

Sterling Connect:Direct for Microsoft Windows



# System Guide

*Version 4.6*



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*Version 4.6*

**Note**

Before using this information and the product it supports, read the information in "Notices" on page 161.

This edition applies to version 4.6 of IBM Sterling Connect:Direct for Microsoft Windows and to all subsequent releases and modifications until otherwise indicated in new editions.

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## Chapter 1. Configure the Local Node

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### Configuring the Sterling Connect:Direct Local Node

Before using IBM® Sterling Connect:Direct® for Microsoft Windows to transfer files, you have to configure the local node.

You can configure the local node using the Configuration Tool or with Sterling Connect:Direct Requester. This set of topics provides instructions for using Requester. Requester is a graphical user interface that enables you to define local nodes, user IDs, user authorities, and remote user proxies.

With the Sterling Connect:Direct Configuration Tool, you edit text files of user authorization and network map parameters, and you can export these files. However, using the Configuration Tool requires that you understand all the Sterling Connect:Direct keywords and their parameters. Sterling Connect:Direct Requester makes it easier to define user authorization parameters.

**Note:** The Configuration Tool also enables you to view or print a configuration. See *Print and View Node and Network Map Definitions* under *Define and Manage the Sterling Connect:Direct Network*.

To configure the local node using Requester, you:

1. Add a node definition for each server at the local site.
2. Add a user ID for each person who accesses one of the local servers.
3. Define the functions each local user can perform (functional authorities).
4. If necessary, configure user proxies for remote user access to the local node.

---

### Adding or Modifying a Local Node Definition

#### About this task

To use Sterling Connect:Direct for Microsoft Windows, you begin by configuring a local node for each server in the local network. You identified a local node when you first installed Sterling Connect:Direct. Depending on the configuration at your location, you can have more than one local node.

To add a local node definition for a server:

#### Procedure

1. Select **Node > Connection Settings > Insert Node**.
2. Type the node name in the **Name** field or select a node in **Active Directory Nodes** if Active Directory is enabled.
3. Optionally, select the default user ID to associate with the node in the **Default User ID** field.
4. Select the operating system used by the node in the **Operating System** field. If any nodes are registered in Active Directory, select **Windows** to display nodes registered in the **Active Directory Nodes** field.
5. Enter the TCP/IP address in the **Address** field.

**Note:** See “Specify IP Addresses, Host Names, and Ports” on page 113.

6. Type the port number in the **Port** field.
7. If this is the default node, select **Set as the Default Node**.
8. Click **OK**.
9. To modify a local node definition for a server at your site, double-click the node on the Nodes tab of the Control Pad (left side of the Requester main window). Modify fields as required and click **OK**.

---

## Adding a User

### About this task

To add a new Sterling Connect:Direct user from Sterling Connect:Direct Requester:

### Procedure

1. If more than one local node is configured, on the Nodes tab of the Control Pad, highlight the local node to which the user is to be added.
2. Select **Node > Connection Settings > Edit Userids**.
3. Click **Insert**.
4. Type information in the following fields:
  - **Name**—Type the name of the new user. Either type the user name as defined in the Microsoft Windows setup, such as "lmore", or type a fully-qualified user name in the UPN format, such as "lmore@adtree.stercomm.com".
  - **Password**—Type the password defined for the user.
  - **Verify Password**—Retype the password defined for the user.
5. Click **Remember Password** to automatically reload the password when you attach as this user.
6. Click **Set as the Default User** if you want the new user to be the default user for the node.
7. Click **OK**.
8. If the verification password you typed does not match the initial password, you receive a message indicating the passwords do not match when you click **OK**. Retype the verification password and click **OK**.
9. Click **OK** on the User Properties window to save the settings, then click **Close**.

**Attention:** Changes made to node settings are not written to the Registry until you select **OK**.

---

## Modifying a User ID

### About this task

To modify a user ID from Sterling Connect:Direct Requester:

### Procedure

1. If more than one local node is configured, on the Nodes tab of the Control Pad, highlight the local node for which the user is to be modified.
2. Select **Node > Connection Settings > Edit Userids**.
3. Double-click the user ID to modify.
4. Modify fields as necessary.

5. Click **OK**.

---

## Deleting a User

### About this task

To delete a user from a node, from Sterling Connect:Direct Requester:

### Procedure

1. If more than one local node is configured, on the Nodes tab of the Control Pad, highlight the local node from which the user is to be deleted.
2. Select Node > Connection Settings > Edit Userids.
3. Select the user you want to delete.
4. Select Delete, then click **Confirm**. The user is deleted.

