled. Valid values are SSL (default) and TLS.

Sterling Connect:Direct Requester Adapter (V5.2.6 and higher)

This is an overview of the Sterling Connect:Direct Requester adapter:

System Name	Sterling Connect:Direct Requester Adapter
Graphical Process Modeler (GPM) categories	Cannot be configured in the GPM.
Description	Configures communication between Sterling B2B Integrator and a remote Sterling Connect:Direct server. It acts as a Sterling Connect:Direct client.
Business usage	Use this adapter to request that a remote Sterling Connect:Direct node perform specific operations. For example, to view work that is active in the Sterling Connect:Direct server (for example, SELECT PROCESS) or view events that have already occurred on the Sterling Connect:Direct server (for example, SELECT STATISTICS).
Usage example	The Sterling Connect:Direct Requester adapter is used to submit a process that initiates a sequence of steps on a remote Sterling Connect:Direct server.
Preconfigured?	Yes
Requires third party files?	The following third-party files are required: <ul style="list-style-type: none"> • Sterling Connect:Direct Java Application Interface • CDJAI.jar (included with Sterling B2B Integrator)
Platform availability	All supported platforms
Related services	Tightly integrated with the Sterling Connect:Direct Submit Process service, Sterling Connect:Direct Requester Select Process service, and Sterling Connect:Direct Requester Select Statistics service.
Application requirements	Must be used with a perimeter server. Configure it before setting up this adapter.
Initiates business processes?	No
Invocation	Runs as part of a business process.
Business process context considerations	None
Returned status values	None
Restrictions	None
Persistence level	None
Testing considerations	Restart Sterling B2B Integrator after configuring and enabling the adapter to confirm that it can successfully connect to the remote Sterling Connect:Direct server using a supported Sterling Connect:Direct service.

Implementing the Sterling Connect:Direct Requester Adapter

To implement the Sterling Connect:Direct Requester Adapter:

1. Create a Sterling Connect:Direct Requester adapter configuration. For information, see [Managing Services and Adapters](#).
2. Configure the Sterling Connect:Direct Requester adapter.
3. Use the Sterling Connect:Direct Requester adapter in a business process.

Sterling Connect:Direct Requester Adapter and SSL

The Sterling Connect:Direct Requester Adapter might have issues establishing Secure+ sessions for CBC-based cipher suites when running with CBC protection turned on.

Configure Sterling B2B Integrator to turn off CBC protection when using the Sterling Connect:Direct Requester Adapter and CBC-based cipher suites. This affects all TLS communications within the application. See "SSL not working with a CBC-based cipher suite" in the [Troubleshoot SSL](#) topic for information on how to turn off CBC protection.

Sterling Connect:Direct Requester Adapter Settings

To configure the Sterling Connect:Direct Requester adapter, specify the following settings in Sterling B2B Integrator:

Field	Description
Name	Unique and meaningful name for the adapter configuration. Required.
Description	Meaningful description for the adapter configuration, for reference purposes. Required.
Select a Group	<p>Group of services or adapters of the same type that can act as peers. A Service Group name is used in BPML in place of the Service Configuration name. Service Groups show up in the GPM as if they were Service Configurations. Select a Service Group to associate with this adapter. Valid values are:</p> <ul style="list-style-type: none">• None – You do not want to include this configuration in a group at this time (default)• Create New Group – You can enter a name for a new group in this field, which is then created along with this configuration.• Select Group – If you have already created one or more groups for this service type, they are displayed in the list. Select a group from the list. <p>For more information about service groups see Managing Services and Adapters.</p>
Remote Sterling Connect:Direct Server Address	The IP address that the remote Sterling Connect:Direct server connects to. Required. Valid values are 0.0.0.0 to 255.255.255.254 (default is 127.0.0.1).
Remote Sterling Connect:Direct Server Port	The port number that the remote Sterling Connect:Direct server listens on for API connections. Required. Valid are any numeric values (default is 1363).
Remote Sterling Connect:Direct User ID	The user ID used to log on to the Sterling Connect:Direct server. Required.

Field	Description
Remote Sterling Connect:Direct User Password	The password used to log on to the Sterling Connect:Direct server. Required.
Sterling Connect:Direct Perimeter Services Option	The Perimeter server to use. Required. Default value is Local Node1.
Encryption using Secure+	Whether Sterling Connect:Direct Secure Plus should be active. Required. Valid values are Enabled and Disabled (default).
Security Protocol	Indicates security protocol version enabled with Secure+. Only displayed if "Encryption using Secure+" is enabled. Required if "Encryption using Secure+" is enabled. Valid values are: <ul style="list-style-type: none"> • TLS 1.0 (Default) • TLS 1.1 • TLS 1.2
CA Certificates	List of Sterling Connect:Direct Secure Plus CA certificates. Only displayed if "Encryption using Secure+" is enabled. Required if "Encryption using Secure+" is enabled.
Certificate Common Name	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	List of Sterling Connect:Direct Secure Plus Cipher suites. Only displayed if "Encryption using Secure+" is enabled. Required if "Encryption using Secure+" is enabled.
Require Client Authentication	Indicates whether authentication occurs at the client level. Valid values are: <p>Yes (Default)</p> <p>No</p>

Connect:Direct Requester Select Process Service

The following table provides an overview of the Connect:Direct Requester Select Process service:

System name	Connect:Direct Requester Select Process Service
Graphical Process Modeler (GPM) categories	Applications > Sterling Commerce > Sterling Connect:Direct
Description	Retrieves information about a process in progress on a remote Sterling Connect:Direct Server. Information is retrieved based on query criteria such as Process name and number, SNODE, queue, status, or submitter node and user ID.
Business usage	A business user would use this service to get status information about a process submitted to a remote Sterling Connect:Direct node.
Usage example	A business process submits a Sterling Connect:Direct Process to a remote Sterling Connect:Direct Server, then uses the Select Process service to check the status of the Sterling Connect:Direct Process.

System name	Connect:Direct Requester Select Process Service
Preconfigured?	A Connect:Direct Requester adapter must be configured before using this service.
Requires third party files?	Sterling Connect:Direct Windows 4.0.00 or later, Sterling Connect:Direct UNIX 3.4.00 or later, or Sterling Connect:Direct OS/390 4.3.00 or later, available from Sterling Commerce.
Platform availability	All supported platforms
Related services	Connect:Direct Requester Submit Process Service and Connect:Direct Requester Select Statistics Service.
Application requirements	None
Initiates business processes?	No
Invocation	The business process running this service must be started by a user with permission to issue the Select Process command on the target Sterling Connect:Direct Server.
Business process context considerations	None
Returned status values	<ul style="list-style-type: none"> • SUCCESS <p>Command was successfully executed.</p> <p>Select process returned N records</p> <ul style="list-style-type: none"> • ERROR <p>Sterling Connect:Direct Requester Logon Error</p> <p>An error occurred while logging into the Sterling Connect:Direct node.</p> <ul style="list-style-type: none"> • ERROR <p>Sterling Connect:Direct Requester Message Error</p> <p>An error occurred on the Sterling Connect:Direct node (command syntax error, user authorization error).</p> <ul style="list-style-type: none"> • ERROR <p>Sterling Connect:Direct Requester Connection Error</p> <p>An error occurred with the connection to the Sterling Connect:Direct node.</p>
Restrictions	None
Persistence level	System default
Testing considerations	Debug information for this service can be found in the C:D Interop log files.

Sterling Connect:Direct Requester Submit Process Service

This table provides an overview of the Sterling Connect:Direct Requester Submit Process service:

System Name	Sterling Connect:Direct Requester Submit Process Service
--------------------	---

Graphical Process Modeler (GPM) categories	Applications > Sterling Commerce > Sterling Connect:Direct
Description	This service is used to submit a Sterling Connect:Direct process to a remote Sterling Connect:Direct node.
Business usage	A business user would use this service to initiate work on remote Sterling Connect:Direct node.
Usage example	A business user has a file that exists on a remote node where Sterling Connect:Direct is running. This file is needed on another node. The user creates a business process that submits a Sterling Connect:Direct Process to a remote Sterling Connect:Direct Server to transfer the file from one node to the other.
Preconfigured?	A Sterling Connect:Direct Requester Adapter must be configured before using this service.
Requires third party files?	Sterling Connect:Direct Windows 4.0.00 or later, Sterling Connect:Direct UNIX 3.4.00 or later, or Sterling Connect:Direct OS/390 4.3.00 or later, available from IBM.
Platform availability	All supported platforms
Related services	Related services include Sterling Connect:Direct Requester Select Process Service and Sterling Connect:Direct Requester Select Statistics Service.
Application requirements	None
Initiates business processes?	No
Invocation	The business process running this service must be started by a user with permission to issue the Submit command on the target Sterling Connect:Direct server.
Business process context considerations	None
Returned status values	<ul style="list-style-type: none"> • SUCCESS – Command was successfully executed. • ERROR – An error occurred while processing the command.
Restrictions	None
Persistence level	System default
Testing considerations	Debug information for this service can be found in the Connect:Direct Interop log files.

Implementing the Sterling Connect:Direct Requester Submit Process Service

To implement the Sterling Connect:Direct Requester Submit Process service, complete the following tasks:

1. Create a Sterling Connect:Direct Requester Submit Process service configuration.
2. Configure the Sterling Connect:Direct Requester Submit Process service.
3. Use the Sterling Connect:Direct Requester Submit Process service in a business process.

Sterling Connect:Direct Requester Submit Process Service Settings

To configure the Sterling Connect:Direct Requester Submit Process service, you must specify settings for the following fields in Sterling B2B Integrator:

Field	Description
Name	Unique and meaningful name for the service configuration. Required.
Description	Meaningful description for the service configuration, for reference purposes. Required.
Select a Group	<p>Group of services or adapters of the same type that can act as peers. A Service Group name is used in BPML in place of the Service Configuration name. Service Groups show up in the GPM as if they were Service Configurations. Select a Service Group to associate with this adapter. Valid values are:</p> <ul style="list-style-type: none"> • None – You do not want to include this configuration in a group at this time (default) • Create New Group – You can enter a name for a new group in this field, which is then created along with this configuration. • Select Group – If you have already created one or more groups for this service type, they are displayed in the list. Select a group from the list. <p>For more information about service groups see Managing Services and Adapters.</p>
CDRequesterName	Specifies the Connect:Direct Requester adapter to use with this service. Required.

Parameters Passed from Sterling Connect:Direct Requester Service to Business Process

This table describes the parameters passed from the Sterling Connect:Direct Requester Submit Process service to the business process:

Parameter	Description
Class	Determines the node-to-node session on which a process can be executed. Optional. Valid values are 1–10.
ConditionCode	<p>Specifies the return code values associated with step termination. Optional. Valid values are:</p> <ul style="list-style-type: none"> • 0 – Successful execution of the process. • 4 – A warning error was encountered. The statement probably finished normally, but you should verify the execution results. • 8 – An error occurred during process execution. • 16 – A severe error occurred during process execution.
ExecutionPriority	<p>The priority under which the operating system thread that executes Sterling Connect:Direct runs. Valid values are 1–15. Optional.</p> <p>Note: Applies to Windows only.</p>
LogDateTime	Specifies the date and time that the statistics record was written to the statistics log. Optional.
MessageId	Specifies the current message ID for the process. Optional.
MessageText	Specifies the short text associated with the message ID. Optional.
Pnode	Specifies the primary node. Optional.

Parameter	Description
Priority	Specifies the priority assigned to the process. Optional. The lower the number the higher the priority. Valid values are 1-15.
ProcessName	Specifies the process name. Optional.
ProcessNumber	Specifies the process number. Optional.
Queue	Specifies the queue containing the process. Optional. Valid queue values are: <ul style="list-style-type: none"> • All-All processes in the TCQ. • Execution-Processes currently being executed. • Hold-Processes that are either held by the user or operator or held due to execution errors. • Timer-Processes that are scheduled to be executed later, or processes in time retry due to session errors. • Wait-Processes that are eligible for execution and are awaiting selection.
Snode	Specifies the secondary node used for the process.
Status	Process status. Optional. Valid status values are: <ul style="list-style-type: none"> • Execution -Process is executing. • Pending Execution -Process is selected for execution and startup is in progress. • Waiting Connection -Process is ready to execute, but all available connections to the SNODE are in use. • Waiting Start Time -Process is waiting in the Timer queue because it was submitted with a start time or date that has not expired. • Held Suspension - Operator issued a delete process request with Hold set to Yes. • Timer Retry - Process error occurred and the process was moved to the Timer queue in Timer Retry status with short-term and long-term wait times beginning. • Held for Call - Process was submitted with the Hold parameter set to Call. A session started from either node moves the process to the Wait queue in Waiting Connection status. The process is placed in the Execution queue when it is selected for execution. • Held Due to Error - Session error or other abnormal condition occurred. • Held Initially - Process was submitted with the Hold option set to Yes. • Held By Operator - Change process request with Hold set to Yes was issued. • Held By Retain - Process was submitted with Retain After Execution set to Yes or Initial.
Submitter	Specifies the user ID that submitted the process. Optional.
SubmitterNode	Specifies the node from which the process was submitted. Optional.

Parameters Passed from Business Process to Sterling Connect:Direct Requester Submit Service

This table describes the parameters passed from the business process to the Sterling Connect:Direct Requester Submit Process service:

Parameter	Description
CDRequesterName	Specifies the Sterling Connect:Direct Requester adapter to use with this service. Required.
Class	Specifies the preferred session class for the process. The process can execute in the class specified or any higher class. Optional. This value overrides any defaults. Valid values range from one to the maximum number of PNODE sessions defined in the network map definition (default is 1).
Hold	Specifies the Hold status of a process. Optional. Valid values are: <ul style="list-style-type: none"> • No – Do not place process in the Hold queue. It is executed as soon as resources are available (default). • Yes – Hold process in the Hold queue in Held Initially (HI) status until it is explicitly released. • Call – Hold process until the SNODE, as specified in the process SNODE parameter, connects to the PNODE. The process is then released for execution. The process is also released when another process on the PNODE connects to the SNODE.
MaxDelay	Specifies the time to wait until a process has executed. Optional. Valid values are: <ul style="list-style-type: none"> • Unlimited – Wait indefinitely or until the process is complete. • Queued – Wait until the process is submitted and placed on the queue. • hh:mm:ss – Wait for a specific length of time. • 0 – The process must be placed on the Exec queue immediately or the submission of the process is considered unsuccessful.
NewName	Specifies the new name of the process. The default is the label on the process statement. Optional.
NotifyUser	Specifies the user ID to receive process completion messages. The user ID is notified through a Microsoft Exchange E-mail, a Windows dialog box, or a TSO notify. Optional.
PnodeAccounting	Specifies user data passed to the PNODE. Optional.
PnodePassword	Specifies the user password on the PNODE. This field is case-sensitive. Optional.
PnodeUserid	Specifies the user ID used as a security ID on the PNODE. This ID must be the name of an existing user account. This field is case-sensitive. Optional.
Priority	Specifies the priority of a process in the Transmission Control queue. Sterling Connect:Direct uses the Priority parameter for process selection. The lower the number, the higher the priority. A process with higher priority is selected for execution before a process with a lower priority. This parameter does not affect the priority during transmission. Optional. Valid values are 1–15 (default is 7).
ProcessDocumentId	Specifies the Document ID of the document that contains text of the process to be submitted to the Sterling Connect:Direct server. Optional (if both ProcessText and ProcessDocumentId are blank, then the primary document must contain the process text).

Parameter	Description
ProcessText	Specifies the text of the process to be submitted to the Sterling Connect:Direct server. Optional (If both ProcessText and ProcessDocumentId are blank, then the primary document must contain the process text).
Retain	Whether Sterling Connect:Direct retains a copy of a process after it is runs. If you specify Retain with a start time, the process is released to run at the specified time. Each time a retained process is released, Sterling Connect:Direct creates a copy with a new process number. The copy is executed, and the original process remains in the queue. Optional. Valid values are: <ul style="list-style-type: none"> • Initial – Retain the process in the Hold queue for execution every time that Sterling Connect:Direct initializes. Do not specify a start time if you choose this option. • No – Do not retain the process after it is executed (default). • Yes – Retain the process in the Hold queue after it is executed. You can release the process for execution later or delete it. When you specify a start date and start time, set Retain to Yes to continually execute the process at the scheduled time.
Snode	Specifies the secondary node to be used in this process. The secondary node name is a 1–16 alphanumeric character name that is defined in the network map. Optional. Valid values are alphanumeric or nationals (@#\$.).
SnodeAccounting	Specifies user data passed to the SNODE. Optional.
SnodePassword	Specifies the user password on the SNODE. This field is case-sensitive. Optional.
SnodeUserid	Specifies the user ID used as a security ID on the SNODE. This field is case-sensitive. Optional.
StartDate	Specifies the day or date to execute the process. Optional.
StartTime	Specifies the time to execute the process. Format is HH:MM [XM]. Optional.
Variables	Specifies the symbolic variables to be used in the process. Symbolic variables are text strings in a process that are replaced with predefined values when the process is executed. This allows you to easily change processes when these values change. For example, you can define a variable &filename and declare the value to be file1.txt. Whenever the process encounters the &filename variable, it substitutes file1.txt. If you want to use a different value, just change the &filename definition to the new file name, and the process will use that instead. Optional.
UserId	User ID used to connect to the Sterling Connect:Direct server. Overrides the user ID specified in the Sterling Connect:Direct Requester adapter. Optional.
Password	Password used to connect to the Sterling Connect:Direct server. Overrides the password specified in the Sterling Connect:Direct Requester adapter. Alphanumeric. Optional.

Business Process Example

This example business process illustrates submitting a process using text that is specified in the ProcessText field within the business process:

```
<process name="CDSUBPROC">
  <sequence>
    <operation name="CDSUBPROC">
      <participant name="CDSUBPROC"/>
      <output message="CDSUBPROC">
        <assign to="CDRequesterName">CDReq</assign>
        <assign to="." from="*"></assign>
        <assign to="ProcessText">PULL PROCESS
          SNODE=cdnodename HOLD=yes
STEP02
COPY
FROM (
  FILE="/usr/test_data/inputfile"
  SNODE)
TO (
  FILE="/usr/test_data/outputfile "
  PNODE
  DISP=RPL)
PEND</assign>
</output>
<input message="inmsg">
  <assign to="." from="*"></assign>
</input>
</operation>
</sequence>
</process>
```

Sterling Connect:Direct Server Begin Session Service

This table provides an overview of the Sterling Connect:Direct Server Begin Session service:

System Name	Begin Session Service
Graphical Process Modeler (GPM) categories	All Services, Applications > IBM > IBM Sterling Connect:Direct
Description	Used to begin a session with a remote Sterling Connect:Direct node.
Business usage	Use this service to initiate a session on a remote Sterling Connect:Direct node. The service then uses the Sterling Connect:Direct Server Adapter to send outbound requests to the remote node.
Usage example	A Sterling B2B Integrator business process includes a file as primary document that must be copied to a remote Sterling Connect:Direct node. Before the copy operation can begin, a session must be established with the remote Sterling Connect:Direct node by including this service in the business process.
Preconfigured?	No
Requires third party files?	No
Platform availability	All supported platforms
Related services	<ul style="list-style-type: none"> • Sterling Connect:Direct Server End Session Service (must be used to end the session started by this service) • Sterling Connect:Direct Server Adapter

Application requirements	For more information, search for <i>Requirements</i> .
Initiates business processes?	No
Invocation	This service can be run by a business process to initiate an activity with a remote Sterling Connect:Direct node.
Business process context considerations	The Sterling Connect:Direct Server Begin Session service allows you to specify a remote password. To obscure this password in process data for the business process, you must use the Obscure Data - Process Data Values service within the same business process. The Obscure Data - Process Data Values service masks the values associated with parameters.