---

## Attaching to a Local Node

### About this task

After you configure the local node and define network users, you must attach to the local node. If a user ID is set as the default and has the option Remember Password activated, the user is automatically attached to the server.

### Procedure

1. Select Node > Attach.
2. Select a user ID from the Userid list.
3. In the **Password** field, type the password that corresponds to the user ID.
4. Click **OK**.

---

## About Local Functional Authorities

After you define a user ID for each user with access to the local node, you can limit the tasks a user can perform by defining user authorities for each user ID. For example, you can permit a user to submit Processes but not monitor or delete them. Define user authority as a default administrator or a general user. Then define the directories where a user can perform functions. You can define authorities for remote users, and you can group users under group authorities.

### Define a Functional Authority Type

You can define two types of users: administrators and general users. Each user type has a set of default privileges. The default administrator and general user definitions allow the user to perform basic Sterling Connect:Direct tasks. You can use these templates to assign user authorities and restrict privileges. The following table defines the default authorities of the administrator and the general user:

Authority	Default Administrator	Default General User
View Processes in the TCQ	yes	yes
Issue the copy receive, copy send, run job, and run task Process statements	yes	yes

Authority	Default Administrator	Default General User
Issue the submit Process statement	all	yes
Monitor, submit, change, and delete all Processes	yes	no
Monitor, submit, change, and delete your own Processes	yes	yes
Run programs	yes	yes
Access Process statistics	all	yes
Upload and download files from any directory	yes	yes
Upload and download files to or from specific directories	no	no
Run programs from any directory	yes	yes
Run programs from specific directories	yes	no
Update the network map	yes	no
Update the translation table	yes	yes
Update local user authorities	yes	no
Update remote user secure point-of-entry proxies	yes	no
Stop Sterling Connect:Direct for Microsoft Windows	yes	no
Invoke the refresh initialization parameters options	yes	yes
Use the trace tool or issue traceon and traceoff commands	yes	no
Override execution priority, including Hold, Retain, and Plexclass status	all	yes
User type can override the CRC status	on	off
Override Process options such as file attributes and remote node ID	all	yes

## Define Directories Where Users Can Perform Tasks

You then define directories where a user can perform tasks. If you do not specify a directory for a function, the user can perform it from any directory, regardless of whether the request is submitted from the PNODE or the SNODE; however, the remote user proxy can override the directory specification. Directory restrictions for the Upload and Download directory can be bypassed if restrictions are not also provided for the Process and Program directory paths. As a result, if the remote user is allowed to use the Run Task and Run Job features to execute commands from any directory, then they could perform operating system commands. These commands could include copy commands to copy files to any directory, bypassing the Upload and Download restrictions.

To prevent this, set directory restrictions for the Process and program features using a separate directory path from the Upload and Download directory path or disable the Run Job and Run Task for this user. Programs that be run are defined in the Process and Program directories.

## Define Remote User Proxies

You can define remote user proxies. A remote user proxy associates a remote user with a local user ID and gives the remote user the authority to perform the same functions as the proxy. This is useful if you want to give a remote user access to a server, but you do not want to define a user ID and user authorities for the user. Defining a remote user proxy also provides the remote user access to the local node without the need to remember password information.

## Defining User Authority

### About this task

Use this procedure to restrict the functions that a user can perform and the directories where a function can be performed.

To set user authorities:

### Procedure

1. Select Admin > Functional Authorities. The User Authorities view is the default view.
2. Choose one of the following types of users:
  - Click **New Admin** to create a new user authority with full privileges for Process controls and functions.
  - Click **New Genusr** to create a user authority with reduced privileges.
3. Type a name, from 1 to 50 alphanumeric characters, for the new user in the **Name** field. You can use spaces.

**Note:** You can enter a user ID in UPN format such as user@csg.stercomm.com. The UPN format allows you to identify both the user name and the domain.

4. Do one of the following:
  - To save the new user authority with the default privileges, click **OK**.
  - To modify the default user privileges, continue with the next step.
5. To restrict the control functions or statements a user is authorized to perform, change the value of one or more of the fields on the Main tab to No to deny user authority for that privilege and click **OK**.

Field Name	Definition	Valid Values
Submit	Grants authority to submit Processes.	Yes   No
Monitor	Grants access to the Process Monitor function.  Yes specifies that you can monitor your own Processes; All specifies that you can monitor anyone's Processes.	Yes   No   All
Change	Grants authority to change Processes in the TCQ.  Yes specifies that you can change your own Processes; All specifies that you can change anyone's Processes.	Yes   No   All

Field Name	Definition	Valid Values
Delete	Grants authority to delete Processes from the TCQ.  Yes specifies that you can delete your own Processes; All specifies that you can delete anyone's Processes.	Yes   No   All
Statistics	Grants authority to access Process statistics using the Select Statistics command.  Yes specifies that you can access statistics for your own Processes; All specifies that you can access statistics for anyone's Processes.	Yes   No   All
Copy Send	Grants authority to submit copy Process statements.	Yes   No
Copy Receive	Grants authority to receive copy Process statements.	Yes   No
Run Job	Grants authority to submit run job Process statements.	Yes   No
Run Task	Grants authority to submit run task Process statements.	Yes   No
Submit	Grants authority to submit Processes from within another Process.	Yes   No

6. To define directory restrictions, click the Directories tab.
7. To restrict a user's access to directories, specify the directory from which the user can perform a function, submit Processes, or run programs and click **OK**. Refer to the following table for the Directory Restrictions functions:

Field Name	Description
Upload	Specifies the directory that the user can copy files from and use as a source.  Security in some Microsoft Windows systems prompts for administrative permissions confirmation when it writes to the Program Files subdirectories. If you specify a Program Files directory in the <b>Upload</b> field, the system may be unable to copy files to that location.  To fix this problem: <ol style="list-style-type: none"> <li>1. Specify an upload directory that is not in the Program Files directory.</li> <li>2. On the Sterling Connect:Direct for Microsoft Windows Server, use Microsoft Windows Control Panel to change User Account Control Settings to <i>Never Notify</i>.</li> </ol> Reboot the server to enable the updates.
Download	Specifies the directory that the user can copy files to and use as a destination.
Process	Specifies the directory from which the user can submit a Process. <b>Note:</b> Setting a Process directory restriction here only restricts submit statements within a Process. In other words, given an entry in this field, a user (or, in the case of a group functional authority, a group) can use Requester to submit a Process without restrictions on where the Process is submitted from, but a Submit Process statement within the Process will run only from the directory specified here.
Program	Specifies the directory from which the user can run a program.

8. To define administrative privileges, click the Admin tab.
9. To give a user access to an administrative function, change the value to Yes and click **OK**. Refer to the following table for Administrative functions:

Field Name	Definition	Valid Values
Netmap	Grants authority to update the network map.	Yes   No
Translation Table	Grants authority to update the translation tables.	Yes   No
User Authorities	Grants authority to update local user Sterling Connect:Direct functional authorities.	Yes   No
User Proxy	Grants authority to update user proxies.	Yes   No
Secure+	Grants authority to send Sterling Connect:Direct Secure Plus commands through the API.	Yes   No
Stop	Grants authority to stop Sterling Connect:Direct.	Yes   No
Refresh	Grants authority to refresh the Sterling Connect:Direct server initialization parameters.	Yes   No
Trace	Grants authority to access the Trace utility.	Yes   No

10. Click the Override tab to define override authority.
11. To grant access to the override function, set any of the override privileges to Yes. Refer to the following table for the override privilege functions:

Field Name	Definition	Valid Values
Execution Priority	Grants authority to override the default execution priority in a Process.	Yes   No   All
Remote Node ID	Grants authority to use the remote node ID parameter on the Process or when submitting the Process.	Yes   No
File Attributes	Grants authority to override the system's default file attributes when creating files using a copy Process.	Yes   No
ACL Update	Grants authority to define access–allowed and access–denied entries in the Access Control List (ACL) for a file created using a copy Process.	Yes   No
CRC	Grants authority to override the CRC-enabled state in node and Process statements.	ON   OFF   Blank

12. Click **OK**.

## Modifying a User Authority

### About this task

To modify user authority information for Process statement and control functionality:

### Procedure

1. Select Admin > Functional Authorities.
2. Double-click the user authority to edit.
3. Change the user authorities as necessary.
4. Click **OK**.

## Deleting a User Authority

### About this task

To delete a user authority:

### Procedure

1. Select Admin > Functional Authorities.
2. Select the user you want to delete and click **Delete**.

## Defining a Group Authority

### About this task

Use this procedure to create group authorities. Group authorities allow you to group users who exercise the same level of functional authorities.