Returned status values	<ul style="list-style-type: none"> • Success - Normal execution with the return parameters specified. • Invalid Password Error - Password is not valid. • Invalid Connect:Direct Parameter Error (InvalidParameterException) - CDInterop Invalid parameter parm: <Parameter-Name> value: [<Parameter-Value>]. • Mandatory Parameter Missing Error (MissingParameterException) - Required Parameter <Parameter-Name> Missing. • Sterling Connect:Direct unable to locate local server (LocalServerNotFoundException) - Local Connect Direct Server is not registered with ServicesController: <Local Connect:Direct Server adapter>. • Connect:Direct server adapter is not available for service (CDSAAvailabilityException) - Adapter: <Local Connect:Direct Server adapter> is unavailable for service (<Current-State>). • NetMap Checking Failed (NetMap Checking Failed) - Local NetMap Checking for <Remote-CD-Node- Name> Failed. • Sterling Connect:Direct to establish a connection before timeout (CDInteropConnectionException) - PNodeConnectionAgent.connectFailed() - Perimeter Services was unable to make connection to remote host <Remote-CD-Node-Name> to reason : Could not complete connection to specified host. • Invalid UserId on Remote Sterling Connect:Direct (CDInteropRemoteNodeException) - <Connect:Direct Message-ID> (these are obtained from the Specific Remote Platform's documentation). Example: LSDS001E: The Id <USERID> is not a valid User Id on the Server. • Remote Sterling Connect:Direct Netmap check failed (CDInteropRemoteNodeException) - <Connect:Direct Message-ID> (these are obtained from the Specific Remote Platform's documentation). Example: LSDS012E: The remote node was not found in the netmap. • Check the UserId or Password provided for the Remote Sterling Connect:Direct (CDInteropRemoteNodeException) - <Connect:Direct Message-ID> (these are obtained from the Specific Remote Platform's documentation). Example: JPNA004I: User id missing. • Invalid Password provided on Remote Sterling Connect:Direct (CDInteropRemoteNodeException) - <Connect:Direct Message-ID> (these are obtained from the Specific Remote Platform's documentation). Example: LSMG244I: Unable to log in to file server - invalid userid or password. • Connect:Direct Server Error (CDInteropServerException) - Generic Error on SI. Check the logs on SI. • Connect:Direct Server Error (CDInteropException) - Generic Error on SI. Check the logs on SI.
Restrictions	None
Persistence level	None

Testing considerations	Debug information for this service can be found in the Sterling Connect:Direct Interop log files.
Notes	All business processes that use the Sterling Connect:Direct Server Begin Session service should have an "OnFault" handler, which releases all resources allocated to the session should an error occur.

Implementing the Sterling Connect:Direct Server Begin Session Service

To implement the Sterling Connect:Direct Server Begin Session service:

1. Create a Sterling Connect:Direct Server adapter configuration. For more information, search for *Connect:Direct Server Adapter*.
2. Configure the Sterling Connect:Direct Server Begin Session service.
3. Use the Sterling Connect:Direct Server Begin Session service in a business process.

Sterling Connect:Direct Server Begin Session Service Settings

To configure the Sterling Connect:Direct Server Begin Session service, specify the following fields in Sterling B2B Integrator.

Note: Field names in the GPM are provided in parentheses when different from the Administration menu.

Field	Description
Name	Name of the service configuration. Required.
Description	Description of service. Required.
Select a Group	Group of services or adapters of the same type that can act as peers. A Service Group name is used in BPML in place of the Service Configuration name. Service Groups show up in the GPM as if they were Service Configurations. Select a Service Group to associate with this adapter. Valid values are: <ul style="list-style-type: none"> • None – You do not want to include this configuration in a group at this time (default) • Create New Group – You can enter a name for a new group in this field, which is then created along with this configuration. • Select Group – If you have already created one or more groups for this service type, they are displayed in the list. Select a group from the list. Note: For more information about groups, refer to Managing Services and Adapters in the IBM Sterling B2B Integrator documentation library.
LocalUserId	Provides the business process developer with a mechanism for specifying the session's originator (PNODE) user ID directly. Its value is sent as the Submitting ID to the remote SNODE for use in proxy authentication (SPOE). If this parameter is unspecified, the effective user ID of the running business process is sent.

Parameters Passed from Business Process to Server Begin Session Service

These are the parameters passed from the business process to the Sterling Connect:Direct Server Begin Session service:

Field	Description
Number of Retry attempts for establishing a session (BeginSessionMaxRetries)	<p>Specifies the maximum number of long-term attempts for creating a session with a Sterling Connect:Direct node or for re-establishing a session after a session failure during COPY processing (both CopyTo and CopyFrom). Optional. When specified here, the value overrides the values set in the Sterling Connect:Direct Server adapter configuration. When overridden, the new value is retained for the duration of the session and also applies to any subsequent COPY steps.</p> <p>Valid value is any number up to 9999. Default is 0.</p> <p>Retry activity is logged (if logging enabled).</p> <p>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.</p>
Interval between session establishment attempts (minutes) (BeginSessionRetryInterval)	<p>Specifies the time, in minutes, to wait between long-term session establishment and re-establishment attempts. Optional. When specified here, the value overrides the value set in the Sterling Connect:Direct Server adapter configuration. When overridden, the new value is retained for the duration of the session and also applies to any subsequent COPY steps.</p> <p>Valid value is any number up to 99999999. Default is 1.</p>
Number of short-term session retry attempts (ShortTermMaxRetries)	<p>Specifies the maximum number of short-term session retry attempts that should be made when failures to connect occur. When specified here, the value overrides the value set in the Sterling Connect:Direct Server adapter configuration. When overridden, the new value is retained for the duration of the session and also applies to any subsequent COPY steps.</p> <p>Valid value: Any number up through 9999. Default is 0.</p> <p>Retry activity is logged (if logging enabled).</p>
Interval between short-term session retry attempts (seconds) (ShortTermRetryInterval)	<p>Specifies the amount of time, in seconds, to wait between short-term session establishment attempts. When specified here, the value overrides the value set in the Sterling Connect:Direct Server adapter configuration. When overridden, the new value is retained for the duration of the session and also applies to any subsequent COPY steps.</p> <p>Valid value: Any number through 99999999.</p>
LocalCDNodeName	<p>Specifies the name of the local Sterling Connect:Direct Server adapter or the adapter *GROUP* name. If the Sterling Connect:Direct Server adapter name is used, only that adapter will be selected to service the request. If the GROUP name is specified, the request will be routed to the next available member of the group in a load-balancing fashion. List includes all configurations of the Sterling Connect:Direct Server adapter. Required.</p>
LocalUserId	<p>Specifies the user ID to override the Submitter ID, which, by default, is the user ID of the business process that is running. Optional.</p>

Field	Description
PlexClass	Specifies the PlexClass used to route a process to a specific server in a Sterling Connect:Direct/Plex environment. For more information, on the PLEXCLASS keyword, see the IBM Sterling Connect:Direct for z/OS [®] user documentation. Optional.
ProcessName	A user-designated name for the business process that initiated the Sterling Connect:Direct Server Begin Session service. Optional. If not specified, the process name is generated dynamically. Maximum eight characters. Note: If a ProcessName is specified, hyperlinks from IBM Sterling Connect:Direct Browser User Interface to Sterling B2B Integrator are not active.
RemoteCDNodeName	Specifies the name of a Remote Sterling Connect:Direct Server node. This name must be same as the name of one of the nodes in the netmap of the adapter identified by LocalCDNodeName. Required.
RemotePasswd	Specifies the password to be used on the remote Sterling Connect:Direct Server node. Note: The remote Sterling Connect:Direct node's authentication policy determines whether this parameter is required or optional.
RemoteUserId	Specifies the UserId to be used on remote Sterling Connect:Direct server node. Note: The remote Sterling Connect:Direct node's authentication policy determines whether this parameter is required or optional.
UsingObscuredPasswd	Indicates whether the password sent to the service is obscured. Valid value is Yes or No. Optional. Note: To obscure the password in process data for the business process, you must also use the Obscure Data - Process Data Values service within the same business process.

Parameters Passed from Server Begin Session Service to Business Process

These are the parameters passed from the Sterling Connect:Direct Server Begin Session service to the business process:

Parameter	Description
SessionToken	Identifies an established session between two Sterling Connect:Direct nodes. Valid value is an XML structure that includes the following elements: <ul style="list-style-type: none"> • SessionId • ProcessNumber • ProcessName • SubmitDateTime • RemoteCDNodeName • RemoteUserId • RemotePasswd • PlexClass • MaxRestartRetries • RestartRetryInterval • ShortTermMaxRetries • ShortTermRetryInterval
SessionBeginTime	Specifies the date and time when the session was established.

Server Begin Session Service Business Process Example

The following business process example guarantees that any failed session attempt will release the session resources:

Begin Session Template

```
<process name="SampleCDBeginSessionExample">
  <sequence>
    <operation name="CD Server Begin Session Service">
      <participant name="CDServerBeginSession"/>
      <output message="CDServerBeginSessionServiceTypeInputMessage">
        <assign to="LocalCDNodeName">AdapterName</assign>
        <assign to="RemoteCDNodeName">CD.NODE.NAME</assign>
        <assign to="RemoteUserId">UserID</assign>
        <assign to="RemotePasswd">Password</assign>
        <assign to="." from="*"></assign>
      </output>
      <input message="inmsg">
        <assign to="BeginSessionResults" from="*"></assign>
      </input>
    </operation>

    <sequence name="Connect:Direct Session Statements Start">

      <!--
      ...Operations involved in this session...
      All steps in this session should be coded within this SessionToken
      "//BeginSessionResults/SessionToken/node()"
      -->

    <operation name="CD Server End Session Service">
      <participant name="CDServerEndSession"/>
      <output message="CDServerEndSessionServiceTypeInputMessage">
        <assign to="SessionToken" from="//BeginSessionResults/SessionToken/node()">
      </assign>
      </output>
      <input message="inmsg">
        <assign to="EndSessionResults" from="*"></assign>
      </input>
    </operation>
    <onFault>
```

```

<sequence name="On Fault Sequence Start">
  <operation name="CD OnFault Server End Session Service">
    <participant name="CDServerEndSession"/>
    <output message="CDServerEndSessionServiceTypeInputMessage">
      <assign to="SessionToken" from="//BeginSessionResults/SessionToken/node()"/>
    </assign>
    </output>
    <input message="inmsg">
      <assign to="OnFaultEndSessionResults" from="*"></assign>
    </input>
    </operation>
  </sequence>
</onFault>
</sequence>
</sequence>
</process>

```

Sterling Connect:Direct Server BP Response Service

This is an overview of the Sterling Connect:Direct Server BP Response service:

System Name	Connect:Direct Server BP Response Service
Graphical Process Modeler (GPM) categories	All Services, Applications > IBM > IBM Sterling Connect:Direct
Description	This service is used to call back from a business process to a Connect:Direct Server adapter.
Business usage	<p>This service is used as the last operation in a business process launched from a Sterling Connect:Direct Server Adapter in response to a request from a remote Sterling Connect:Direct Server to copy-from-BP. The service performs a call-back on the Sterling Connect:Direct Server adapter that launched the business process to convey the primary document which is used as the response to send to the remote Sterling Connect:Direct server. (This is similar to the HTTP Respond service, which performs a callback on the HTTP Server adapter).</p> <p>This service uses session information that is pre-placed in the process data by the Sterling Connect:Direct Server adapter that launches the business process. Therefore the service can only be used in business processes launched by a Sterling Connect:Direct Server adapter.</p>
Usage example	A remote Sterling Connect:Direct server initiates a session with a Sterling Connect:Direct Server adapter in Sterling B2B Integrator and requests to copy (retrieve) the final primary document resulting from a business process launched by the Sterling Connect:Direct Server adapter. The name of the business process is provided in the request from the remote Sterling Connect:Direct node. The business process must be created in Sterling B2B Integrator and have the BP Response Service as the last operation, so that the service can call back the adapter to respond to the request from the remote Sterling Connect:Direct node.
Preconfigured?	No
Requires third party files?	No
Platform availability	All supported platforms

Related services	Sterling Connect:Direct Server adapter. The Sterling Connect:Direct Server BP Response service can only be used in business processes launched by the Sterling Connect:Direct Server Adapter.
Application requirements	Search for <i>Requirements</i> .
Initiates business processes?	No
Invocation	Important: This service can only be used in a business process launched by a Sterling Connect:Direct Server Adapter, in response to a copy-from-business-process request from a remote Sterling Connect:Direct server. This service must be the last operation in such a business process. This service does not have any parameters to be configured.
Business process context considerations	None
Returned status values	None
Restrictions	Can only be used in a business process launched by a Sterling Connect:Direct Server Adapter in response to a “copy-from BP” request from a remote Sterling Connect:Direct server. This service must be the last operation in the business process. This service does not have any configurable parameters.
Persistence level	Default
Testing considerations	Debug information for this service can be found in the Sterling Connect:Direct Interop log files.

Implementing the Sterling Connect:Direct Server BP Response Service

Before implementing any specific Sterling Connect:Direct Server services, outline the business tasks to complete between Sterling Connect:Direct and Sterling B2B Integrator and decide which Sterling Connect:Direct Server services are needed.

To implement the Sterling Connect:Direct Server BP Response service:

1. Create a Sterling Connect:Direct Server BP Response service configuration.
2. Use the Sterling Connect:Direct Server BP Response service in a business process.

Sterling Connect:Direct Server BP Response Service Configuration

No configuration is required for the Sterling Connect:Direct Server BP Response service.

Parameters Passed from a Business Process to a Sterling Connect:Direct Server BP Response Service

This is the parameter passed from the business process to the Sterling Connect:Direct Server BP Response service:

Parameter	Description
Callback_SessionToken	Specifies the identifier for the session established between two Sterling Connect:Direct server nodes. Required.

Sterling Connect:Direct Server BP Response Service Business Process Example

This example illustrates how the Sterling Connect:Direct Server BP Response service is used in a business process:

```
<process name="CDInterop_SnodeCallback_BP">
  <!-- A simple BP that may be kicked off at Snode during CDServer Copy
  from BP test (Sterling B2B Integrator as Snode).
  !!NOTE!! :
  This BP may ONLY be launched by the BusinessProcessInitiator class;
  will fail if launched using execution manager.
  -->
  <sequence name="CDServerSnodeCallbackBP">
    <!-- Read a file from disk using the file-system adapter which
    will become the primary document-->
    <operation name="File System Adapter">
      <participant name="CDInteropTestFSA"/>
      <output message="FileSystemParams">
        <assign to="Action">FS_COLLECT</assign>
        <assign to="bootstrap">false</assign>
        <assign to="collectionFolder">/install_dir/foo/bar/in</assign>
        <assign to="useSubFolders">false</assign>
        <assign to="filter" from="Samplefile.txt"/> <!-- file to read -->
        <assign to="deleteAfterCollect">false</assign>
        <assign to="." from="*"></assign>
      </output>
      <input message="FileSystemResults">
        <assign to="." from="*"></assign>
      </input>
    </operation>
    <!-- Perform callback on the adapter using session-token from process-data -->
    <!-- NOTE:This operation must be the last one in the BP -->
    <operation name="Sterling Connect:Direct Server Begin Session Service">
      <participant name="CDServerBPResponseServiceInst"/>
      <output message="BPResponseParams">
        <assign to="." from="*"></assign>
      </output>
      <input message="inmsg">
        <assign to="BPResponseResults" from="*"></assign>
      </input>
    </operation>
  </sequence>
</process>
```

Sterling Connect:Direct CopyFrom Service

This is an overview of the Sterling Connect:Direct CopyFrom service:

System Name	Sterling Connect:Direct Server CopyFrom Service
Graphical Process Modeler (GPM) categories	All Services, Applications > IBM > IBM Sterling Connect:Direct

Description	This service copies a document from a remote Sterling Connect:Direct server. To confirm that the copy performed by this service can restart if a crash interrupts the copy operation, the business process (in which this service is used) must have the recovery level set to Auto-resume and the checkpoint interval must be specified for the service. If so marked, the business process and the copy are resumed automatically when Sterling B2B Integrator restarts, if the remote Sterling Connect:Direct node is still active. When resumed, the copy is restarted from the last checkpoint.
Business usage	A business user would use this service to copy a file from a remote Sterling Connect:Direct.
Usage example	A trading partner copies a business document from a remote Sterling Connect:Direct outside the organization.
Preconfigured?	Yes
Requires third party files?	No
Platform availability	All supported platforms
Related services	<p>Whenever the Sterling Connect:Direct Server CopyFrom service is used in a business process, the Sterling Connect:Direct Server Primitive CopyFrom service is exercised behind the scenes as part of a system business process to perform the actual copy operation.</p> <p>The Sterling Connect:Direct Server CopyFrom service has tight integration with the Sterling Connect:Direct Server Begin Session service. A session must be established between two Sterling Connect:Direct nodes using the Begin Session service to execute the CopyFrom service successfully. The Sterling Connect:Direct Server End Session service must be used to end the session established between the Sterling Connect:Direct nodes after the Sterling Connect:Direct Server CopyFrom service.</p>
Application requirements	Search for <i>Requirements</i> .
Initiates business processes?	No
Invocation	A user who has permission to perform this activity must start the business process that runs this service.

Business process context considerations	<p>LocalStripBlanks and LocalXlate are optional parameters, used only to control non-standard behavior and to complete understanding of your environment, the local content, the target requirement, data translation, and character set conversion.</p> <p>If LocalStripBlanks and LocalXlate are not assigned in the business process (see example below), settings are determined automatically.</p> <p>Example of a BP that does not explicitly assign LocalStripBlanks and LocalXlate parameters:</p> <pre><operation name="CD Server Copy To Service"> <participant name="ConnectDirectServerCopyToService001"/> <output message="CopyTo"> <assign to="." from="*"></assign> <assign to="RemoteFileName">purchase-order.txt</assign> </output> <input message="inmsg"> <assign to="CopyToResults" from="*"></assign> </input> </operation></pre> <p>If LocalStripBlanks and LocalXlate are assigned in the business process (see example below), the business process controls the translation and the values are used.</p> <p>Note: If LocalXlate is set to 'Yes', the SysOpts parameter must also specify 'xlate (yes)'.</p> <p>Example of a BP that explicitly assigns LocalStripBlanks and LocalXlate parameters:</p> <pre><operation name="CD Server Copy To Service"> <participant name="ConnectDirectServerCopyToService001"/> <output message="CopyTo"> <assign to="." from="*"></assign> <assign to="BinaryMode">NO</assign> <assign to="LocalXlate">NO</assign> <assign to="LocalStripBlanks">NO</assign> <assign to="RemoteFileName">purchase-order.txt</assign> </output> <input message="inmsg"> <assign to="CopyToResults" from="*"></assign> </input> </operation></pre>
---	--

Returned status values	<ul style="list-style-type: none"> • Success – Normal execution with the return parameters specified. <p>Advanced Errors</p> <ul style="list-style-type: none"> • Invalid Document Error – The business process does not have a document to be copied to a target Sterling Connect:Direct. • CopyFrom Remote File Error – An error related to the file on the remote Sterling Connect:Direct node. Possible reasons may be invalid file path or invalid file permissions. • Invalid Sysopts Error – Sysopts might contain Invalid characters • Invalid Parameter Error – An error has been made in the passing of parameters to this service, possibly a malformed date or numeric value. • Sterling Connect:Direct Server Error – A generic error associated with the Sterling Connect:Direct Server has occurred. • Sterling Connect:Direct Error – A generic error associated with Sterling Connect:Direct has occurred. • Sterling Connect:Direct Service Error – A generic error associated with this service has occurred.
Restrictions	None
Persistence level	None
Testing considerations	Debug information is found in the Sterling Connect:Direct Interop log files.

Implementing the Sterling Connect:Direct CopyFrom Service

To implement the Sterling Connect:Direct CopyFrom service:

1. Configure the Sterling Connect:Direct Server adapter to be used with this service.
2. Configure the Sterling Connect:Direct Copy From service.
3. Use the Sterling Connect:Direct Copy From service in a business process.

Sterling Connect:Direct Server Copy From Service Settings

To configure the Sterling Connect:Direct Copy From service, specify settings for the following fields in the GPM.

Field	Description
BinaryMode	<p>Specifies the mode for Connect:Direct File transfer. Optional. Valid values are:</p> <ul style="list-style-type: none"> • Yes - simple binary mode • No - (default) - text mode • VB - a variable block binary transfer with Sterling Connect:Direct for z/OS

Field	Description
CheckpointInterval	<p>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, refer to How Checkpoint Restart and Retry Processing Works on the Working with Sterling Connect:Direct page.</p> <p>Valid value is number of bytes, in one of the following formats:</p> <ul style="list-style-type: none"> • nnnnnnnnnn • nK or nM • nm or nk
Compression	<p>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 value indicates higher attempt at compression. Values greater than 2 may not result in further compression.</p>
Config	<p>Name of the service configuration. Required.</p>
DCB	<p>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:</p> <ul style="list-style-type: none"> • recordlength • blocksize • recordformat • datasetorganization <p>Note: More DCB attributes are available but only these are supported in Sterling B2B Integrator. Any other attribute will cause the copy to fail.</p> <p>For more information, see the IBM Sterling Connect:Direct for z/OS user documentation.</p>
LocalDocumentName	<p>Name of the document in Sterling B2B Integrator to which the remote file should be copied. Optional.</p>
LocalFromCodePage	<p>Specifies a code page supported by Java VM. Used in conjunction with the value of the LocalToCodePage parameter. The Sterling Connect:Direct Server adapter will apply a code page conversion to a document before transferring it to a remote Sterling Connect:Direct server. This parameter is only valid with the following conditions:</p> <ul style="list-style-type: none"> • Code page specified is supported by the local Java VM • Parameter LocalToCodePage is defined • Text mode file transfer (BinaryMode = No) <p>Optional. Valid value is the name of a codepage supported by the local Java VM.</p> <p>For example:</p> <pre><assign to="LocalFromCodePage">Cp1251</assign></pre> <pre><assign to="LocalToCodePage">Cp1047</assign></pre> <p>This example will translate the local file from windows latin-1 to ibm ebcdic. See http://java.sun.com/ for supported encodings.</p>

Field	Description
LocalStripBlanks	<p>Specifies whether the Sterling 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).</p>
LocalToCodePage	<p>Specifies a code page supported by Java VM. Used in conjunction with the value of the LocalFromCodePage parameter. The Sterling Connect:Direct Server adapter will apply a code page conversion to a document before transferring it to a remote Sterling Connect:Direct server. This parameter is only valid with the following conditions:</p> <ul style="list-style-type: none"> • Code page specified is supported by the local Java VM • Parameter LocalFromCodePage is defined • Text mode file transfer (BinaryMode = No) <p>Optional. Valid value is the name of a codepage supported by the local Java VM.</p> <p>For example:</p> <pre><assign to="LocalFromCodePage">Cp1251</assign> <assign to="LocalToCodePage">Cp1047</assign></pre> <p>This example will translate the local file from windows latin-1 to ibm ebcdic. See http://java.sun.com/ for supported encodings.</p>
LocalXlate	<p>Specifies if the Sterling Connect:Direct Server Adapter is to perform EBCDIC to ASCII 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.</p>

Field	Description
RemoteFileName	<p>Name of the file that should be copied from the remote Sterling Connect:Direct server. Enter the legal characters in the file name. Required.</p> <p>If the remote Sterling Connect:Direct server is a Sterling B2B Integrator - Sterling Connect:Direct Server Adapter, use the following general syntax if you copy from a mailbox:</p> <p><i>/mailbox/yourMailbox/targetdocName</i></p> <p>There are three parts to the RemoteFileName:</p> <ul style="list-style-type: none"> • mailbox is a reserved word and signals to Sterling B2B Integrator that you are copying from a Mailbox. • <i>yourMailbox</i> is the name of your Sterling B2B Integrator Mailbox. • <i>targetdocName</i> is the document that is pulled from your mailbox by the Sterling Connect:Direct Server Adapter. <p>If the remote Sterling Connect:Direct server is a Sterling B2B Integrator - Sterling Connect:Direct Server Adapter, use the following general syntax if you copy from a business process:</p> <p><i>/businessprocess/yourBusinessProcess/targetdocName</i></p> <p>There are three parts to the RemoteFileName:</p> <ul style="list-style-type: none"> • <i>/businessprocess/</i> is a reserved word and signals to Sterling B2B Integrator that you are invoking a business process. • <i>yourBusinessProcess</i> is the name of the Sterling B2B Integrator business process that the Sterling Connect:Direct Server Adapter invokes. • <i>targetdocName</i> is the name of the document that is passed from the remote Sterling Connect:Direct Server Adapter to your local Sterling Connect:Direct Server Adapter. <p>Note: You cannot use wildcards to copy multiple files from Sterling Connect:Direct to Sterling B2B Integrator with a single CopyFrom service.</p>
SessionToken	Identifies an established session between two Sterling Connect:Direct nodes. Required. Session integrity cannot be guaranteed if the session token is omitted.
Sysopts	<p>Remote system operations to be implemented on the remote Sterling Connect:Direct node. Optional.</p> <p>For example (for copying to IBM Sterling Connect:Direct for Microsoft Windows only):</p> <p>Datatype(text) xlate(yes)</p> <p>For more information, see IBM Sterling Connect:Direct documentation.</p>

Parameters Passed from Sterling Connect:Direct CopyFrom Service to Business Process

These parameters are passed from the Sterling Connect:Direct Server CopyFrom service to the business process:

Parameter	Description
LocalCDNodeName	Local Sterling Connect:Direct server instance name. Required.
RemoteCDNodeName	Remote Sterling Connect:Direct server instance name. Required.
BytesReceived	Number of bytes received in copy operation. Required. Valid value is a positive integer.
Status	Indicates the status of the copy operation. Required. Valid values are SUCCESS and ERROR.
CopyStartDateTime	Indicates copy operation begin date and time. Required. Valid value is in the format: YYYY MM DD hhmm.
CopyEndDateTime	Indicates copy operation end date and time. Required. Valid value is in the format: YYYY MM DD hhmm.

Sterling Connect:Direct CopyFrom Business Process Example

This example illustrates using the Sterling Connect:Direct Server CopyFrom service in a business process. The business process copies a file from the remote Sterling Connect:Direct server, which is identified with a session token.

```

<process name=" CopyFromExample">
  <sequence name="CDServerCopyFromGIS">
    <!-- Begin Server Session -->
    <operation name="Sterling Connect:Direct Server Begin Session Service">
      <participant name="CDServerBeginSession"/>
      <output message="BeginSession">
        <assign to="." from="*"></assign>
        <assign to="LocalCDNodeName">TEST1_CDSEVER</assign>
        <assign to="RemoteCDNodeName">REMOTECDNAME1</assign>
        <assign to="RemoteUserId">userid1</assign>
        <assign to="RemotePasswd">password1</assign>
      </output>
      <input message="inmsg">
        <assign to="BeginSessionResults" from="*"></assign>
      </input>
    </operation>
    <!-- Perform Copy (Pnode-INbound) -->
    <operation name="Connect:Direct Server Copy From Service">
      <participant name="CDServerCopyFrom"/>
      <output message="CopyFrom">
        <assign to="." from="*"></assign>
        <assign to="SessionToken"
          from="//BeginSessionResults/SessionToken/node()"></assign>
        <assign to="RemoteFileName">samplecopyfrom.txt</assign>
        <assign to="LocalDocumentName">samplelocal</assign>
        <assign to="BinaryMode">no</assign>
        <assign to="Sysopts">datatype(text) xlate(yes)</assign>
      </output>
      <input message="inmsg">
        <assign to="CopyFromResults" from="*"></assign>
      </input>
    </operation>
    <!-- End Server Session -->
    <operation name="Connect:Direct Server End Session Service">
      <participant name="CDServerEndSession"/>
      <output message="EndSession">
        <assign to="." from="*"></assign>
        <assign to="SessionToken"
          from="//BeginSessionResults/SessionToken/node()"></assign>
      </output>
      <input message="inmsg">
        <assign to="EndSessionResults" from="*"></assign>

```

```

        </input>
    </operation>
</sequence>
</process>

```

Sterling Connect:Direct CopyTo Service

This is an overview of the Sterling Connect:Direct Server CopyTo service:

System Name	Sterling Connect:Direct Server CopyTo Service
Graphical Process Modeler (GPM) categories	All Services, Applications > IBM > IBM Sterling Connect:Direct
Description	This service copies a document to a remote Sterling Connect:Direct server. To ensure that the copy performed by this service can restart from the last checkpoint if a crash interrupts the copy operation, set the recovery level to Auto-resume for the business process that uses the CopyTo service and specify a checkpoint interval for that service. If so marked, the business process and the copy are resumed automatically when Sterling B2B Integrator restarts, if the remote Sterling Connect:Direct node is still active. When resumed, the copy is restarted from the last checkpoint.
Business usage	A business user would use this service to copy a document to a remote Sterling Connect:Direct.
Usage example	A trading partner copies a business document to a remote Sterling Connect:Direct server outside the organization.
Preconfigured?	Yes
Requires third party files?	No
Platform availability	All supported platforms
Related services	<p>When the Sterling Connect:Direct Server CopyTo service is used in a business process, the Sterling Connect:Direct Server Primitive CopyTo service is exercised behind the scenes as part of a system business process to perform the actual copy operation.</p> <p>The Sterling Connect:Direct Server CopyTo service has tight integration with the Sterling Connect:Direct Server Begin Session service. A session must be established between two Sterling Connect:Direct nodes using the Begin Session service in order to execute the CopyTo service successfully. The Sterling Connect:Direct Server End Session service must be used to end the session established between the Sterling Connect:Direct nodes after the Sterling Connect:Direct Server CopyTo service.</p>
Application requirements	For more information, search for <i>Requirements</i>
Initiates business processes?	No
Invocation	A user who has permission to perform this activity must start the business process that runs this service.

Business process context considerations	<p>LocalStripBlanks and LocalXlate are optional parameters. Use these parameters only when you want to control non-standard behavior and you have a complete understanding of your environment, the local content, the target requirement, data translation, and character set conversion.</p> <p>If LocalStripBlanks and LocalXlate are not explicitly assigned in the business process (see example below), the settings are determined automatically.</p> <p>Example of a BP that does not explicitly assign LocalStripBlanks and LocalXlate parameters:</p> <pre><operation name="CD Server Copy To Service"> <participant name="ConnectDirectServerCopyToService001"/> <output message="CopyTo"> <assign to="." from="*"></assign> <assign to="RemoteFileName">purchase-order.txt</assign> </output> <input message="inmsg"> <assign to="CopyToResults" from="*"></assign> </input> </operation></pre> <p>If LocalStripBlanks and LocalXlate are explicitly assigned in the business process (see example below), the business process controls the translation and the specified values are used.</p>
Returned status values	<ul style="list-style-type: none"> • Success – Normal execution with the return parameters specified. <p>Advanced Errors</p> <ul style="list-style-type: none"> • Invalid Document Error – Business process does not have document to be copied to a target Sterling Connect:Direct server. • CopyTo Remote File Error – An error related to file on remote Sterling Connect:Direct server. Might the file error or file path is invalid or invalid file permissions. • Invalid Sysopts Error – Sysopts may contain invalid syntax or characters • Sterling Connect:Direct Server Error – Generic error associated with the Sterling Connect:Direct server has occurred. • Sterling Connect:Direct Error – Generic error associated with the Sterling Connect:Direct server has occurred. • Sterling Connect:Direct Service Error – Generic error associated with this service has occurred.
Restrictions	<p>Sterling B2B Integrator version 5.1 and later supports the most common set of parameters available in the Sterling 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 Sterling Connect:Direct for z/OS node. To ensure that business processes created in earlier versions of Sterling B2B 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.</p> <p>Use the new parameters when you create a new business process and when you make upgrade an existing CopyTo service.</p>
Persistence level	None
Testing considerations	Debug information is found in the Sterling Connect:Direct Interop log files.

Implementing the Sterling Connect:Direct Server CopyTo Service

To implement the Sterling Connect:Direct Server CopyTo Service:

1. Create a Sterling Connect:Direct Server adapter to be used with this service.
2. Configure the Sterling Connect:Direct Server CopyTo service.
3. Use the Sterling Connect:Direct Server CopyTo service in a business process.

The Enhanced Set of Connect:Direct CopyTo Parameters

Note: For users familiar with the Sterling Connect:Direct Process language, the 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 Sterling 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 B2B Integrator CDSA node.

When you create a new business process using BPML code written in a text editor or use the graphical interface tool available in Sterling B2B Integrator, Graphical Process Modeler (GPM), make sure that the CopyTo Service contains only “old” parameters or “new” parameters—do not mix parameters from both columns. For example, do not include DCB unitttype and RemoteUNIT in the same CopyTo service. Replacements for old DCB parameters are noted in the table, for example, instead of coding DCB expirationdate, use RemoteLABEL EXPDT.

In addition, you can find several CopyTo service examples illustrating the values and syntax valid for the Sterling Connect:Direct platform you copy to, including UNIX, Microsoft Windows, and i5/OS.

This table lists the old parameters available in Sterling B2B Integrator version 5.0 and earlier and the new parameters available in Sterling B2B Integrator version 5.1 and later that give you more file handling capabilities and more closely match the Process language and syntax of Sterling Connect:Direct for z/OS. The new parameters are indicated in the table with an asterisk and have a prefix of Remote to indicate the remote Sterling Connect:Direct node to which the local Sterling Connect:Direct Service adapter is transferring a file.

Old Parameter/Syntax	New Parameter/Syntax for z/OS
<p>DCB</p> <p>[,blocksize=no.-bytes]</p> <p>[,datasetorganization =[PS PO]</p> <p>[,recordlength=no.-bytes]</p> <p>[,recordformat=record-format]</p> <p>[,unittype=unit-address device-type group-name] ,</p> <p>[unit-count P]</p> <p>Note: Use the new RemoteUNIT parameter as shown in <i>Connect:Direct Server CopyTo Service Settings</i>.</p> <p>[expirationdate=yyddd yyyy/ddd]</p> <p>Note: Use EXPDT=[yyddd yyyy/ddd] in the new RemoteLABEL parameter.</p> <p>[retentionperiod=nnnn]</p> <p>Note: Use [RETPD=nnnn EXPDT] in the new RemoteLABEL parameter.</p> <p>[volumecount=maximum-no.-files-required-by-an-output file]</p> <p>Note: Use the new RemoteVOL parameter.</p>	<p>RemoteDCB</p> <p>([model-file-name]</p> <p>[,BLKSIZE=no.-bytes]</p> <p>[,DEN=0 1 2 3 4]</p> <p>[,DSORG=[PS PO DA VSAM]</p> <p>[,KEYLEN=no.-bytes]</p> <p>[,LIMCT=no.-blocks-or-tracks]</p> <p>[,LRECL=no.-bytes]</p> <p>[,OPTCD=W Q Z]</p> <p>[,RECFM=record-format]</p> <p>[,RKP=first-byte-position-of-record-key]</p> <p>)</p>
<p>CDDisposition</p> <p>new old rpl</p> <p>Note: Use the new RemoteDISP parameter as shown in <i>Connect:Direct Server CopyTo Service Settings</i>.</p>	<p>RemoteDISP</p> <p>([NEW OLD MOD RPL SHR],</p> <p>[KEEP CATLG] ,</p> <p>[KEEP CATLG DELETE]</p> <p>)</p> <p> </p> <p>(NEW OLD MOD RPL SHR)</p> <p> </p> <p>NEW OLD MOD RPL SHR</p>

Old Parameter/Syntax	New Parameter/Syntax for z/OS
	RemoteSMS 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
	RemoteLABEL ([file-sequence-number] ,[SL AL BLP LTM NL AUL NSL SUL] ,[PASSWORD NOPWREAD] ,[IN OUT] ,[RETPD=nnnn EXPDT=[yyddd yyyy/ddd]) Note: RETPD and EXPDT were coded in the old DCB parameter.
	RemoteMSVGP
	RemoteSPACE
	RemoteUNIT Note: This was coded in the old DCB parameter.
	RemoteVOL Note: This was coded in the old DCB parameter.
	RemoteBUFND
	RemoteIOEXIT
	RemoteDATAEXIT
Sysopts	Sysopts
RemoteFileName	RemoteFileName
LocalFileNameLabel	LocalFileNameLabel

Old Parameter/Syntax	New Parameter/Syntax for z/OS
Compression	Compression
LocalFromCodePage	LocalFromCodePage
LocalToCodePage	LocalToCodePage
LocalXlate	LocalXlate
LocalStripBlanks	LocalStripBlanks
LocalDocumentId	LocalDocumentId
BinaryMode	BinaryMode
CDRecordType	CDRecordType
CheckpointInterval	CheckpointInterval
SessionToken	SessionToken

Sterling Connect:Direct Server CopyTo Service Settings

To configure the Sterling Connect:Direct Server CopyTo Service, specify the following fields in the GPM.

Field	Description
BinaryMode	<p>Specifies how the data from the source file on the local Sterling Connect:Direct Server adapter node will be transferred to the remote Sterling Connect:Direct node. Optional.</p> <p>Valid values are:</p> <ul style="list-style-type: none"> • 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 Sterling Connect:Direct on the z/OS platform
CDDisposition	<p>Specifies how the file gets created on the remote Sterling Connect:Direct server. Optional. Valid values are:</p> <ul style="list-style-type: none"> • New – Specifies that the CopyTo service will create the destination file. The copy fails if the file exists • rpl – Specifies that the destination file name replaces any existing file or, if none exists, allocates a new file <p>Note: Only use this parameter with existing business processes created in Sterling B2B Integrator version 5.0 or earlier. Use the RemoteDISP parameter instead.</p>
CDRecordType	<p>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, refer to the IBM Sterling Connect:Direct for z/OS user documentation.</p>

Field	Description
CheckpointInterval	<p>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.</p> <p>Valid value is number of bytes, in one of the following formats:</p> <ul style="list-style-type: none"> • nnnnnnnnnn • nK or nM • nm or nk
Compression	<p>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.</p>
Config	<p>Name of the service configuration. Required.</p>
DCB	<p>Specifies Data Control Block (DCB), a group of attributes specified as name-value pairs separated by commas. One, some, or all values may be included. Pattern is name=value with comma between, as in the following example:</p> <p>recordlength=200, blocksize=2000, recordformat=FB, datasetorganization=PS, unittype=cart, expirationdate=06365, volumecount=99</p> <p>Used only on the z/OS platform. Optional. Valid attributes are:</p> <ul style="list-style-type: none"> • recordlength • blocksize • recordformat • datasetorganization • expirationdate (Use EXPDT=[yyddd yyyy/ddd] in the RemoteLABEL parameter to replace this attribute.) • volumecount (Use the RemoteVOL parameter to replace this attribute.) • unittype (Use the RemoteUNIT parameter to replace this attribute.) <p>Note: Additional DCB attributes are available but only these are supported using this old parameter in Sterling B2B Integrator. Any other attribute will cause the copy to fail. For more functionality and additional file allocation options, use the RemoteDCB parameter.</p> <p>For more information on DCB in general, refer to the IBM Sterling Connect:Direct for z/OS documentation.</p> <p>Note: This is an “old” parameter, which should only be used in existing business processes created in Sterling B2B Integrator Version 5.0 or earlier. Use the RemoteDCB parameter instead.</p>
LocalDocumentId	<p>A valid document ID for an existing document in Sterling B2B Integrator. When this field is left blank, the primary document provided to the business process is used. Optional.</p>
LocalFileNameLabel	<p>Specifies a label for the name of the local file. This file name label is provided to the remote Sterling Connect:Direct node for informational purposes only. Optional.</p>

Field	Description
LocalFromCodePage	<p>Specifies a code page supported by Java VM. Used in conjunction with the value of the LocalToCodePage parameter. The Sterling Connect:Direct Server adapter will apply a code page conversion to a document before transferring it to a remote Sterling Connect:Direct server. This parameter is only valid with the following conditions:</p> <ul style="list-style-type: none"> • Code page specified is supported by the local Java VM • Parameter LocalToCodePage is defined • Text mode file transfer (BinaryMode =No) <p>Optional. Valid value is the name of a codepage supported by the local Java VM.</p> <p>For example:</p> <pre><assign to="LocalFromCodePage">Cp1251</assign></pre> <pre><assign to="LocalToCodePage">Cp1047</assign></pre> <p>This example will translate the local file from windows latin-1 to ibm ebcdic. See http://java.sun.com for supported encodings.</p>
LocalStripBlanks	<p>Specifies whether the Sterling 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).</p>
LocalToCodePage	<p>Specifies a code page supported by Java VM. Used in conjunction with the value of the LocalFromCodePage parameter. The Sterling Connect:Direct Server adapter will apply a code page conversion to a document before transferring it to a remote Sterling Connect:Direct Server. This parameter is only valid with the following conditions:</p> <ul style="list-style-type: none"> • Code page specified is supported by the local Java VM • Parameter LocalFromCodePage is defined • Text mode file transfer (BinaryMode =No) <p>Optional. Valid value is the name of a codepage supported by the local Java VM.</p> <p>For example:</p> <pre><assign to="LocalFromCodePage">Cp1251</assign></pre> <pre><assign to="LocalToCodePage">Cp1047</assign></pre> <p>This example will translate the local file from windows latin-1 to ibm ebcdic. See http://java.sun.com/ for supported encodings.</p>
LocalXlate	<p>Specifies if the Sterling Connect:Direct Server adapter is to perform ASCII to EBCDIC translation before copying a file to a remote Sterling Connect:Direct Server. This option is only valid for Text mode file transfers (BinaryMode = No). Optional. Valid value is Yes (default) or No.</p>

Field	Description
RemoteBUFND	<p>Specifies the number of I/O buffers VSAM will use for transmitting data between virtual and auxiliary storage. Optional.</p> <p>Used only on the z/OS platform.</p> <p>For more information on how to specify BUFND information, refer to the IBM Sterling Connect:Direct for z/OS documentation.</p>
RemoteDATAEXIT	<p>Specifies a user-written program through which data is processed before being written to the destination file. Optional.</p> <p>Used only on the z/OS platform. Valid syntax is:</p> <p>exit-name (exit-name [,parameter,...])</p> <p>For more information on dataexits, refer to the IBM Sterling Connect:Direct for z/OS user documentation.</p>
RemoteDCB	<p>Specifies Data Control Block (DCB), a group of attributes to be used in allocating destination files on a z/OS system.</p> <p>Used only on the z/OS platform. Optional. Valid attributes are:</p> <p>([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 information on DCB attributes, refer to the IBM Sterling Connect:Direct for z/OS documentation.</p>