To define a group authority:

### Procedure

1. Select Admin > Functional Authorities.
2. Click the Group Authorities tab.
3. To add a group authority, do one of the following:
  - Click **New Admin** to create a new group based on \*Admin settings as the default.
  - Click **New Genusr** to create a new group based on Genusr settings as the default.
4. Type the name, from 1 to 50 alphanumeric characters, for the new group. You can use spaces.
5. Define the group as either a local group or domain group by doing one of the following:
  - If the group is local, click **Local** and enter the name of the group as defined by the workstation administrator under My Computer/Manage/Local Users and Groups.
  - If this is a domain group, click **Domain Name**, then enter the name of the group as defined by the domain administrator, and the name of the domain on which the group is defined.

**Note:** Local groups are groups defined locally on the server using the O/S utility for managing local users and groups. If your users are defined locally, use local groups. If your users are not defined locally but in a domain, use domain groups. If you have some users in local and some in domains, you can use both.

6. Do one of the following:
  - To save the new group authority with default privileges, click **OK**.
  - To modify the default group privileges, continue with the next step.
7. To restrict the control functions or statements users in the group are authorized to perform, change the value of the fields on the available tab to No to deny authority for that privilege and click **OK**.

**Note:** Refer to “Defining User Authority” on page 5 for definitions of specific user authorities.



8. Click **OK** to finish defining the group authority.

## Modifying a Group Authority

### About this task

To modify group authority information for Process statement and control functionality:

### Procedure

1. Select Admin > Functional Authorities and click the Group Authorities tab.
2. Double-click the group authority to edit.
3. Change authorities for the group as necessary.
4. Click **OK**.

## Sequencing Group Authorities

### About this task

A user can be a member of multiple groups, local and domain. Since each group authority defined can contain different restrictions, the order of groups as they are checked for a match is important. More restrictive groups should be checked before less restrictive groups.

To change a group's position in the order of group functional authorities:

### Procedure

1. On the Group Authorities tab of the Functional Authorities window, select the group functional authority to move.
2. Move the group up in the order by clicking **Move Up**.
3. Move the group down in the order by clicking **Move Down**.
4. Click **OK**.

## Deleting a Group Authority

### About this task

To delete a group authority:

### Procedure

1. Select Admin > Functional Authorities and click the Group Authorities tab.
2. Select the group you want to delete and click **Delete**.

---

## Define Remote User Proxies

The secure point-of-entry proxies definition contains remote user information for operations initiated from remote Sterling Connect:Direct nodes. It defines a proxy relationship between a user at a remote Sterling Connect:Direct node and a local user ID. This relationship enables users at remote nodes to submit work to their system that interacts with the Microsoft Windows node without defining user IDs

and passwords for the specified Microsoft Windows system in the Processes. Several proxies can use the same local user account with overrides specific to each proxy.

Sterling Connect:Direct names each definition of this type according to the remote node and submitter ID. Each definition contains the user ID and password for a local account to use when the specified remote user submits Processes that interact with this node.

**Note:** When you update the password for the specified local user account on your Microsoft Windows system, you must update the corresponding Sterling Connect:Direct secure point-of-entry proxy as well. This process is not automated.

The user proxy definition specifies the following Sterling Connect:Direct remote user information:

- Remote Sterling Connect:Direct user ID and remote Sterling Connect:Direct node name. You can also set a generic user ID called <ANY USER> and node name <ANY NODE> to allow all of your remote users to connect through one proxy.
- Local user ID and password to use with submitted operations from the remote Sterling Connect:Direct node.
- Any directory restrictions for Sterling Connect:Direct operations.

When a remote user submits a Sterling Connect:Direct Process that does not have a remote node security ID specified, Sterling Connect:Direct for Microsoft Windows accesses the proxy definition that corresponds to the specified user and logs on to the Microsoft Windows server using the account information specified in the proxy definition. If a proxy definition is not available for a given remote node/submitter ID combination, the Process must explicitly specify the user ID and password to use on the local node. Use the remote node ID security parameter in the Process statement to provide the necessary security information to execute Processes with this node.

---

## Creating or Modifying a Remote User Proxy

### About this task

To create or modify a proxy for a remote user:

### Procedure

1. Select Admin > User Proxies.
2. Do one of the following:
  - To add a new remote user proxy, click **Insert**.
  - To modify a proxy, double-click the Remote User name to modify.
3. Add or modify the following information:
  - a. For a new proxy, type the remote node user ID or select <ANY USER> to define a generic user ID.
  - b. Type the submitter ID, a specific node name, or select <ANY NODE> to define a generic node.
  - c. Type the local user ID to map to the remote node or a specific user ID in the Userid field.
  - d. Type the password twice associated with the local user ID to which the proxy is mapped.