Field	Description
RemoteDISP	<p>Specifies how the destination file is to be created on the remote Sterling Connect:Direct server. Optional.</p> <p>Valid syntax for Sterling Connect:Direct for z/OS is:</p> <pre>([NEW OLD MOD RPL SHR], [KEEP CATLG] , [KEEP CATLG DELETE]) (NEW OLD MOD RPL SHR) NEW OLD MOD RPL SHR</pre> <p>For more information on the values and syntax valid for the Sterling Connect:Direct platform you are copying to, refer to your IBM Sterling Connect:Direct for z/OS documentation.</p>

Field	Description
RemoteFileName	<p>Name that should be given to the destination file that is copied to the remote Sterling Connect:Direct server. Required.</p> <p>If the remote Sterling Connect:Direct server is a Sterling B2B Integrator - Sterling Connect:Direct Server Adapter, use the following general syntax if you copy to a mailbox:</p> <p><i>/mailbox/yourMailbox/yourDestinationFile</i></p> <p>There are three parts to the RemoteFileName:</p> <ul style="list-style-type: none"> • mailbox is a reserved word and signals to Sterling B2B Integrator that you are copying to a Mailbox. • <i>yourMailbox</i> is the name of your Sterling B2B Integrator Mailbox. • <i>yourDestinationFile</i> is the document that is passed to your mailbox by the Sterling Connect:Direct Server Adapter. This document is stored in the mailbox. This document can be retrieved by an SFTP client, business process or another Sterling Connect:Direct Process. <p>If the remote Sterling Connect:Direct server is a Sterling B2B Integrator - Sterling Connect:Direct Server Adapter, use the following general syntax if you copy to a business process:</p> <p><i>/businessprocess/yourBusinessProcess/yourDestinationFile</i></p> <p>There are three parts to the RemoteFileName:</p> <ul style="list-style-type: none"> • <i>/businessprocess/</i> is a reserved word and signals to Sterling B2B Integrator that you are copying to a business process. • <i>yourBusinessProcess</i> is the name of the Sterling B2B Integrator business process that the Sterling Connect:Direct Server Adapter invokes. • <i>yourDestinationFile</i> is the name of the document that is passed to the business process by the Sterling Connect:Direct Server Adapter. This document becomes the Primary Document in the <i>yourBusinessProcess</i> business process. <p>Note: You cannot use wildcards to copy multiple files from Sterling B2B Integrator to Sterling Connect:Direct with a single CopyTo service.</p>
RemoteIOEXIT	<p>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.</p> <p>Used only on the z/OS platform. Valid syntax is:</p> <p>exit-name (exit-name [,parameter,...])</p> <p>For more information on I/O exits, see the IBM Sterling Connect:Direct for z/OS user documentation.</p>

Field	Description
RemoteLABEL	<p>Specifies label information for the tape used for the destination file. Optional.</p> <p>Used only on the z/OS platform. Valid syntax is:</p> <pre>([file-sequence-number] ,[SL AL BLP LTM NL AUL NSL SUL] ,[PASSWORD NOPWREAD] ,[IN OUT] ,[RETPD=nnnn EXPDT=[yyddd yyyy/ddd]])</pre> <p>For more information on how to specify label information, see the IBM Sterling Connect:Direct for z/OS documentation. Note: The Retention Period (RETPD) and Expiration Date (EXPDT) attributes were coded in the old DCB parameter.</p>
RemoteMSVGP	<p>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.</p> <p>Used only on the z/OS platform. Valid value is MS-group-name.</p>
RemoteSMS	<p>Specifies SMS attributes to use when creating the destination file. Optional.</p> <p>Used only on the z/OS platform. Valid attributes are:</p> <ul style="list-style-type: none"> • 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 <p>For more information on SMS attributes, see the IBM Sterling Connect:Direct for z/OS user documentation.</p>

Field	Description
RemoteSPACE	<p>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.</p> <p>Used only on the z/OS platform. Valid syntax is:</p> <pre>(CYL TRK blk, (prim , [sec] , [dir]), [RLSE] , [CONTIG] , [ROUND]) (av-rec-len , (primary-rcds , [secondary-rcds], [dir]))</pre> <p>For more information on how to specify SPACE information, see the IBM Sterling Connect:Direct for z/OS user documentation.</p>
RemoteUNIT	<p>Specifies the storage device or type along with the number of devices required. Optional.</p> <p>Used only on the z/OS platform. Valid syntax is:</p> <pre>([unit-address device-type group-name], [unit-count P] [,DEFER])</pre> <p>For more information on how to specify UNIT information, see the IBM Sterling Connect:Direct for z/OS user documentation. Note: Unittype was coded in the old DCB parameter.</p>
RemoteVOL	<p>Specifies one or more volume serial numbers containing the destination file and optional processing associated with the file. Optional.</p> <p>Used only on the z/OS platform. Valid syntax is:</p> <pre>([PRIVATE],[RETAIN] ,[volume-sequence-no],[volume-count] [,SER=(serial-no [,serial-no,...]) SER=serial-no) ([SER=(serial-no,[serial-no,...])]) (REF=dsn)</pre> <p>For more information on how to specify VOL information, see the IBM Sterling Connect:Direct for z/OS user documentation. Note: Volumecount was coded in the old DCB parameter.</p>
SessionToken	<p>Identifies an established session between two Sterling Connect:Direct nodes. Required. Session integrity cannot be guaranteed if the session token is omitted.</p>

Field	Description
Sysopts	<p>Remote system operations to be implemented on the remote Sterling Connect:Direct node. Optional.</p> <p>For example (for copying to Sterling Connect:Direct for Windows only):</p> <p>Datatype(text) xlate(yes)</p> <p>For more information, see IBM Sterling Connect:Direct documentation.</p>

Parameters Passed from Business Process to a CopyTo Service

This table describes the parameters passed from the business process to the Sterling Connect:Direct CopyTo service:

Field	Description
BinaryMode	<p>Specifies how the data from the source file on the local Sterling Connect:Direct Server adapter node will be transferred to the remote Sterling Connect:Direct node. Optional.</p> <p>Valid values are:</p> <ul style="list-style-type: none"> • 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 Sterling Connect:Direct on the z/OS platform
CDDisposition	<p>Specifies how the file gets created on the remote Sterling Connect:Direct server. Optional. Valid values are:</p> <ul style="list-style-type: none"> • New – Specifies that the CopyTo service will create the destination file. The copy fails if the file exists • rpl – Specifies that the destination file name replaces any existing file or, if none exists, allocates a new file <p>Note: This parameter should only be used in existing business processes created in Sterling B2B Integrator Version 5.0 or earlier. Use the RemoteDISP parameter instead.</p>
CDRecordType	<p>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 typekey is specified only when defaults are requested by the user. Optional. For more information on the type defaults file, see the IBM Sterling Connect:Direct for z/OS user documentation.</p>
CheckpointInterval	<p>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.</p> <p>Valid value is number of bytes, in one of the following formats:</p> <ul style="list-style-type: none"> • nnnnnnnnnn • nK or nM • nm or nk

Field	Description
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.
Config	Name of the service configuration. Required.
DCB	<p>Specifies Data Control Block (DCB), a group of attributes specified as name-value pairs separated by commas. One, some, or all values may be included. Pattern is name=value with comma between, as in the following example:</p> <pre>recordlength=200, blocksize=0, recordformat=FB, datasetorganization=PS, unittype=cart, expirationdate=06365, volumecount=99</pre> <p>Used only on the z/OS platform. Optional. Valid attributes are:</p> <ul style="list-style-type: none"> • recordlength • blocksize • recordformat • datasetorganization • expirationdate (Use EXPDT=[yyddd yyyy/ddd] in the RemoteLABEL parameter to replace this attribute.) • volumecount (Use the RemoteVOL parameter to replace this attribute.) • unittype (Use the RemoteUNIT parameter to replace this attribute.) <p>Note: Additional DCB attributes are available but only these are supported using this old parameter in Sterling B2B Integrator. Any other attribute will cause the copy to fail. For more functionality and additional file allocation options, use the RemoteDCB parameter.</p> <p>For more information on DCB in general, see the IBM Sterling Connect:Direct for z/OS user documentation.</p> <p>Note: This parameter should only be used in existing business processes created in Sterling B2B Integrator Version 5.0 or earlier.</p>
LocalDocumentId	A valid document ID for an existing document in Sterling B2B Integrator. When this field is left blank, the primary document provided to the business process is used. Optional.
LocalFileNameLabel	Specifies a label for the name of the local file. This file name label is provided to the remote Sterling Connect:Direct node for informational purposes only. Optional.

Field	Description
LocalFromCodePage	<p>Specifies a code page supported by Java VM. Used in conjunction with the value of the LocalToCodePage parameter. The Sterling Connect:Direct Server adapter will apply a code page conversion to a document before transferring it to a remote Sterling Connect:Direct server. This parameter is only valid with the following conditions:</p> <ul style="list-style-type: none"> • Code page specified is supported by the local Java VM • Parameter LocalToCodePage is defined • Text mode file transfer (BinaryMode =No) <p>Optional. Valid value is the name of a codepage supported by the local Java VM.</p> <p>For example:</p> <pre><assign to="LocalFromCodePage">Cp1251</assign></pre> <pre><assign to="LocalToCodePage">Cp1047</assign></pre> <p>This example will translate the local file from windows latin-1 to ibm ebcdic. See http://java.sun.com/ for supported encodings.</p>
LocalStripBlanks	<p>Specifies whether the Sterling 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).</p>
LocalToCodePage	<p>Specifies a code page supported by Java VM. Used in conjunction with the value of the LocalFromCodePage parameter. The Sterling Connect:Direct Server adapter will apply a code page conversion to a document before transferring it to a remote Sterling Connect:Direct Server. This parameter is only valid with the following conditions:</p> <ul style="list-style-type: none"> • Code page specified is supported by the local Java VM • Parameter LocalFromCodePage is defined • Text mode file transfer (BinaryMode =No) <p>Optional. Valid value is the name of a codepage supported by the local Java VM.</p> <p>For example:</p> <pre><assign to="LocalFromCodePage">Cp1251</assign></pre> <pre><assign to="LocalToCodePage">Cp1047</assign></pre> <p>This example will translate the local file from windows latin-1 to ibm ebcdic. See http://java.sun.com/ for supported encodings.</p>
LocalXlate	<p>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.</p>

Field	Description
RemoteBUFND	<p>Specifies the number of I/O buffers VSAM will use for transmitting data between virtual and auxiliary storage. Optional.</p> <p>Used only on the z/OS platform.</p> <p>For more information on how to specify BUFND information, see the IBM Sterling Connect:Direct for z/OS user documentation.</p>
RemoteDATAEXIT	<p>Specifies a user-written program through which data is processed before being written to the destination file. Optional.</p> <p>Used only on the z/OS platform. Valid syntax is:</p> <p>exit-name (exit-name [,parameter,...])</p> <p>For more information on dataexits, see the IBM Sterling Connect:Direct for z/OS user documentation.</p>
RemoteDCB	<p>Specifies Data Control Block (DCB), a group of attributes to be used in allocating destination files on a z/OS system.</p> <p>Used only on the z/OS platform. Optional. Valid attributes are:</p> <p>([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 IBM Sterling Connect:Direct for z/OS documentation.</p>

Field	Description
RemoteDISP	<p>Specifies how the destination file is to be created on the remote Sterling Connect:Direct server. Optional.</p> <p>Valid syntax for Sterling Connect:Direct for z/OS is:</p> <pre>([NEW OLD MOD RPL SHR], [KEEP CATLG] , [KEEP CATLG DELETE]) (NEW OLD MOD RPL SHR) NEW OLD MOD RPL SHR</pre> <p>For more information on the values and syntax valid for the Sterling Connect:Direct platform you are copying to, see your IBM Sterling Connect:Direct for z/OS documentation.</p>
RemoteFileName	<p>Name that should be given to the destination file that is copied to the remote Sterling Connect:Direct server. Required.</p> <p>Note: You cannot use wildcards to copy multiple files from Sterling B2B Integrator to Sterling Connect:Direct with a single CopyTo service.</p>
RemoteIOEXIT	<p>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.</p> <p>Used only on the z/OS platform. Valid syntax is:</p> <pre>exit-name (exit-name [,parameter,...])</pre> <p>For more information on I/O exits, see the IBM Sterling Connect:Direct for z/OS user documentation.</p>
RemoteLABEL	<p>Specifies label information for the tape used for the destination file. Optional.</p> <p>Used only on the z/OS platform. Valid syntax is:</p> <pre>([file-sequence-number] ,[SL AL BLP LTM NL AUL NSL SUL] ,[PASSWORD NOPWREAD] ,[IN OUT] ,[RETPD=nnnn EXPDT=[yyddd yyyy/ddd]])</pre> <p>For more information on how to specify label information, see the IBM Sterling Connect:Direct for z/OS documentation.</p> <p>Note: The Retention Period (RETPD) and Expiration Date (EXPDT) attributes were coded in the old DCB parameter.</p>

Field	Description
RemoteMSVGP	<p>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.</p> <p>Used only on the z/OS platform. Valid value is MS-group-name.</p>
RemoteSMS	<p>Specifies SMS attributes to use when creating the destination file. Optional.</p> <p>Used only on the z/OS platform. Valid attributes are:</p> <ul style="list-style-type: none"> • 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 <p>For more information on SMS attributes, see the IBM Sterling Connect:Direct for z/OS user documentation.</p>
RemoteSPACE	<p>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.</p> <p>Used only on the z/OS platform. Valid syntax is:</p> <pre>(CYL TRK blk, (prim , [sec] , [dir]), [RLSE] , [CONTIG] , [ROUND]) (av-rec-len , (primary-rcds , [secondary-rcds], [dir]))</pre> <p>For more information on how to specify SPACE information, see the IBM Sterling Connect:Direct for z/OS documentation.</p>
RemoteUNIT	<p>Specifies the storage device or type along with the number of devices required. Optional.</p> <p>Used only on the z/OS platform. Valid syntax is:</p> <pre>([unit-address device-type group-name], [unit-count P] [,DEFER])</pre> <p>For more information on how to specify UNIT information, see the IBM Sterling Connect:Direct for z/OS documentation. Note: Unittype was coded in the old DCB parameter.</p>

Field	Description
RemoteVOL	<p>Specifies one or more volume serial numbers containing the destination file and optional processing associated with the file. Optional.</p> <p>Used only on the z/OS platform. Valid syntax is:</p> <pre>([PRIVATE],[RETAIN] ,[volume-sequence-no],[volume-count] [,SER=(serial-no [,serial-no,...]) SER=serial-no) ([SER=(serial-no,[serial-no,...])]) (REF=dsn)</pre> <p>For more information on how to specify VOL information, see the IBM Sterling Connect:Direct for z/OS documentation. Note: Volumecount was coded in the old DCB parameter.</p>
SessionToken	<p>Identifies an established session between two Sterling Connect:Direct nodes. Required.</p> <p>Valid value is an XML structure that includes the following elements:</p> <ul style="list-style-type: none"> • SessionId • ProcessNumber • ProcessName • SubmitDateTime • RemoteCDNodeName • RemoteUserId • RemotePasswd • PlexClass • MaxRestartRetries • RestartRetryInterval • ShortTermMaxRetries • ShortTermRetryInterval
Sysopts	<p>Remote system operations to be implemented on the remote Sterling Connect:Direct node. Optional.</p> <p>For example (for copying to IBM Sterling Connect:Direct for Microsoft Windows only):</p> <pre>Datatype(text) xlate(yes)</pre> <p>For more information, see your IBM Sterling Connect:Direct documentation.</p>

Parameters Passed from CopyTo Service to Business Process

This table describes the parameters passed from the Sterling Connect:Direct Server CopyTo service to the business process:

Parameter	Description
LocalCDNodeName	Local Sterling Connect:Direct server instance name. Required.
RemoteCDNodeName	Remote Sterling Connect:Direct server instance name. Required.
BytesSent	Number of bytes sent as part of Copy operation. Required. Valid value is a positive integer.
Status	Indicates the status of the Copy operation. Required. Valid values are SUCCESS and ERROR.
CopyStartDateTime	Indicates Copy operation begin date and time. Required. Valid value is in the format: YYYY MM DD hhmm.
CopyEndDateTime	Indicates Copy operation end date and time. Required. Valid value is in the format: YYYY MM DD hhmm.

Sterling Connect:Direct Server CopyTo Business Process Example

This example illustrates using the Sterling Connect:Direct Server CopyTo service in a business process. The business process copies the current primary document to the remote Sterling Connect:Direct server, which is identified with a session token.

```

<process name=" CopyToExample">
  <sequence name="CDServerCopyToGIS">
    <!-- Begin Server Session -->
      <operation name="Sterling Connect:Direct Server Begin Session Service">
        <participant name="CDServerBeginSession"/>
        <output message="CDServerBeginSessionServiceTypeInputMessage">
          <assign to="." from="*"></assign>
          <assign to="LocalCDNodeName">TEST1_CDSEVER</assign>
          <assign to="RemoteCDNodeName">REMOTECDNODE1</assign>
          <assign to="RemoteUserId">user1</assign>
          <assign to="RemotePasswd">password1</assign>
        </output>
        <input message="inmsg">
          <assign to="BeginSessionResults" from="*"></assign>
        </input>
      </operation>
      <operation name="Sterling Connect:Direct Server Copy To Service">
        <participant name="CDServerCopyTo"/>
        <output message="CDServerCopyToServiceTypeInputMessage">
          <assign to="." from="*"></assign>
          <assign to="SessionToken"
            from="//BeginSessionResults/SessionToken/node()"></assign>
          <assign to="RemoteFileName">sample.txt</assign>
          <assign to="BinaryMode">no</assign>
          <assign to="Sysopts"> datatype(text) xlate(no)</assign>
        </output>
        <input message="inmsg">
          <assign to="CopyToResults" from="*"></assign>
        </input>
      </operation>
    <!-- End Server Session -->
    <operation name="Sterling Connect:Direct Server End Session Service">
      <participant name="CDServerEndSession"/>
      <output message="CDServerEndSessionServiceTypeInputMessage">
        <assign to="." from="*"></assign>
        <assign to="SessionToken"
          from="//BeginSessionResults/SessionToken/node()"></assign>
      </output>
    </operation>
  </sequence>
</process>

```



```

</output>
<input message="inmsg">
  <assign to="EndSessionResults" from="*"></assign>
</input>
</operation>
</sequence>
</process>

```

Sterling Connect:Direct End Session Service

This is an overview of the Sterling Connect:Direct Server End Session service:

System Name	Sterling Connect:Direct Server End Session Service
Graphical Process Modeler (GPM) categories	All Services, Applications > IBM > IBM Sterling Connect:Direct
Description	Ends a session established between two Sterling Connect:Direct nodes.
Business usage	A business user would use this service to terminate a session with a remote Sterling Connect:Direct node. The service uses the Sterling Connect:Direct Server adapter as the communications mechanism for the outbound request to end the session.
Usage example	A Sterling B2B Integrator business process initiates a session with a remote Sterling Connect:Direct node using the Sterling Connect:Direct Begin Session service and the Sterling Connect:Direct Server adapter. During the course of the session, business activity occurs: for example, a file is copied from the remote Sterling Connect:Direct node. After the operation is complete, the business process uses the Sterling Connect:Direct End Session service to terminate the session.
Preconfigured?	No
Requires third party files?	No
Platform availability	All supported platforms
Related services	<ul style="list-style-type: none"> • Sterling Connect:Direct Server Begin Session service – used to initiate the session that will be terminated by this service. • Sterling Connect:Direct Server adapter – The Sterling Connect:Direct End Session service uses a Sterling Connect:Direct Server adapter to communicate with a remote Sterling Connect:Direct server.
Application requirements	<ul style="list-style-type: none"> • Perimeter server • For more information, search for <i>Requirements</i>.
Initiates business processes?	No
Invocation	This service is run by a business process to terminate a session with a remote Sterling Connect:Direct node.
Business process context considerations	None

Returned status values	<ul style="list-style-type: none"> • Success – Normal execution with the return parameters specified. • Invalid Session Token – The Session Token specified to identify the Session was not valid. • Sterling Connect:Direct Server Error – A generic error associated with the Sterling Connect:Direct server has occurred. • Sterling Connect:Direct Error – A generic error associated with Sterling Connect:Direct has occurred. • Sterling Connect:Direct Service Error – A generic error associated with this service has occurred.
Restrictions	You must use this service with a Sterling Connect:Direct Begin Session service. The session token information in process data is necessary to configure the service.
Persistence level	None
Testing considerations	Debug information for this service is found in the Sterling Connect:Direct Interop log files.

Implementing the Sterling Connect:Direct End Session Service

To implement the Sterling Connect:Direct End Session service:

1. Configure the Sterling Connect:Direct Server Adapter to be used with this service.
2. Create a Sterling Connect:Direct End Session service configuration.
3. Configure the Sterling Connect:Direct End Session service.
4. Use the Sterling Connect:Direct End Session service in a business process.

Sterling Connect:Direct Server End Session Service Settings

To configure the service, specify these fields in the GPM:

Field	Description
Config	Name of the service configuration. Required.
SessionToken	Identifies an established session between two Sterling Connect:Direct nodes. Required. Session integrity cannot be guaranteed if the session token is omitted.

Parameter Passed from a Business Process to a Server End Session Service

These parameters are passed from the business process to the Sterling Connect:Direct Server End Session service:

Field	Description
SessionToken	<p>Identifies an established session between two Sterling Connect:Direct nodes. Required.</p> <p>Valid value is an XML structure that includes the following elements:</p> <ul style="list-style-type: none"> • SessionId • ProcessNumber • ProcessName • SubmitDateTime • RemoteCDNodeName • RemoteUserId • RemotePasswd • PlexClass • MaxRestartRetries • RestartRetryInterval • ShortTermMaxRetries • ShortTermRetryInterval

Parameters Passed from Server End Session Service to Business Process

These parameters are passed from the service to the business process:

Parameter	Description
SessionToken	<p>Identifies an established session between two Sterling Connect:Direct nodes. Required. Valid value is an XML structure that includes the following elements:</p> <ul style="list-style-type: none"> • SessionId • ProcessNumber • ProcessName • SubmitDateTime • RemoteCDNodeName • RemoteUserId • RemotePasswd • PlexClass • MaxRestartRetries • RestartRetryInterval
SessionEndTime	Specifies the date time when the session was ended. Required.

Business Process Example of Sterling Connect:Direct Server End Session Service

This example illustrates using the Sterling Connect:Direct Server End Session service in a business process:

```

<process name="CDInterop_SessionBeginAndEnd">
  <sequence name="CDServerSessionBeginGIS">
    <!-- Begin Server Session -->
    <operation name="Sterling Connect:Direct Server Begin Session Service">
      <participant name="CDServerBeginSession"/>
      <output message="CDServerBeginSessionServiceTypeInputMessage">
        <assign to="." from="*"></assign>
    
```

```

        <assign to="LocalCDNodeName">TEST1_CDSEVER</assign>
        <assign to="RemoteCDNodeName">NMAYAKUNTLAVM2K</assign>
        <assign to="RemoteUserId">ksticken</assign>
        <assign to="RemotePasswd">kirk123</assign>
    </output>
    <input message="inmsg">
        <assign to="BeginSessionResults" from="*"></assign>
    </input>
</operation>
<!-- End Server Session -->
<operation name="CD Server End Session Service Service">
    <participant name="CDServerEndSession"/>
    <output message="CDServerEndSessionServiceTypeInputMessage">
        <assign to="." from="*"></assign>
        <assign to="SessionToken"
from="//BeginSessionResults/SessionToken/node()"></assign>
    </output>
    <input message="inmsg">
        <assign to="EndSessionResults" from="*"></assign>
    </input>
</operation>
</sequence>
</process>

```

Sterling Connect:Direct Server Run Job Service

This is an overview of the Sterling Connect:Direct Server Run Job service:

System Name	Sterling Connect:Direct Server Run Job Service
Graphical Process Modeler (GPM) categories	All Services, Applications > IBM > IBM Sterling Connect:Direct
Description	Submits work to the host operating system that executes asynchronously to the remaining steps in a process. Work can execute on the local or remote node.
Business usage	To execute a job on a mainframe, write a business process that uses the Run Job service to execute a script on a remote Sterling Connect:Direct node on the z/OS platform.
Usage example	Executing a script asynchronously on a remote Sterling Connect:Direct server that compresses and archives log files.
Preconfigured?	No. Configure a Sterling Connect:Direct Server adapter before using this service.
Requires third party files?	No
Platform availability	All supported platforms
Related services	The Sterling Connect:Direct Server Run Job service is designed to work surrounded by a Sterling Connect:Direct Server Begin Session service and a Sterling Connect:Direct Server End Session service. It uses the Sterling Connect:Direct Server adapter to communicate with remote Sterling Connect:Direct servers.
Application requirements	For examples of session token usage, search for <i>Requirements</i> .
Initiates business processes?	No
Invocation	The business process running this service must be started by a user with permission to issue the Run Job statement on the target Sterling Connect:Direct server.

Business process context considerations	None
Returned status values	<ul style="list-style-type: none"> • Success – Normal execution with the return parameters specified. • File not found error – Specified file was not found. • Access to file denied error – Specified file could not be accessed. • Unable to start file error – Specified file could not be started.
Restrictions	Sterling Connect:Direct nodes on iSeries do not support System Options (Sysopts), an optional parameter for this service.
Persistence level	None
Testing considerations	Debug information is in the Sterling Connect:Direct Interop log files.

Implementing the Sterling Connect:Direct Server Run Job Service

To implement the Sterling Connect:Direct Server Run Job Service:

1. Configure the Sterling Connect:Direct Server adapter to be used with this service.
2. Create a Sterling Connect:Direct Server Run Job Service configuration.
3. Configure the Sterling Connect:Direct Server Run Job Service.
4. Use the Sterling Connect:Direct Server Run Job Service in a business process.

Sterling Connect:Direct Server Run Job Service Settings

To configure this service, specify these fields in the GPM:

Field	Description
Config	Name of the service configuration. Required.
SessionToken	Identifies an established session between two Sterling Connect:Direct nodes. Required. Session integrity cannot be guaranteed if the session token is omitted. For more information on session token usage.
Sysopts	<p>Specifies the parameters appropriate for the operation being performed. Required. Valid values are:</p> <ul style="list-style-type: none"> • <code>pgm(filespec)</code> specifies which .EXE or .BAT file to run. • <code>cmd(command parms)</code> specifies a system command and any arguments that this command requires. • <code>args(arguments)</code> specifies the arguments passed to the program when it is started. These arguments are in the same format specified from the command prompt. This optional parameter is only valid when you specify <code>pgm</code>. <p>Note: Do not enclose the value specified for Sysopts in double quotes.</p>

Parameters Passed from a Business Process to a Run Job Service

These parameters are passed from the business process to the Sterling Connect:Direct Server Run Job service:

Parameter	Description
SessionToken	<p>Identifies an established session between two Sterling Connect:Direct nodes. Required.</p> <p>Valid value is an XML structure that includes the following elements:</p> <ul style="list-style-type: none"> • SessionId • ProcessNumber • ProcessName • SubmitDateTime • RemoteCDNodeName • RemoteUserId • RemotePasswd • PlexClass • MaxRestartRetries • RestartRetryInterval • ShortTermMaxRetries • ShortTermRetryInterval
Sysopts	<p>Parameters appropriate for the operation being performed. Required.</p> <p>Valid values are:</p> <ul style="list-style-type: none"> • pgm(filespec) specifies which .EXE or .BAT file to run. • cmd(command parms) specifies a system command and any arguments that this command requires. • args(arguments) specifies the arguments passed to the program when it is started. These arguments are in the same format specified from the command prompt. This optional parameter is only valid when you specify pgm. <p>Note: Do not enclose the value specified for Sysopts in double quotes.</p>

Parameters Passed from a Run Job Service to a Business Process

These parameters are passed from the Sterling Connect:Direct Server Run Job service to the business process:

Parameter	Description
LocalCDNodeName	The Sterling Connect:Direct Server adapter name.
RemoteCDNodeName	The remote Sterling Connect:Direct server IP address.
Status	<p>Identifies if the remote job was run.</p> <p>Note: This does not provide address the success or failure of the executed job, only that it was executed.</p>

Business Process Example of the Run Job Service for Sterling Connect:Direct for UNIX

This illustrates using the Sterling Connect:Direct Server Run Job service in a UNIX environment:

```
<process name="RunJobServiceExample">
  <sequence>
    <operation name="Sterling Connect:Direct Server Begin Session Service">
      <participant name="CDServerBeginSession"/>
      <output message="BeginSession">
```

```

        <assign to="." from="*"></assign>
        <assign to="LocalCDNodeName">CDSERVER_ADAPTER_TEST1</assign>
        <assign to="RemoteCDNodeName">CDSERVER_ADAPTER_TEST2</assign>
        <assign to="RemoteUserId">USERID</assign>
        <assign to="RemotePasswd">PASSWORD</assign>
        <assign to="PlexClass">ABC</assign>
    </output>
    <input message="inmsg">
<assign to="BeginSessionResults" from="*"></assign>
    </input>
</operation>
<operation name="Connect:Direct Server Run Job Service">
    <participant name="CDServerRunJob"/>
    <output message="RunJob">
        <assign to="." from="*"></assign>
        <assign to="SessionToken"
from="//BeginSessionResults/SessionToken/node()"></assign>
        <assign to="Sysopts" from="'cd /home/sterlingcommerce/script; sh
runScript.sh argument1'"></assign>
    </output>
    <input message="inmsg">
        <assign to="RunJob_Results" from="*"></assign>
    </input>
</operation>
<operation name="Sterling Connect:Direct Server End Session Service">
    <participant name="CDServerEndSession"/>
    <output message="EndSession">
        <assign to="." from="*"></assign>
        <assign to="SessionToken"
from="//BeginSessionResults/SessionToken/node()"></assign>
    </output>
    <input message="inmsg">
        <assign to="EndSessionResults" from="*"></assign>
    </input>
</operation>
</sequence>
</process>

```

Business Process Example of the Run Job Service for Sterling Connect:Direct for Microsoft Windows

This illustrates using the Sterling Connect:Direct Server Run Job service in a Windows environment:

```

<process name="RunJobServiceExample">
    <sequence>
        <operation name="Sterling Connect:Direct Server Begin Session Service">
            <participant name="CDServerBeginSession"/>
            <output message="BeginSession">
                <assign to="." from="*"></assign>
                <assign to="LocalCDNodeName">CDSERVER_ADAPTER_TEST1</assign>
                <assign to="RemoteCDNodeName">CDSERVER_ADAPTER_TEST2</assign>
                <assign to="RemoteUserId">USERID</assign>
                <assign to="RemotePasswd">PASSWORD</assign>
                <assign to="PlexClass">ABC</assign>
            </output>
            <input message="inmsg">
                <assign to="BeginSessionResults" from="*"></assign>
            </input>
        </operation>
        <operation name="Connect:Direct Server Run Job Service">
            <participant name="CDServerRunJob"/>
            <output message="RunJob">
                <assign to="." from="*"></assign>
                <assign to="SessionToken"
from="//BeginSessionResults/SessionToken/node()"></assign>
                <assign to="Sysopts"

```

```

    from="pgm(D:\SterlingProject\CDInterop\Demo est.bat)
    args(TEST)'"></assign>
    </output>
    <input message="inmsg">
    <assign to="RunJob_Results" from="*"></assign>
    </input>
  </operation>
  <operation name="Sterling Connect:Direct Server End Session Service">
  <participant name="CDServerEndSession"/>
  <output message="EndSession">
  <assign to="." from="*"></assign>
  <assign to="SessionToken"
  from="//BeginSessionResults/SessionToken/node()"></assign>
  </output>
  <input message="inmsg">
  <assign to="EndSessionResults" from="*"></assign>
  </input>
  </operation>
</sequence>
</process>

```

Sterling Connect:Direct Server Run Task Service

This is an overview of the Sterling Connect:Direct Server Run Task service:

System Name	Sterling Connect:Direct Server Run Task Service
Graphical Process Modeler (GPM) categories	All Services, Applications > IBM > IBM Sterling Connect:Direct
Description	Executes a program or command synchronously to the remaining steps in a Process. The program or command can execute locally or on the remote Sterling Connect:Direct node. User programs can be run in different environments.
Business usage	You want to execute a job on a mainframe. You can write a business process that uses the Run Task service to execute a script on a remote Sterling Connect:Direct node on the z/OS platform and then wait for the completion of the run task operation.
Usage example	You execute a script that compresses and archives log files synchronously on a remote Sterling Connect:Direct Server.
Preconfigured?	A Sterling Connect:Direct Server adapter must be configured before using this service
Requires third party files?	No
Platform availability	All supported Sterling B2B Integrator platforms
Related services	The Sterling Connect:Direct Server Run Task Service works between a Sterling Connect:Direct Server Begin Session Service and a Sterling Connect:Direct Server End Session service,
Application requirements	For information, search for <i>Requirements</i> .
Initiates business processes?	No
Invocation	The business process running this service must be started by a user with permission to issue the Run Task statement on the target Sterling Connect:Direct server.
Business process context considerations	None

Returned status values	<ul style="list-style-type: none"> • Success – Normal execution with the return parameters specified. • File not found Error – Specified file was not found. • Access to file denied Error – Specified file could not be accessed. • Unable to start file Error – Specified file could not be started. • Program Failure Error – Failure of the program to be executed by the specified file.
Restrictions	Sterling Connect:Direct nodes on iSeries do not support System Options (SystemOpts –the equivalent of Sysopts), an optional parameter for this service.
Persistence level	None
Testing considerations	None

Implementing the Sterling Connect:Direct Server Run Task Service

To implement the service, complete the following tasks:

1. Configure the Sterling Connect:Direct Server adapter to use with this service.
2. Create a Sterling Connect:Direct Run Task service configuration.
3. Configure the Sterling Connect:Direct Server Run Task.
4. Use the service in a business process.

Sterling Connect:Direct Server Run Task Service Settings

To configure the Sterling Connect:Direct Server Run Task service, specify the following fields in the GPM.

Note: To execute a Run Task in an i5/OS environment, use only the SystemOpts field in your business process—not the Program field. For the HP NonStop environment, you must include both the pgm and SystemOpts fields.

Field	Description
Program	<p>Specifies the operation to be performed in the remote environment. This field is optional depending on the platform where the operation will run. For more information, see the IBM Sterling Connect:Direct for Microsoft Windows documentation for the specific platform you are communicating with.</p> <p>The valid values depend on the destination Sterling Connect:Direct server. For example, the valid values for Sterling Connect:Direct for Windows are:</p> <ul style="list-style-type: none"> • pgm (filespec) specifies which .exe or .bat file to run. • cmd (command parms) specifies a system command and any arguments that this command requires. • args (arguments) specifies the arguments passed to the program when it is started. These arguments are in the same format specified from the command prompt. This optional parameter is only valid when you specify pgm. <p>Note: Do not use this field when the remote environment is i5/OS.</p> <p>For the HP NonStop environment, the Program parameter must include the operation to be performed.</p>

Field	Description
SessionToken	Identifies an established session between two Sterling Connect:Direct nodes. Required. Session integrity cannot be guaranteed if the session token is omitted.
SystemOpts	<p>Specifies either the program and its arguments or only the arguments passed to the program when it is started. This field is optional depending on the platform where the operation will run. For more information, see the Sterling Connect:Direct documentation for the specific platform you are communicating with.</p> <p>The valid values depend on the destination Sterling Connect:Direct server. For example, the valid values for Sterling Connect:Direct for Windows are:</p> <ul style="list-style-type: none"> • <code>pgm</code> (filespec) specifies which <code>.exe</code> or <code>.bat</code> file to run. • <code>cmd</code> (command parms) specifies a system command and any arguments that this command requires. • <code>args</code> (arguments) specifies the arguments passed to the program when it is started. These arguments are in the same format specified from the command prompt. This optional parameter is only valid when you specify <code>pgm</code>. <p>Note: Do not enclose the value specified for SystemOpts in double quotes.</p> <p>SystemOpts is the equivalent of Sysopts.</p>

Parameters Passed from a Business Process to a Run Task Service

This table describes the parameters passed from the business process to the Sterling Connect:Direct Server Run Task service:

Field	Description
Program	Specifies the operation to be performed in the remote environment.
SessionToken	<p>Identifies an established session between two Sterling Connect:Direct nodes. Valid value is an XML structure that includes the following elements:</p> <ul style="list-style-type: none"> • SessionId • ProcessNumber • ProcessName • SubmitDateTime • RemoteCDNodeName • RemoteUserId • RemotePasswd • PlexClass • MaxRestartRetries • RestartRetryInterval • ShortTermMaxRetries • ShortTermRetryInterval
SystemOpts	Specifies either the program and its arguments or only the arguments passed to the program when it is started.

Field	Description
MaxTimeToWait	Specifies a period of time the service should wait for the task to complete on the remote CD node before timing out. Valid value is in seconds. If not specified, the period to wait is used from the MaxSocketReadTimeout parameter value set in the Connect Direct Server adapter.

Parameter Passed from a Run Task Service to a Business Process

This parameter is passed from the Sterling Connect:Direct Server Run Task service to the business process:

Parameter	Description
Status	Indicates whether the remote job was executed. Note: This does not address the success of the executed job. It only identifies if it was executed.

Business Process Example of the Run Task Service for Sterling Connect:Direct for UNIX

Each parameter's value and syntax is defined by the remote Sterling Connect:Direct platform and underlying operating system. When the remote platform operating system is UNIX/Linux, the command and its arguments, if any, are specified as the Program parameter value and in the same syntax that they would be entered at a shell prompt. For example, to execute the 'ls' command with the '-l' option (single column output) and send the output to a file called 'ls.out' locally on a UNIX/Linux host, type the following at a shell prompt:

```
$ ls -l > ls.out
```

To specify this operation in the RunTask Service, assign the text to the RunTask Service Program parameter in the business process:

```
<assign to="Program">ls -l /tmp &gt; ls.out</assign>
```

Note: The redirection operator (>) must be encoded (>) to prevent XML processing errors.

Following is a business process for UNIX with the Program parameter:

```
<process name = "SampleRunTask">
  <sequence>
    <operation name="CD Server Begin Session Service">
      ...
    </operation>
    <operation name="CD Server Run Task Service">
      <participant name="CDServerRunTask"/>
      <output message="CDServerRunTaskServiceTypeInputMessage">
        <assign to="Program">ls -l /tmp &gt; ls.out</assign>
      <assign to="." from="*"></assign>
    </output>
    <input message="inmsg">
      <assign to="." from="*"></assign>
    </input>
  </operation>
  <operation name="CD Server End Session Service">
```

```

...
  </operation>
</sequence>
</process>

```

Business Process Example of the Run Task Service for Sterling Connect:Direct for Microsoft Windows

When a Sterling Connect:Direct for Microsoft Windows node receives a request to execute a task, the business process must specify whether or not the task requires a cmd shell to execute. Sterling Connect:Direct for Microsoft Windows defines a syntax for communicating this information. To execute a program, the `pgm` and `args` keywords are used:

```
<assign to="Program">pgm(\path\file.exe) args(arg1 arg2 arg3)</assign>
```

Note: The `args` keyword is only used when arguments are needed. The path is computed according to Sterling Connect:Direct rules. If the `Program` directory is defined for the submitting user on the remote node, the `pgm` value will be appended to its value prior to use.

To execute a Windows command:

```
<assign to="Program">cmd(command arg1 arg2 arg3)</assign>
```

The following business process demonstrates how to configure the Sterling Connect:Direct

```

RunTask Service:<process name = "SampleRunTask">
  <sequence>
    <operation name="CD Server Begin Session Service">
  ...
    </operation>
    <operation name="CD Server Run Task Service">
      <participant name="CDServerRunTask"/>
      <output message="CDServerRunTaskServiceTypeInputMessage">
<assign to="Program">cmd(dir mp &gt; mp\dir.out)</assign>
</output>
      <input message="inmsg">
        <assign to="." from="*"></assign>
      </input>
    </operation>
    <operation name="CD Server End Session Service">
  ...
    </operation>
  </sequence>
</process>

```

Run Task Service Parameter for Sterling Connect:Direct for z/OS

The `SystemOpts` parameter value is appended to the `Program` parameter value. Use this parameter when the remote node is Sterling Connect:Direct for z/OS. In this case, the `Program` parameter value specifies the remote program name only. Any remote program parameters are specified using the `SystemOpts` parameter. Do not enclose values in double quotes. For information about the format of the `SystemOpts` parameter in Sterling Connect:Direct for z/OS, refer to the Sterling Connect:Direct Process Language Web Site.

The following example uses the data type of character in the parameter list:

```
<assign to="SystemOpts">C' ALLOC',C' DSN=CSDQA1.0.TESTFILE.SMS2',
C' DISP=(MOD,DELETE)',F'-1',C' UNALLOC',C' DSN=CSDQA1.0.TESTFILE.SMS2'
</assign>
```

Sterling Connect:Direct Server Submit Service

This table provides an overview of the Sterling Connect:Direct Server Submit Service:

System Name	Sterling Connect:Direct Server Submit Service
Graphical Process Modeler (GPM) categories	All Services, Applications > IBM > IBM Sterling Connect:Direct
Description	Submits a Sterling Connect:Direct process to another Sterling Connect:Direct node. The submitted process must be in a file on the destination Sterling Connect:Direct node.
Business usage	A business user uses this service to initiate work on a remote Sterling Connect:Direct node. This service performs the equivalent of a Submit statement in a Sterling Connect:Direct process. During execution of a Sterling Connect:Direct process, the Submit statement causes another Sterling Connect:Direct process to be submitted to either the Pnode, which is the node with process control, or the Snode, which is the remote node that participates in the process. Any parameter values that are specified in the Submit statement override the parameter values contained in a process statement that is named by the file parameter.
Usage example	A business user has a file that exists on a remote node where Sterling Connect:Direct is running. This file is needed on another node. The user creates a business process that submits a Sterling Connect:Direct process to a remote Sterling Connect:Direct server to transfer the file from one node to the other.
Preconfigured?	A Sterling Connect:Direct Server adapter must be configured before using this service.
Requires third party files?	No
Platform availability	All supported IBM Sterling Control Center platforms
Related services	Connect:Direct Server adapter
Application requirements	For more information, search for <i>Requirements</i> .
Initiates business processes?	No
Invocation	The business process running this service must be started by a user with permission to issue the Submit statement on the target Sterling Connect:Direct server.
Business process context considerations	None

Returned status values	<ul style="list-style-type: none"> Invalid Business Process Error – User submitted invalid business process in IBM Sterling Control Center. User Permission Error – User does not have permission to submit the business process in IBM Sterling Control Center. Sterling Connect:Direct Server Error – A generic error associated with the Sterling Connect:Direct Server has occurred. Sterling Connect:Direct Error – A generic error associated with Sterling Connect:Direct has occurred. Sterling Connect:Direct Service Error – A generic error associated with the Sterling Connect:Direct service has occurred.
Restrictions	<p>If the Submit Process request is issued to a remote Sterling Connect:Direct for z/OS node, the request fails.</p> <p>Sterling Connect:Direct for i5/OS™ does not support Submit Process.</p>
Persistence level	None
Testing considerations	Debug information for this service is found in the Sterling Connect:Direct Interop log files.

Implementing the Sterling Connect:Direct Server Submit Service

To implement the Sterling Connect:Direct Server Submit service:

1. Configure the Sterling Connect:Direct Server adapter to use with this service.
2. Create a Sterling Connect:Direct Server Submit service configuration.
3. Configure the Sterling Connect:Direct Server Submit.
4. Use the service in a business process.

Sterling Connect:Direct Server Submit Service Settings

To configure the Sterling Connect:Direct Server Submit service, define the fields in IBM Sterling Control Center and the GPM. This table lists and describes the available fields:

Field	Description
Config	Name of the service configuration. Required.
RemoteProcessFile	Process file on the remote Sterling Connect:Direct server that is submitted. Required.
RemoteProcessParms	The parameters or arguments that can be passed dynamically to the process file on the remote Sterling Connect:Direct server. Optional. UNIX Example: SNODE=10.20.80.117;1364
SubmitUserId	User ID for remote system other than the remoteUserId specified in the Connect:Direct Server Begin Session service. Optional. Valid value is any character string with a maximum of 30 characters. By default, the remote Sterling Connect:Direct server uses the user ID authenticated at the beginning of the current session (remoteUserId in the Begin Session service).

Field	Description
SubmitPasswd	Password for remote system for user ID specified in SubmitUserId. Required when SubmitUserId is specified. Valid value is any character string with a maximum of 30 characters. By default, the remote Sterling Connect:Direct server uses password associated with the user ID authenticated at the beginning of the current session (remoteUserId in the Begin Session service)
SessionToken	Identifies an established session between two Sterling Connect:Direct nodes. Required. Session integrity cannot be guaranteed if the session token is omitted.

Parameters Passed from a Business Process to the Sterling Connect:Direct Server Submit Service

This table lists and describes the parameters passed from a business process to the Sterling Connect:Direct Server Submit service:

Parameter	Description
RemoteProcessFile	Process file on the remote Sterling Connect:Direct server that is submitted. Required.
RemoteProcessParms	Parameters or arguments that can be sent dynamically to the process file on remote Sterling Connect:Direct server. Optional. UNIX Example: SNODE=10.20.80.117;1364
SubmitUserId	User ID for remote system other than the remoteUserId specified in the Connect:Direct Server Begin Session service. Optional. Valid value is any character string with a maximum of 30 characters. By default, the remote Sterling Connect:Direct server uses the user ID authenticated at the beginning of the current session (remoteUserId in the Begin Session service).
SubmitPasswd	Password for remote system for user ID specified in SubmitUserId. Required when SubmitUserId is specified. Valid value is any character string with a maximum of 30 characters. By default, the remote Sterling Connect:Direct server uses password associated with the user ID authenticated at the beginning of the current session (remoteUserId in the Begin Session service)
SessionToken	Identifies an established session between two Sterling Connect:Direct nodes. Required. Valid value is an XML structure that includes the following elements: <ul style="list-style-type: none"> • SessionId • ProcessNumber • ProcessName • SubmitDateTime • RemoteCDNodeName • RemoteUserId • RemotePasswd • PlexClass • MaxRestartRetries • RestartRetryInterval • ShortTermMaxRetries • ShortTermRetryInterval

Parameters Passed From the Sterling Connect:Direct Server Submit Service to a Business Process

This table lists and describes the parameters passed from the Sterling Connect:Direct Server Submit service to the business process:

Parameter	Description
LocalCDNodeName	Specifies the local Sterling Connect:Direct node which submitted the process. Required.
RemoteCDNodeName	Remote Sterling Connect:Direct node on which the process was submitted. Required.
Status	Specifies the status of the submit statement execution. Required. Valid values are SUCCESS and ERROR.
SubmittedProcessNum	Specifies the process number assigned to the process. Optionally returned (if > -1).
SubmittedProcessDateTime	Specifies the date and time when the submit statement is executed. Required.

Business Process Example Using a Sterling Connect:Direct Submit Service

This example show how to use the Sterling Connect:Direct Server Submit service in a business process:

```

<process name=" SubmitStatementExample">
  <sequence name="CDServerSubmit">
    <!-- Begin Server Session -->
      <operation name="Sterling Connect:Direct Server Begin Session Service">
        <participant name="CDServerBeginSession"/>
        <output message="BeginSession">
          <assign to="." from="*"></assign>
          <assign to="LocalCDNodeName">TEST1_CDSEVER</assign>
          <assign to="RemoteCDNodeName">NMAYAKUNTLAVM2K</assign>
          <assign to="RemoteUserId">joeuser</assign>
          <assign to="RemotePasswd">joe123</assign>
        </output>
        <input message="inmsg">
          <assign to="BeginSessionResults" from="*"></assign>
        </input>
      </operation>
      <operation name="Connect:Direct Server Submit Service">
        <participant name="CDServerSubmit"/>
        <output message="SubmitRequest">
          <assign to="." from="*"></assign>
          <assign to="SessionToken"
from="//BeginSessionResults/SessionToken/node()"></assign>
          <assign to="RemoteProcessFile">Lalitha.cd</assign>
          <assign to="RemoteProcessParms">SNODE=00.00.00.000;1364</assign>
        </output>
        <input message="inmsg">
          <assign to="SubmitResults" from="*"></assign>
        </input>
      </operation>
    <!-- End Server Session -->
      <operation name="Sterling Connect:Direct Server End Session Service">
        <participant name="CDServerEndSession"/>
        <output message="EndSession">
          <assign to="." from="*"></assign>
          <assign to="SessionToken"
from="//BeginSessionResults/SessionToken/node()"></assign>
        </output>
      </operation>
    </sequence>
  </process>

```



```

        <input message="inmsg">
            <assign to="EndSessionResults" from="*"></assign>
        </input>
    </operation>
</sequence>
</process>

```

Sterling Connect:Direct Server Adapter (V5.2.0 - 5.2.5)

The Connect:Direct server adapter receives and processes requests from remote Connect:Direct nodes. Files are copied to and from a mailbox or a business process to and from Connect:Direct nodes.

This table provides an overview of the Sterling Connect:Direct Server adapter:

System Name	Sterling Connect:Direct Server Adapter (CDSA)
Graphical Process Modeler (GPM) category	Not configurable in the GPM
Description	This adapter receives and processes requests from remote Sterling Connect:Direct nodes.
Business usage	<p>Use this adapter to:</p> <ul style="list-style-type: none"> • Mediate requests originating from a business process and going to an external trading partner using a (non-application) Sterling Connect:Direct node or another Sterling Connect:Direct Server adapter • Accept requests from a Sterling Connect:Direct node (or another Sterling Connect:Direct Server adapter) to copy to or from a mailbox or business process • Forward requests from one remote Sterling Connect:Direct node to another
Usage example	A trading partner submits a Sterling Connect:Direct Process on their local system. The Process initiates a session with the Sterling Connect:Direct Server adapter node and requests to copy a document. The Sterling Connect:Direct Server adapter allows the session and responds to the copy request.
Preconfigured?	No preconfigured copy of the adapter is provided.
Requires third party files?	<p>The following files external to Sterling B2B Integrator are required:</p> <ul style="list-style-type: none"> • Sterling Connect:Direct Server • Certicom SSL Library (included with Sterling B2B Integrator) • JZLIB (included with Sterling B2B Integrator) • CDJava.jar (included with Sterling B2B Integrator)
Platform availability	All supported Sterling B2B Integrator platforms

Related services	<p>To use the Sterling Connect:Direct Server adapter as a PNODE, you must create a business process that uses the following services:</p> <ul style="list-style-type: none"> • Sterling Connect:Direct Server Begin Session Service • Sterling Connect:Direct Server BP Response Service • Sterling Connect:Direct Server CopyFrom Service • Sterling Connect:Direct Server CopyTo Service • Sterling Connect:Direct Server End Session Service • Sterling Connect:Direct Server Run Job Service • Sterling Connect:Direct Server Run Task Service • Sterling Connect:Direct Server Submit Service <p>The above services can be used as part of a business process. When invoked, they use a Sterling Connect:Direct Server adapter to perform specified activities with a remote Sterling Connect:Direct node. The adapter and remote node context are provided by a session token created by the Sterling Connect:Direct Server Begin Session Service. Subsequent services in the business process refer to this session token.</p>
Application requirements	Search for <i>Requirements</i> .
Initiates business processes?	<p>Initiates the business process specified by the remote Sterling Connect:Direct node.</p> <p>A business process can be used to initiate a message transfer with a remote Sterling Connect:Direct node.</p>
Invocation	The adapter is started when Sterling B2B Integrator is started.
Business process context considerations	None
Returned status values	None

Restrictions	<p>The Sterling Connect:Direct Server Adapter provides functionality to resume transfers that failed to complete due to network errors, failures at the remote Sterling Connect:Direct server, or local Application failure.</p> <p>If the remote Sterling Connect:Direct server or the network fails during either the Sterling Connect:Direct CopyTo Service or the Sterling Connect:Direct CopyFrom Service, the adapter goes into a restart mode. Once the wait interval expires, the adapter attempts to restart the copy operation by reestablishing the session with the remote Sterling Connect:Direct server and resuming the transfer from the point of the last successfully transferred interval of data (search for the CheckpointInterval parameter in either the Sterling Connect:Direct CopyTo or Sterling Connect:Direct CopyFrom Service). The length of time the adapter waits to resume the session is impacted in three ways:</p> <ul style="list-style-type: none"> • Number of attempts to reestablish the session, as specified in the adapter configuration. Attempts are controlled by two parameters: <ul style="list-style-type: none"> – The Number of Short-Term Session Retry Attempts governs the Short-Term Interval. – The Number of Long-Term Session Retry Attempts governs the Long-Term Interval. Each Short-Term period is exhausted before a Long-Term period is initiated. <p>This value may be overridden in the Sterling Connect:Direct Copy To/From Service.</p> • Interval between attempts to reestablish a session, as specified in the adapter configuration. The wait interval is controlled by two parameters: <ul style="list-style-type: none"> – The Interval between Short-Term Session Attempts (given in seconds) – The Interval between Long-Term Session Attempts (given in minutes) <p>This value may be overridden in the Sterling Connect:Direct Copy To/From Service.</p> • Frequency defined by the scheduled system business process BPEXpirator. BPEXpirator is used in the Wait service. The Wait service is used when a system failure interrupts a Sterling Connect:Direct copy operation. <p>NOTE: There is no limit to the number of times a failed copy operation can be restarted, provided the session can be reestablished before exhausting the retry period.</p> <p>Behavior is governed by whichever value is longer. By coordinating the adapter retry interval and the BPEXpirator schedule, you can configure a window of time appropriate for your needs.</p> <p>NOTE: Checkpoint Restart is supported for file system-backed documents only.</p> <p>You can configure your business process to configure Auto-Resume Recovery Level to automatically resume execution in the event the application fails.</p> <p>NOTE: The Sterling Connect:Direct Server Adapter must be disabled and re-enabled after a change is made to any node in its Netmap (For example, if you add or delete a node or modify node parameters) to effect the change.</p>
--------------	--

Persistence level	None
Testing considerations	Debug information for this adapter can be found in the Sterling Connect:Direct Server adapter log files.

Implementing the Sterling Connect:Direct Server Adapter

To implement the Sterling Connect:Direct Server adapter, complete the following tasks:

1. Collect information about any remote Sterling Connect:Direct servers that will communicate with this adapter. You will use this information during configuration of the adapter.
2. If planning to use a Perimeter server with this adapter, configure the Perimeter server.
3. Add the Sterling Connect:Direct Server adapter as a node to the Sterling Connect:Direct network map.
4. Create a Sterling Connect:Direct Server adapter configuration.
5. Configure the Sterling Connect:Direct Server adapter.
6. If you add or delete a node or modify node parameters for any of the adapter's netmap members, edit the adapter configuration, click Next until you reach the Confirm page, and then click Finish to update the configuration. Your configuration changes to netmap members are immediately recognized.

Note: Updates to the netmap are not done dynamically. If you make changes to an existing netmap, you must edit each Sterling Connect:Direct Server adapter configuration that uses the netmap.

7. If using the upload and download parameters (proxy or user repositories), configure these property file.
 - cdinterop-user-records.properties
 - cdinterop-proxy-records.properties

Note: The use of cdinterop-proxy-records.properties will also require entries in cdinterop-spoee-policy.properties and cdinterop-spoee-auth.properties.

8. Create configurations of any Sterling Connect:Direct server services needed to use this adapter as a PNODE.
9. Use the Sterling Connect:Direct Server services in a business process to use the adapter as a PNODE.

Sterling Connect:Direct Server Adapter Settings

To configure the adapter, specify the following values in Sterling B2B Integrator.

Note: To enable both retry processing (and the checkpoint restart feature), 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 BeginSessionMaxRetries and ShortTermMaxRetries in the Sterling Connect:Direct Server Begin Session service in a particular business process.

Field	Description
Name	Unique and meaningful name for the adapter configuration. Required.

Field	Description
Description	Meaningful description for the adapter configuration, for reference purposes. Required.
Environment	(Clustered environments only.) Nodes available for this adapter to run on. Note: "All" is not a valid value. The netmap expects a specific node at a specific host.
Select a Group	Group of services or adapters of the same type that can act as peers. A Service Group name is used in BPML in place of the Service Configuration name. Service Groups show up in the GPM as if they were Service Configurations. Select a Service Group to associate with this adapter. Valid values are: <ul style="list-style-type: none"> • None – You do not want to include this configuration in a group at this time (default) • Create New Group – You can enter a name for a new group in this field, which is then created along with this configuration. • Select Group – If you have already created one or more groups for this service type, they are displayed in the list. Select a group from the list. Note: For more information about groups, refer to Managing Services and Adapters in the Sterling B2B Integrator documentation library.
Sterling Connect:Direct Server Node Name	Name used by remote nodes to contact this Sterling Connect:Direct Server adapter. Maximum 16 characters. Required.
Sterling Connect:Direct Perimeter Services Option	Perimeter service to be used. Valid values: <ul style="list-style-type: none"> • node1 & local (Default) – Local install • Any perimeter server(s) configured in the Sterling B2B Integrator for the node selected for Environment.
Connect Direct Server Port	TCP/IP port number that Sterling Connect:Direct monitors for requests from remote nodes. Required. Note: If Sterling B2B 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.
Firewall Ports	Ports used by the adapter for making outbound connections through the firewall. Optional. Valid values are hyphenated port range, a comma-delimited list, or a combination of both.
Max locally initiated (pnode) sessions allowed	Maximum number of sessions initiated locally by the Sterling Connect:Direct Server adapter that may be active at any point of 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, search for <i>How Sessions for Business Processes Are Established</i> .

Field	Description
Max remotely initiated (snode) sessions allowed	<p>Maximum number of sessions initiated by all remote nodes that may be active at any point of time. Required.</p> <p>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.</p> <p>Valid value: Any number through 9999. Minimum value is 1. Default is 5.</p>
Document Storage	<p>Defines how the document will be stored in the system. Required. Valid values are:</p> <ul style="list-style-type: none"> • System Default • Database • File System (default) <p>Note: To support the checkpoint restart feature, you must specify File System.</p>
NetMap Check	<p>Whether the node netmap should be checked to authorize sessions. Required. Valid values are:</p> <ul style="list-style-type: none"> • Check both node name and IP address – Searches the Sterling Connect:Direct Service 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 Sterling Connect:Direct Service adapter network map for an entry corresponding to the node name of the remote client. • No (default) – Disables netmap validation. <p>Note: Sterling Connect:Direct Server adapters that were configured before availability of the “Check node name only” option are not affected. The previous “Yes” value corresponds to “Check both node name and IP address.”</p>
Buffer-Size for Copy	<p>Size (in bytes) of the internal buffer used when accessing a file. Optional. Valid values are:</p> <ul style="list-style-type: none"> • 4096 • 8192 • 16384 • 32768 (Default)

Field	Description
Number of short-term session retry attempts	<p>Specifies the maximum number of short-term attempts for creating a session with a Sterling 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 Sterling Connect:Direct Server Begin Session service.</p> <p>Valid value: Any number up through 9999. Default is 0. Required.</p> <p>Retry activity is logged (if logging enabled).</p> <p>If both this short-term related parameter and Number of Retry attempts for establishing a session parameter below (which is a long-term related parameter) are specified, the value for the short-term parameter is 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.</p>
Interval between short-term session retry attempts (seconds)	<p>Specifies the amount of time, in seconds, to wait between short-term session establishment and re-establishment attempts. This parameter performs successive retries within a shorter period of time (in seconds) than is available with the Interval between Retry attempts (in minutes) setting.</p> <p>This setting can be overridden by the value specified for ShortTermRetryInterval in the Sterling Connect:Direct Server Begin Session service.</p> <p>Valid value: Any number through 99999999. Default is 5. Required.</p> <p>Retry activity is logged (if logging enabled).</p>
Number of Retry attempts for establishing a session	<p>Specifies the maximum number of long-term attempts for creating a session with a Sterling 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 Sterling Connect:Direct Server Begin Session service.</p> <p>Valid value: Any number up to 9999. Default is 0. Required.</p> <p>Retry activity is logged (if logging enabled).</p> <p>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.</p>
Interval between session establishment attempts (minutes)	<p>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 Sterling Connect:Direct Server Begin Session service.</p> <p>Any number through 99999999. Required. Default is 1.</p>
Max Session Establishment Timeout value in Seconds	<p>Specifies the amount of time to wait before timing out an attempted connection with the Perimeter Server. Valid value is any number through 99999999. Default is 600. Required.</p>

Field	Description
Max Socket Read Timeout value in Seconds:	Specifies the amount of time to wait for the remote Sterling Connect:Direct Server to respond to any message sent by the Sterling Connect:Direct Server adapter. Required. Valid value is any number through 99999999. Default is 90. When using a Perimeter server, the minimum is 90. If a value less than 90 is entered, 90 is applied.
Server Start Option	Whether the server will be Cold or Warm started. A Warm start maintains existing restart information. A Cold start resets the restart information. Default is Warm. Required.
RunTask Business Process Name	Select a business process to be run when the Sterling Connect:Direct Server adapter receives a RunTask request. Optional. This option is primarily for use with business processes that forward requests from one Sterling Connect:Direct node to another. You must write the business process to do the forwarding.
RunJob Business Process Name	Select a business process to be run when the Connect:Direct Server adapter receives a RunJob request. Optional. This option is primarily for use with business processes that forward requests from one Sterling Connect:Direct node to another. You must write the business process to do the forwarding.
Max Run Task Forwarding Timeout value in Seconds:	The amount of time (in seconds) to wait before timing out a session that forwards a RunTask request. Required. Default is 300. Valid value is any natural number.
Max Run Job Forwarding Timeout value in Seconds:	The amount of time (in seconds) to wait before timing out a session that forwards a RunJob request. Required. Default is 30. Valid value is any natural number.
Extractable Count	The number of times the message can be extracted. Optional. Cannot be specified in conjunction with Extractable or Extractable For. Valid value is any integer.
Extractable For	The length of time (in days, hours and minutes) the message can be extracted. Optional. Cannot be specified in conjunction with Extractable or Extractable Count. Format is ddhhmm.
Extractable	A yes or no value indicating if this message can be extracted. Optional. Cannot be specified in conjunction with Extractable Count or Extractable For. Valid values are Yes and No.
Encryption using Secure Plus	Whether Sterling Connect:Direct Secure Plus is enabled. Required. Valid values are Enabled and Disabled. Default is Disabled. Note: The following four fields are displayed only if Enabled is selected.
Enable Netmap Node Override	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	Drop-down menu that contains a list of trusted Certificate Authority public certificates. Only displayed if "Encryption using Secure Plus" is enabled. Required if Encryption using Secure Plus is enabled. Valid values are all CA certificates in this installation of Sterling B2B Integrator.

Field	Description
System Certificate	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 Plus is enabled. Required if Encryption using Secure Plus is enabled. Valid values are all system certificates in this installation of Sterling B2B Integrator.
Certificate Common Name	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 Plus 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	Indicates cipher suites available to support varying encryption levels. Multiple selections allowed. Selections can be rank ordered. Only displayed if "Encryption using Secure Plus" is enabled. Required if "Encryption using Secure Plus" is enabled. Valid values are all available cipher suites in this installation of Sterling B2B Integrator.
SSL or TLS	Indicates if Secure Plus is enabled using SSL or TLS. Only displayed if "Encryption using Secure Plus" is enabled. Required if "Encryption using Secure Plus" is enabled. Valid values are SSL and TLS. Default is SSL.
Require Client Authentication:	Indicates whether authentication occurs at the client level. Valid values are: Yes No

Sterling Connect:Direct Service Adapter-Related Property Files

In clustered environments, the properties files on every node should be modified. Secondary nodes will not be aware of properties files changes on the primary node

Note: When you make changes to the following files, you do not have to restart the Sterling Connect:Direct Server adapter—all changes take effect in the next session. However, after changing a property file, it is a good idea to copy and save the file to a different name for a backup because all changes will be lost if the setupfiles script is run.

Property File	Function
cdinterop-spo-e-auth.properties	Used to determine the specific proxy user(s) on Sterling B2B Integrator. That is, it maps the Sterling Connect:Direct ID to the account ID on Sterling B2B Integrator.
cdinterop-spo-e-policy.properties	Enables a proxy user relationship to exist between Sterling Connect:Direct and Sterling B2B Integrator and sets a precedence for it (default: address, domain, account). It also determines if an snodeid may be present.

Property File	Function
cdinterop-user-records.properties	<p>Maps external users/nodes to upload and download paths for storing incoming files or retrieving an outgoing file. This allows the Sterling Connect:Direct Server Adapter to process files despite restrictions such as limited file name length.</p> <p>Note: These upload/download paths were formerly maintained in the business process as part of the document name. Now, only the file name is included in the business process or the CD process, and the key word mailbox or business process (as well as any subpath for the mailbox) is in the properties file.</p> <p>The cdinterop-user-records.properties file can be setup to map with ID only, with ID and node name, or node name only. If used in conjunction with the SPOE settings, the mapping is to the proxied user from SPOE.</p> <p>Examples:</p> <pre>cdproxy1[CDSA1]download=/mailbox/sub1 cdproxy1[CDSA1]upload=/mailbox/sub1 cdproxy2/upload=/mailbox/sub2 cdproxy2/download=/mailbox/sub2 cdproxy3/download=/businessprocess/cdfsa</pre>
cdinterop-proxy.records.properties	Assigns an upload or download document path to a proxied user ID
cdinterop-log.properties	Provides the capability to enable or disable highly verbose (and potentially redundant) log information originating from file system reads and writes, data packet input and output, buffer activity and raw TCP receive and send counts.

Prepare to Configure Sterling Connect:Direct Server Adapter Property Files

Configuring a Sterling Connect:Direct Server adapter may include configuring the cdinterop-user.records.properties file, cdinterop-proxy.records.properties, or both. Add, modify, or delete items in the properties files at any time, without starting or stopping Sterling B2B Integrator or the adapter. Changes take effect within a few seconds.

Editing the cdinterop-proxy.records.properties file requires entries in cdinterop-spoe-auth.properties and cdinterop-spoe-policy.properties.

Adding or Modifying User or Proxy Entries Before Startup

To add or modify user or proxy entries before startup:

1. Add or modify entries in the user or proxy repository file, using the appropriate syntax:
 - To edit cdinterop-user-records.properties: `userid ([cdsa_name] | /) upload | download = gis-path-prefix` See the cdinterop-user-records.properties file documentation for parameter definitions.
 - To edit cdinterop-proxy-records.properties: `external-id / upload | download = gis-path-prefix` See the cdinterop-user-records.properties file documentation for parameter definitions.
2. Start Sterling B2B Integrator.

Adding or Modifying User or Proxy Entries While the Sterling B2B Integrator is Running

Add, modify, or delete entries in `cdinterop-user-records.properties` and `cdinterop-proxy-records.properties` while Sterling B2B Integrator is running. The Sterling Connect:Direct Server adapter does not need to be stopped and restarted. Edit and save the files, as needed.

1. Make a copy of the `cdinterop-user-records.properties` file: `$ cd <install_dir>/properties $ cp cdinterop-user-records.properties cdinterop-user-records.properties.copy`
 2. Use a text editor to edit the file copy, and save. Example: `$ vi cdinterop-user-records.properties.copy`
 3. Copy the modified file back to the original filename: `$ cp cdinterop-user-records.properties.copy cdinterop-user-records.properties`
 4. Make a copy of the `cdinterop-proxy-records.properties` file: `$ cp cdinterop-proxy-records.properties cdinterop-proxy-records.properties.copy`
 5. Use a text editor to edit the file copy. For example: `$ vi cdinterop-proxy-records.properties.copy`
 6. Copy the modified file back to the original filename: `$ cp cdinterop-user-records.properties.copy cdinterop-user-records.properties`
- Changes take effect within a few seconds.

Search Order for Download/Upload Parameters

When a Sterling Connect:Direct Server adapter requests to connect to a remote Sterling Connect:Direct server node, the value of the upload or download parameter is determined as follows:

When a the adapter requests a connection in order to:	The upload/download parameter value is determined in this way:
Send a file to be stored on the Sterling Connect:Direct server node	Upload/download parameter values do not apply.
Request a file to be retrieved from the Sterling Connect:Direct server node.	Upload/download parameter values do not apply.

When a remote Sterling Connect:Direct server node requests a Sterling Connect:Direct Server adapter connection, the value of the upload or download parameter is determined as follows:

When a remote note requests a connection in order to:	The upload/download parameter value is determined in this way:
Request a file to be retrieved from the Sterling Connect:Direct Server adapter platform	The upload or download parameter definition is used, if defined. The Sterling Connect:Direct Server adapter determines the value of the parameter in the following manner: If the remote user ID is a proxy ID for a local Sterling B2B Integrator user account (SPOE policy is enabled) then the Proxy Record Repository is searched for a matching definition.
Send a file to be stored on the Sterling Connect:Direct Server adapter platform	If no match is found, or if the remote ID is not proxied (SPOE policy is not enabled), then a search is performed on the User Record Repository using the local GIS user account ID. If SPOE policy is enabled, the local Sterling B2B Integrator user account ID associated with the proxied remote user is used for this search. If a match is found in either case above, the remote file specification is appended to the matched parameter's value to provide a fully qualified filename.

Reserved Words Used with Sterling Connect:Direct Server Adapter

These reserved words are used with the Sterling Connect:Direct Server Adapter for COPY and SUBMIT statements in a Sterling Connect:Direct process:

- businessprocess
- mailbox

These must be used at the beginning of the path for the target (or source) of the copy/submit in Sterling B2B Integrator. For example, the following could be used in the TO or FROM clause of a COPY statement in a Sterling Connect:Direct process script:

```
/businessprocess/myspecialBPname/targetdocName
```

or

```
/mailbox/customers/CustomerXYZ/inbound/purchaseOrder.txt
```

Additionally, a mailbox called /DeadLetter is reserved for use by Sterling B2B Integrator.

Sterling Connect:Direct Server Adapter Business Process Example

These samples illustrate how information from a Sterling Connect:Direct Server Adapter might be used in a business process. The adapter itself is not used in business processes, but information provided during adapter configuration is used by its related Sterling Connect:Direct Server services.

This sample business process illustrates using the Sterling Connect:Direct Server CopyTo service in a business process. The business process copies the current primary document to the remote Sterling Connect:Direct Server, which is identified with a session token. The (optional) Sysopts in this example are in a format valid for Sterling Connect:Direct for Microsoft Windows only.

```

<process name=" CopyToExample">
  <sequence name="CDServerCopyToGIS">
    <!-- Begin Server Session -->
    <operation name="Connect:Direct Server Begin Session Service">
      <participant name="CDServerBeginSession"/>
      <output message="BeginSession">
        <assign to="." from="*"></assign>
        <assign to="LocalCDNodeName">TEST1_CDSEVER</assign>
        <assign to="RemoteCDNodeName">REMOTECDNODE1</assign>
        <assign to="RemoteUserId">user1</assign>
        <assign to="RemotePasswd">password1</assign>
      </output>
      <input message="inmsg">
        <assign to="BeginSessionResults" from="*"></assign>
      </input>
    </operation>
    <operation name="Connect:Direct Server Copy To Service">
      <participant name="CDServerCopyTo"/>
      <output message="CopyTo">
        <assign to="." from="*"></assign>
        <assign to="SessionToken"
          from="//BeginSessionResults/SessionToken/node()"></assign>
        <assign to="RemoteFileName">sample.txt</assign>
        <assign to="BinaryMode">no</assign>
        <assign to="Sysopts">datatype(text) xlate(no)</assign>
      </output>
      <input message="inmsg">
        <assign to="CopyToResults" from="*"></assign>
      </input>
    </operation>
    <!-- End Server Session -->
    <operation name="Connect:Direct Server End Session Service">
      <participant name="CDServerEndSession"/>
      <output message="EndSession">
        <assign to="." from="*"></assign>
        <assign to="SessionToken"
          from="//BeginSessionResults/SessionToken/node()"></assign>
      </output>
      <input message="inmsg">
        <assign to="EndSessionResults" from="*"></assign>
      </input>
    </operation>
  </sequence>
</process>

```

Forwarding a Request from One Sterling Connect:Direct Node to Another

This sample business process uses the Sterling Connect:Direct Server Run Job service to forward a request:

```

<process name = "CDInterop_testRunJobForward">
  <sequence name = "CDBeginSession">
    <operation name="Connect:Direct Server Begin Session Service">
      <participant name="CDServerBeginSession"/>
      <output message="BeginSession">
        <assign to="." from="*"></assign>
        <assign to="LocalCDNodeName">CDSA-1</assign>
        <assign to="RemoteCDNodeName">CD.ZOS.NODE</assign>
        <assign to="RemoteUserId">username</assign>
        <assign to="RemotePasswd">password</assign>
      </output>
      <input message="inmsg">
        <assign to="BeginSessionResults" from="*"></assign>
      </input>
    </operation>
    <operation name="Connect:Direct Server Run Job Service">

```

```

    <participant name="CDServerRunJob"/>
    <output message="RunJob">
      <assign to="." from="*"></assign>
      <assign to="SessionToken"
        from="//BeginSessionResults/SessionToken/node()"></assign>
    </output>
    <input message="inmsg">
      <assign to="Run_Job_Results" from="*"></assign>
    </input>
  </operation>
<operation name="Sterling Connect:Direct Server BP Response Service">
  <participant name="CDServerTestBPResponse1"/>
  <output message="BPResponseParams">
    <assign to="." from="*"></assign>
  </output>
  <input message="inmsg">
    <assign to="BPResponseResults" from="*"></assign>
  </input>
</operation>
<operation name="Connect:Direct Server End Session Service">
  <participant name="CDServerEndSession"/>
  <output message="EndSession">
    <assign to="." from="*"></assign>
    <assign to="SessionToken"
      from="//BeginSessionResults/SessionToken/node()"></assign>
  </output>
  <input message="inmsg">
    <assign to="OnFaultHandler" from="*"></assign>
  </input>
</operation>
<!-- Cleanup when bad things happen (exceptions) -->
<onFault>
  <sequence name="OnFault">
    <operation name="Sterling Connect:Direct Server BP Response Service">
      <participant name="CDServerTestBPResponse1"/>
      <output message="BPResponseParams">
        <assign to="." from="*"></assign>
      </output>
      <input message="inmsg">
        <assign to="BPResponseResults" from="*"></assign>
      </input>
    </operation>
    <!-- End the Session which was begun before the fault code -->
    <operation name="Connect:Direct Server End Session Service">
      <participant name="CDServerEndSession"/>
      <output message="EndSession">
        <assign to="." from="*"></assign>
        <assign to="SessionToken"
          from="//BeginSessionResults/SessionToken/node()"></assign>
      </output>
      <input message="inmsg">
        <assign to="EndSessionResults" from="*"></assign>
      </input>
    </operation>
  </sequence>
</onFault>
</sequence>
</process>

```

Activity Types for a Sterling Connect:Direct Server Adapter Service

This adapter reports the following activities to the Services Controller of Sterling B2B Integrator for service and adapter monitoring:

- Session – Lists any current session that the adapter has and details activities of the session
- Copy – Shows movement of a file between the Connect:Direct Server adapter and a remote Sterling Connect:Direct node

Connect:Direct Server adapter (V5.2.6 or later)

The Connect:Direct server adapter receives and processes requests from remote Connect:Direct nodes. Files are copied to and from a mailbox or a business process to and from Connect:Direct nodes.

The following table provides an overview of the Connect:Direct Server adapter:

System Name	Connect:Direct Server Adapter (CDSA)
Graphical Process Modeler (GPM) category	Not configurable in the GPM
Description	This adapter receives and processes requests from remote Connect:Direct nodes.
Business usage	<p>Use this adapter to:</p> <ul style="list-style-type: none"> • Mediate requests that originate from a business process and going to an external trading partner by using a (non-application) Connect:Direct node or another Connect:Direct Server adapter • Accept requests from a Connect:Direct node (or another Connect:Direct Server adapter) to copy to or from a mailbox or business process • Forward requests from one remote Connect:Direct node to another
Usage example	A trading partner submits a Connect:Direct Process on their local system. The Process initiates a session with the application Connect:Direct node and requests to copy a file. The Connect:Direct Server adapter allows the session and responds to the copy request.
Preconfigured?	No preconfigured copy of the adapter is provided.
Requires third-party files?	<p>The following files external to your application are required:</p> <ul style="list-style-type: none"> • Connect:Direct Server • JZLIB (included with your application) • CDJava.jar (build 81) (included with your application)
Platform availability	All supported application platforms

System Name	Connect:Direct Server Adapter (CDSA)
Related services	<p>To use the Connect:Direct Server adapter as a PNODE, you must create a business process that uses one or more of the following services:</p> <ul style="list-style-type: none"> • 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 <p>The listed services can be used as part of a business process. When invoked, they use a Connect:Direct Server adapter to perform specified activities with a remote Connect:Direct node. The adapter and remote node context are provided by a session token created by the Connect:Direct Server Begin Session Service. Subsequent services in the business process refer to this session token.</p>
Application requirements	<p>The following are optional choices for interoperability with Connect:Direct.</p> <ul style="list-style-type: none"> • Connect:Direct Windows 4.1.00 (with patch 26) or later • Connect:Direct UNIX 3.6.00 or later • Connect:Direct OS/390 4.4.00 or later • Connect:Direct HP Non-Stop • Connect:Direct Select
Initiates business processes?	<p>Initiates the business process specified by the remote Connect:Direct node. A business process can be used to initiate a message transfer with a remote Connect:Direct node.</p>
Invocation	<p>The adapter is started when your application is started.</p>
Business process context considerations	<p>None</p>
Returned status values	<p>None</p>

System Name	Connect:Direct Server Adapter (CDSA)
Restrictions	<p>The Connect:Direct Server adapter includes parameters to govern checkpoint/restart behavior if either the application or the remote node fails. If the remote Connect:Direct Server or the network fails during a copy operation, the adapter goes into a retry mode using the values specified at configuration. The adapter waits the configured amount of time and then resumes the copy. The length of time the adapter waits to resume the copy is impacted by three values:</p> <ul style="list-style-type: none"> • Number of Retry attempts, as specified in the adapter configuration. • Interval between Retry attempts, as specified in the adapter configuration. • Frequency defined by the scheduled system business process BPEXpirator. BPEXpirator is used in the Wait service. The Wait service is used when a system failure interrupts a Connect:Direct copy operation. <p>Whichever value is longer governs behavior. By coordinating the adapter retry interval and the BPEXpirator schedule, you can configure a window of time appropriate for your needs. Your application enables automatic restart when the recovery level is set to Auto-Resume. Checkpoint restart is only enabled for file system and mailbox documents. All other restarted copy operations are started from the beginning of the document.</p> <p>Important: If you add or delete a node or modify node parameters for any of the adapter netmap members, disable and re-enable the Connect:Direct Server adapter. Omitting this step can cause a significant delay (up until the next day) before configuration changes to netmap members are recognized.</p>
Persistence level	None
Testing considerations	Debug information for this adapter can be found in the Connect:Direct Server adapter log files.

Implementing the Connect:Direct Server Adapter

To implement the Connect:Direct Server adapter, complete the following tasks:

1. Collect information about any remote Connect:Direct servers that will communicate with this adapter. Use this information during configuration of the adapter. For information, see *Configuring the Connect:Direct Server Adapter*. If you plan to use a Perimeter server with this adapter, configure the Perimeter server. For information, see *Working with Perimeter Servers*.

2. Add the application as a node to the Connect:Direct network map.
3. Create a Connect:Direct Server adapter configuration. For information, see *Managing Services and Adapters*.
4. Configure the Connect:Direct Server adapter. For information, see *Configuring the Connect:Direct Server Adapter*.

Important: You must deploy the Connect:Direct server adapter in the adapter container for the following reasons:

- To integrate the Connect:Direct server adapter with the IBM Global High Availability Mailbox system. If the Connect:Direct server adapter is deployed outside the adapter container, it implies that the adapter is running inside an Application Server Independent (ASI) node (Sterling B2B Integrator Java Virtual Machine), and the adapter fails to integrate with the Global Mailbox system.
- To ensure that messages can be uploaded or downloaded even when Sterling B2B Integrator JVM is down. If you upload a message when the JVM is down, message events are queued for processing and are processed when the JVM is up and running.

Additionally, to integrate with Global Mailbox, each server adapter instance must run in an adapter container that also holds an instance of the Global Mailbox Client Adapter.

5. If you add or delete a node or modify node parameters for any of the adapter's netmap members, disable and re-enable the Connect:Direct server adapter.

Note: If this step is omitted, there might be a significant delay (up until the next day) before configuration changes to netmap members are recognized.

6. If you are using the upload and download parameters (proxy or user repositories), configure these property files. See *Configuring CDSA Property Files*.
 - `cdinterop-user-records.properties`
 - `cdinterop-proxy-records.properties`

Attention: The use of `cdinterop-proxy-records.properties` requires entries in `cdinterop-spoee-policy.properties` and `cdinterop-spoee-auth.properties`.

7. Create configurations of any Connect:Direct server services that are needed to use this adapter as a PNODE. See *Related services* in the Overview table for a list of these services.
8. Use the Connect:Direct Server services in a business process to use the adapter as a PNODE.

Configuring the Connect:Direct Server adapter

To configure the Connect:Direct Server adapter, you must specify settings for the following fields in your application:

Field	Description
Name	Unique and meaningful name for the adapter configuration. Required.
Description	Meaningful description for the adapter configuration, for reference purposes. Required.
Environment	(Clustered environments only.) Nodes available for this adapter to run on. Note: "All" is not a valid value. The netmap expects a specific node at a specific host.

Field	Description
Select a Group	<p>Group of services or adapters of the same type that can act as peers. A Service Group name is used in BPML in place of the Service Configuration name. Service Groups show up in the GPM Service Configurations. Select a Service Group to associate with this adapter. The following values are valid:</p> <ul style="list-style-type: none"> • None – You do not want to include this configuration in a group (default) • Create New Group – You can enter a name for a new group in this field, which is then created along with this configuration. • Select Group – If you created one or more groups for this service type, they are displayed in the list. Select a group from the list. <p>For more information about service groups, see <i>Managing Services and Adapters</i>.</p>
Connect:Direct Server Node Name	Name to identify this Connect:Direct Server adapter. Maximum 16 characters. Must match the Netmap entry for the server it is communicating with. Required.
Connect:Direct Perimeter Services Option	<p>Perimeter server to be used. Valid values:</p> <ul style="list-style-type: none"> • node1 & local (Default) – Local install • Any perimeter server(s) configured in the application for the node that is selected for Environment.
Connect Direct Server Port	<p>TCP/IP port number that Connect:Direct monitors for requests from remote nodes. Required.</p> <p>Note: If your application is installed on a UNIX operating system, do not select ports in the range 1-1024. These ports are normally reserved by the operating system.</p>
Firewall Ports	Ports that are used by the adapter for making outbound connections through the firewall. Optional. Valid values are hyphenated port range, a comma-delimited list, or a combination of both.
Max locally initiated (pnode) sessions allowed	Maximum number of sessions the Connect:Direct Server adapter can have active at any time. Required. Can 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.
Max remotely initiated (snode) sessions allowed	Maximum number of sessions from remote nodes that can be active at any time. Required. Can 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.

Field	Description
Enable Global Mailboxes	<p>The Connect:Direct Server adapter directs messages to the traditional or the Global Mailbox based on the realm of the virtual root of the user that is logged in and this setting. The options are the following values:</p> <ul style="list-style-type: none"> • No - Select No to disable Global Mailbox. When you disable Global Mailbox, the Connect:Direct server adapter always uses traditional mailbox. • Yes - Select Yes to enable Global Mailbox. When you enable Global Mailbox, the Connect:Direct server adapter first looks for the Global Mailbox virtual root of the user. If a Global Mailbox virtual root is found, the Connect:Direct server adapter uses the distributed mailbox for that user. Otherwise, the Connect:Direct server adapter uses traditional mailbox.
Document Storage	<p>Defines how the document is stored in the system. Required. Valid values are:</p> <ul style="list-style-type: none"> • System Default • Database • File System (default)
Netmap Check	<p>Whether the node netmap should be checked to authorize sessions. Required. Valid values are:</p> <ul style="list-style-type: none"> • Check both node name and IP address – Searches the CDSA 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 CDSA network map for an entry corresponding to the node name of the remote client. • No (default) – Disables netmap validation. <p>Note: Connect:Direct Server adapters that were configured before availability of the “Check node name only” option are not affected. The previous “Yes” value corresponds to “Check both node name and IP address.”</p>
Buffer Size for Copy	<p>Size (in bytes) of the internal buffer that is used to access a file. Optional. Valid values are:</p> <ul style="list-style-type: none"> • 4096 • 8192 • 16384 • 32768 (Default)
Number of Retry Attempts for Checkpoint-based copy restart	<p>Maximum number of attempts for checkpoint restart retry. Required. Valid value is any number through 9999. Default is 3.</p> <p>Restriction: Checkpoint restart is only enabled for file system-based document, outbound (from your application) data transfers. (If your application is the Pnode, business processes use the CopyTo service. If your application is the Snode, the remote Connect:Direct Server copies documents from your application to the remote node.)</p>

Field	Description
Interval between Retry attempts (minutes)	Amount of time to wait between checkpoint restart retry attempts. Required. Valid value: Any number through 99999999. Default is one minute. Restriction: If the Schedule_BPExpirator business process is configured to wait longer than the adapter retry interval indicates, the BPExpirator value will govern behavior. The default value for BPExpirator is 15 minutes. If the adapter retry interval is longer, the adapter value governs behavior. Restriction: Checkpoint restart is only enabled for file system-based and mailbox-based documents, outbound (from your application) data transfers.
Number of short-term session retry attempts	Specifies the maximum number of short-term session retry attempts that should be made when failures to connect occur. This setting can be overridden by the value specified for ShortTermMaxRetries in the Connect:Direct Server Begin Session service. Valid value: Any number up through 9999. Default is 0. Required. Short-term retry activity is logged (if logging enabled).
Interval between short-term session retry attempts (seconds)	Specifies the amount of time to wait between short-term session establishment attempts. This performs successive retries within a shorter period of time than is available with the Interval between Retry attempts (minutes) settings. This setting can be overridden by the value specified for ShortTermRetryInterval in the Connect Direct Server Begin Session service. Valid value: Any number through 99999999. Default is 5. Required. Short-term retry activity is logged (if logging enabled).
Number of retry attempts for establishing a session	Specifies the maximum number of attempts for creating a session with a Connect:Direct node. This setting can be overridden by the value specified for Begin Session Max Retries in the Connect:Direct Server Begin Session service. Valid value: Any number up to 9999. Default is 0. Required. Short-term retry activity is logged (if logging enabled). The following errors fail without any retries: <ul style="list-style-type: none"> • Invalid required parameter • Missing required parameter • Adapter not found • Remote node not in the netmap Connect:Direct unable to locate local server
Interval between session establishment attempts (minutes)	Time, in minutes, to wait between session establishment attempts. This setting can be overridden by the value specified for Begin Session Retry Interval in the Connect Direct Server Begin Session service. Any number through 99999999. Required.
Max Session Establishment Timeout value in Seconds	Amount of time to wait before timing out an attempted connection with the Perimeter Server. Valid value is any number through 99999999. Default is 600. Required.
Max Socket Read Timeout value in Seconds	Specifies the amount of time to wait for the remote Connect:Direct Server to respond to any message sent by the Connect:Direct Server adapter. Required. Valid value is any number through 99999999. Default is 90. When using a Perimeter server, the minimum is 90. If a value less than 90 is entered, 90 is applied.

Field	Description
Server Start Option	Whether the server is Cold or Warm started. A Warm start maintains existing restart information. A Cold start resets the restart information. Default is Warm. Required.
RunTask Business Process Name	Select a business process to be run when the Connect:Direct Server adapter receives a RunJob request. Optional. This option is primarily for use with business processes that forward requests from one Connect:Direct node to another. You must write the business process to do the forwarding. For information about the forwarding option, see <i>Business Process Examples</i> .
RunJob Business Process Name	Select a business process to be run when the Connect:Direct Server adapter receives a RunJob request. Optional. This option is primarily for use with business processes that forward requests from one Connect:Direct node to another. You must write the business process to do the forwarding. Attention: For information about the forwarding option, see <i>Business Process Examples</i> .
Max Run Task Forwarding Timeout value in Seconds	The amount of time (in seconds) to wait before timing out a session that forwards a RunTask request. Required. Default is 300. Valid value is any natural number.
Max Run Job Forwarding Timeout value in Seconds	The amount of time (in seconds) to wait before timing out a session that forwards a RunJob request. Required. Default is 30. Valid value is any natural number.
Extractable Count	The number of times the message can be extracted. Optional. Cannot be specified in conjunction with Extractable or Extractable For. Valid value is any integer.
Extractable For	The length of time (in days, hours and minutes) the message can be extracted. Optional. Cannot be specified in conjunction with Extractable or Extractable Count. Format is <i>ddhhmm</i> .
Extractable	A yes or no value indicating if this message can be extracted. Optional. Cannot be specified in conjunction with Extractable Count or Extractable For. Valid values are Yes and No.
Encryption using Secure+	Whether Secure+ is enabled. Required. Valid values are Enabled and Disabled. Default is Disabled. Note: The following four fields are displayed only if Enabled is selected.
Enable Netmap Node Override	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	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.

Field	Description
System Certificate	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	Value to be compared with the Common Name (CN) field from the remote node's certificate during TLS/SSL handshake to enhance certificate authentication. Only displayed if Encryption using Secure+ is enabled. Can 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	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	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	Indicates whether authentication occurs at the client level. Valid values are:YesNo

CDSA related Property Files

These property files might be used with the Connect:Direct Server adapter.

In clustered environments, the properties files on every node must be modified. Secondary nodes are not synchronized with properties file changes on the primary node.

Property File	Function
cdinterop-spoe-auth.properties	Used to determine the specific proxy users on Sterling B2B Integrator. That is, it maps the Connect:Direct ID to the account ID on Sterling B2B Integrator
cdinterop-spoe-policy.properties	Enables a proxy user relationship to exist between Connect:Direct and Sterling B2B Integrator and sets a precedence for it (default: address, domain, account). It also determines if an snodeid may be present.

Property File	Function
cdinterop-user-records.properties	<p>Maps external users/nodes to upload and download paths for storing incoming files or retrieving an outgoing file. This allows the CDSA to process files despite restrictions such as limited file name length.</p> <p>Note: These upload/download paths were formerly maintained in the business process as part of the document name. Now, only the file name is included in the business process or the CD process, and the key word mailbox or business process (and any subpath for the mailbox) is in the properties file. The cdinterop-user-records.properties file can be setup to map with ID only, with ID and node name, or node name only. If used with the SPOE settings, the mapping is to the proxy user from SPOE. Examples:</p> <pre>cdproxy1[CDSA1]download=/mailbox/sub1 cdproxy1[CDSA1]upload=/mailbox/sub1 cdproxy2/upload=/mailbox/sub2 cdproxy2/download=/mailbox/sub2 cdproxy3/download=/businessprocess/cdfsa</pre>
cdinterop.proxy.records.properties	Assigns an upload or download document path to a proxy user ID

Configuring CDSA Property Files

Configuration of a Connect:Direct Server adapter may include configuring the cdinterop.user.records.properties file, the cdinterop.proxy.records.properties, or both. Entries may be added, modified, or deleted in the properties files at any time, without starting or stopping either the application or the adapter. Changes take effect within a few seconds.

Editing the cdinterop.proxy.records.properties file requires entries in cdinterop-spoe-auth.properties and cdinterop-spoe-policy.properties.

Add or Modify User or Proxy Entries Before Startup

- Add or modify entries in the user or proxy repository file, using the appropriate syntax:
 - To edit cdinterop-user-records.properties: `userid ([cdsa_name] | /) upload | download = gis-path-prefix` See the cdinterop-user-records.properties file documentation for parameter definitions.
 - To edit cdinterop-proxy-records.properties: `external-id / upload | download = gis-path-prefix` See the cdinterop-user-records.properties file documentation for parameter definitions.
- Start the application.

Add or Modify User or Proxy Entries While the Application is Running

Entries may be added, modified, or deleted in cdinterop-user-records.properties and cdinterop-proxy-records.properties while the application is running. The Connect:Direct Server adapter does not need to be stopped and restarted.

This procedure assumes that both properties files are being modified. Edit and commit one or both, as needed.

1. Make a copy of the `cdinterop-user-records.properties` file:


```
$ cd <install_dir>/properties
$ cp cdinterop-user-records.properties
cdinterop-user-records.properties.copy
```
1. Use your preferred text editor to edit the file copy, and save. Example: `$ vi cdinterop-user-records.properties.copy`
2. Commit the changes by copying the modified file back to the original file name: `$ cp cdinterop-user-records.properties.copy cdinterop-user-records.properties`
3. Make a copy of the `cdinterop-proxy-records.properties` file: `$ cp cdinterop-proxy-records.properties cdinterop-proxy-records.properties.copy`
4. Use your preferred text editor to edit the file copy, and save. Example: `$ vi cdinterop-proxy-records.properties.copy`
5. Commit the changes by copying the modified file back to the original file name: `$ cp cdinterop-user-records.properties.copy cdinterop-user-records.properties` Your changes will take effect within a few seconds.

Search Order for Download or Upload Parameters

When a Connect:Direct Server adapter requests to connect to a remote Connect:Direct server node, the value of the upload or download parameter is determined as follows:

When a CDSA requests a connection to:	The upload or download parameter value is determined in this manner:
Send a file to be stored on the Connect:Direct server node	Upload or download parameter values do not apply.
Request a file to be retrieved from the Connect:Direct server node	<p>The download parameter definition is used if one is defined. The CDSA determines the value of the parameter in the following manner:</p> <ol style="list-style-type: none"> 1. The User Record Repository is searched for a matching definition. 2. If a match is found, the remote file specification is appended to the value of the matched parameter to provide a fully qualified local file name.

When a remote Connect:Direct server node requests a CDSA connection, the value of the upload or download parameter is determined as follows:

When a remote note requests a connection to:	The upload/download parameter value is determined in this manner:
Request a file to be retrieved from the CDSA platform OR Send a file to be stored on the CDSA platform	The upload or download parameter definition is used, if defined. The CDSA determines the value of the parameter in the following manner: <ol style="list-style-type: none"> 1. If the remote user ID is a proxy ID for a local Sterling B2B Integrator user account (SPOE policy is enabled) then the Proxy Record Repository is searched for a matching definition. 2. If no match is found, or if the remote ID does not have a proxy (SPOE policy is not enabled), then a search is performed on the User Record Repository using the local Sterling B2B Integrator user account ID. If SPOE policy is enabled, the local proxy Sterling B2B Integrator user account ID for the remote user is used for this search. 3. If a match is found in either of the previous cases, the remote file specification is appended to the value of the matched parameter to provide a fully qualified file name.

Reserved Words

The following reserved words are used with the Connect:Direct Server adapter for COPY and SUBMIT statements in a Connect:Direct process script:

- businessprocess
- mailbox

These must be used at the beginning of the path for the target (or source) of the copy/submit in your application. For example, use the following TO or FROM clause of a COPY statement in a Connect:Direct process script:

```
/businessprocess/myspecialBPname/targetdocName
```

or

```
/mailbox/customers/CustomerXYZ/inbound/purchaseOrder.txt
```

A mailbox called /DeadLetter is reserved for use by your application.

Business Process Examples

The following samples illustrate how information from a Connect:Direct Server adapter might be used in a business process. The adapter itself is not used in business processes, but information provided during adapter configuration is used by its related Connect:Direct Server services.

The following sample business process illustrates using the Connect:Direct Server CopyTo service in a business process. The business process copies the current primary document to the remote Connect:Direct Server, which is identified with a session token. The (optional) Sysopts in this example are in a format valid for Connect:Direct Windows only.

```
<process name=" CopyToExample">
  <sequence name="CDServerCopyToGIS">
    <sequence name="CDServerCopyToGIS">
```

```

<!-- Begin Server Session -->
  <operation name="Connect:Direct Server Begin Session Service">
    <participant name="CDServerBeginSession"/>
    <output message="BeginSession">
      <assign to="." from="*"></assign>
      <assign to="LocalCDNodeName">TEST1_CDSEVER</assign>
      <assign to="RemoteCDNodeName">REMOTECNODE1</assign>
      <assign to="RemoteUserId">user1</assign>
      <assign to="RemotePasswd">password1</assign>
    </output>
    <input message="inmsg">
      <assign to="BeginSessionResults" from="*"></assign>
    </input>
  </operation>
  <operation name="Connect:Direct Server Copy To Service">
    <participant name="CDServerCopyTo"/>
    <output message="CopyTo">
      <assign to="." from="*"></assign>
      <assign to="SessionToken"
        from="//BeginSessionResults/SessionToken/node()">
</assign>
      <assign to="RemoteFileName">sample.txt</assign>
      <assign to="BinaryMode">no</assign>
      <assign to="Sysopts">datatype(text) xlate(no)</assign>
    </output></output>
    <input message="inmsg">
      <assign to="CopyToResults" from="*"></assign>
    </input>
  </operation>
<!-- End Server Session -->
  <operation name="Connect:Direct Server End Session Service">
    <participant name="CDServerEndSession"/>
    <output message="EndSession">
      <assign to="." from="*"></assign>
      <assign to="SessionToken"
        from="//BeginSessionResults/SessionToken/node()">
</assign>
    </output>
    <input message="inmsg">
      <assign to="EndSessionResults" from="*"></assign>
    </input>
  </operation>
</sequence></sequence>
</process>

```

Forwarding a Request from One Connect:Direct Node to Another

The following sample business process uses the Connect:Direct Server Run Job service to forward a request:

```

<process name = "CDInterop_testRunJobForward">
  <sequence name = "CDBeginSession">
    <operation name="Connect:Direct Server Begin Session Service">
      <participant name="CDServerBeginSession"/>
      <output message="BeginSession">
        <assign to="." from="*"></assign>
        <assign to="LocalCDNodeName">aaa.bbb</assign>
        <assign to="RemoteCDNodeName">ZZ.AAA.ZZZZ</assign>
        <assign to="RemoteUserId">username</assign>
        <assign to="RemotePasswd">password</assign>
      </output>
      <input message="inmsg">
        <assign to="BeginSessionResults" from="*"></assign>
      </input>
    </operation>
  <operation name="Connect:Direct Server Run Job Service">

```

```

<operation name="Connect:Direct Server Run Job Service">
  <participant name="CDServerRunJob"/>
  <output message="RunJob">
    <assign to="." from="*"></assign>
    <assign to="SessionToken"
      from="//BeginSessionResults/SessionToken/node()"></assign>
    <assign to="Sysopts">AAAA1.jcl</assign>
  </output>
  <input message="inmsg">
    <assign to="Run_Job_Results" from="*"></assign>
  </input>
</operation>
<operation name="CONNECT:Direct Server BP Response Service">
  <participant name="CDServerTestBPResponse1"/>
  <output message="BPResponseParams">
    <assign to="." from="*"></assign>
  </output>
  <input message="inmsg">
    <assign to="BPResponseResults" from="*"></assign>
  <assign to="BPResponseResults" from="*"></assign>
</input>
</operation>
<operation name="Connect:Direct Server End Session Service">
<operation name="Connect:Direct Server End Session Service">
  <participant name="CDServerEndSession"/>
  <output message="EndSession">
    <assign to="." from="*"></assign>
    <assign to="SessionToken"
      from="//BeginSessionResults/SessionToken/node()"></assign>
  </output>
  <input message="inmsg">
    <assign to="OnFaultHandler" from="*"></assign>
  </input>
</operation>
<!-- Cleanup when bad things happen (exceptions) -->
<onFault>
  <sequence name="OnFault">
<operation name="CONNECT:Direct Server BP Response Service">
  <participant name="CDServerTestBPResponse1"/>
  <output message="BPResponseParams">
    <assign to="." from="*"></assign>
  </output>
  <input message="inmsg">
    <assign to="BPResponseResults" from="*"></assign>
  </input>
</operation>
  <!-- End the Session which was begun before the fault code -->
<!-- End the Session which was begun before the fault code -->
  <operation name="Connect:Direct Server End Session Service">
  <participant name="CDServerEndSession"/>
  <output message="EndSession">
  <assign to="." from="*"></assign>
  <assign to="SessionToken"
    from="//BeginSessionResults/SessionToken/node()"></assign>
  </output>
  <input message="inmsg">
    <assign to="EndSessionResults" from="*"></assign>
  </input>
  </operation>
</sequence></sequence>
</onFault>
</sequence></sequence>
</process>

```

The following sample business process uses the Connect:Direct Server Run Task service to forward a request:

```

<process name = "CDInterop_testRunTaskForward">
  <sequence name = "CDBeginSession">
    <operation name="Connect:Direct Server Begin Session Service">
      <participant name="CDServerBeginSession"/>
      <output message="BeginSession">
        <assign to="." from="*"></assign>
        <assign to="LocalCDNodeName">aaaa.bbbb</assign>
        <assign to="RemoteCDNodeName">ZZ.AAA.ZZZZ</assign>
        <assign to="RemoteUserId">username</assign>
        <assign to="RemotePasswd">password</assign>
      </output>
      <input message="inmsg">
        <assign to="BeginSessionResults" from="*"></assign>
      </input>
    </operation>
    <operation name="Connect:Direct Server Run Task Service">
      <participant name="CDServerRunTask"/>
      <output message="RunTask">
        <assign to="." from="*"></assign>
        <assign to="SessionToken"
          from="//BeginSessionResults/SessionToken/node()"></assign>
        <assign to="Sysopts">AAAA</assign>
      </output>
      <input message="inmsg">
        <assign to="Run_TASK_Results" from="*"></assign>
      </input>
    </operation>
    <operation name="CONNECT:Direct Server BP Response Service">
      <participant name="CDServerTestBPResponse1"/>
      <output message="BPResponseParams">
        <assign to="." from="*"></assign>
      </output>
      <input message="inmsg">
        <assign to="BPResponseResults" from="*"></assign>
      </input>
    </operation>
    <operation name="Connect:Direct Server End Session Service">
      <participant name="CDServerEndSession"/>
      <output message="EndSession">
        <assign to="." from="*"></assign>
        <assign to="SessionToken"
          from="//BeginSessionResults/SessionToken/node()"></assign>
      </output>
      <input message="inmsg">
        <assign to="OnFaultHandler" from="*"></assign>
      </input>
    </operation>
  <!-- Cleanup when bad things happen (exceptions) -->
  <onFault>
    <sequence name="OnFault">
      <operation name="CONNECT:Direct Server BP Response Service">
        <participant name="CDServerTestBPResponse1"/>
        <output message="BPResponseParams">
          <assign to="." from="*"></assign>
        </output>
        <input message="inmsg">
          <assign to="BPResponseResults" from="*"></assign>
        </input>
      </operation>
    <!-- End the Session which was begun before the fault code -->
    <operation name="Connect:Direct Server End Session Service">
      <participant name="CDServerEndSession"/>
      <output message="EndSession">
        <assign to="." from="*"></assign>
      </output>
    </operation>
  </onFault>
</process>

```

```
        <assign to="SessionToken"
              from="//BeginSessionResults/SessionToken/node()"></assign>
    </output>
    <input message="inmsg">
        <assign to="EndSessionResults" from="*"></assign>
    </input>
</operation>
</sequence>
</onFault>
</sequence></sequence>
</process>
```

Activity Types for This Service

This adapter reports the following activities to the Services Controller of your application for service and adapter monitoring:

- Session – Lists any current session that the adapter has and details activities of the session
- Copy – Shows movement of a file between the Connect:Direct Server adapter and a remote Connect:Direct node

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