**Note:** You can enter a user ID in UPN format such as user@domain.com.

4. If necessary, click the Directories tab to define the directory restrictions for the remote user.
5. Select whether the proxy user has permission to perform Copy Send or Copy Receive operations or if the permissions for the proxy user are the same as for the real user (User).
6. Modify one or more of the following functions:
  - Specify the directory the user can use to copy files from and use as a source directory in the **Upload** field. If no directory is specified, the user can copy files from any directory.
  - Specify the directory the user can use to copy files to and use a destination directory in the **Download** field. If no directory is specified, the user can copy files to any directory.
  - Specify the directory containing the Processes the user has authority to submit in the **Process** field. If no directory is specified, the user can submit Processes from any directory.
  - Specify the directory containing the programs the user has authority to run in the **Program** field. If no directory is specified, the user can run programs from any directory.
  - Specify whether the user can submit copy Process statements using the **Copy Send** field. If you specify USER, this setting defaults to the proxy entry's local user's functional authority setting.
  - Specify whether the user can receive copy Process statements using the **Copy Receive** field. If you specify USER, this setting defaults to the proxy entry's local user's functional authority setting.
7. Click **OK**.

---

## Deleting a Remote User Proxy

### About this task

To delete user proxy information for an existing remote Sterling Connect:Direct user:

### Procedure

1. Select Admin > User Proxies.
2. Select the remote user you want to delete.
3. Click **Delete**.
4. Click **Close**.



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## Chapter 2. Define and Manage the Sterling Connect:Direct Network

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### Define and Manage the Sterling Connect:Direct Network

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Sterling Connect:Direct uses a network map to identify the remote nodes that can communicate with the local node. Two methods are available to update the network map:

- Sterling Connect:Direct Requester provides a graphical user interface to create network map entries.
- The Configuration Tool enables you to extract a Sterling Connect:Direct for Microsoft Windows network map as a text file from the Microsoft Windows Registry. You can then update the network map and insert it into the Registry to apply it.

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### About Defining the Network Map

You create a remote node entry in the network map for each remote node that the local node communicates with. Each network map entry contains information about the remote node, such as the remote node name, the operating system type, the communications mode, and the communications path to use when connecting to the remote node. The communications mode and communications path are separately defined information that can be associated with one or more remote nodes.

The remote node definition, the communications mode, and communications path definition are the three components of each network map entry.

**Note:** The network map is not mandatory if the initialization parameter called `netmap.check` is set to *n* and all remote nodes have TCP/IP paths that you identify by their IP address or host name.

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### Define Remote Node Information

You define a network map entry for each remote node that communicates with the local node. The network map defines the following components:

- Remote node definition—Information about remote Sterling Connect:Direct nodes that the local node communicates with, including retry parameters, maximum session connections, and network information.
- Communications mode—Information relating to session characteristics for a protocol, such as TCP/IP, APPC, or UDT mode information. A communications mode can be associated with one or more communications paths or remote node definitions.
- Communications path—Transport and protocol information about the available communications paths and their attributes. The protocol information includes protocol type, such as TCP/IP, and specific protocol type information, such as the name of the TCP mode for TCP/IP protocols. The protocol information also includes the LU 6.2. protocol type and specific protocol information, such as Net ID, PU Name, and LU name for LU 6.2 protocols. Each communications path definition specifies a default communications mode.

Each remote node definition can be related optionally to one communications mode and can be related to multiple communications paths, allowing multiple communications paths and modes to be available for use when communicating with the named remote node. These communications paths and modes can be shared with other remote nodes and are not specific to one remote node definition. Communications paths are used when establishing sessions with a remote Sterling Connect:Direct node. Sterling Connect:Direct tries each communications path named, in the order in which it is listed, until either a session is established or all paths have been tried. You must designate at least one path.

When defining, modifying, or deleting network map entries, be aware of the dependencies among the three components and the manner in which they refer to each other. For example, before you name a communications mode in your communications path definition, the communications mode must exist.

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## Creating or Modifying a Remote Node Definition

### About this task

The remote node definitions contain information for remote Sterling Connect:Direct nodes that the local Sterling Connect:Direct node communicates with.

To create or modify a remote node definition in the network map:

### Procedure

1. Select Admin > Netmap to open the network map.
2. Do one of the following:
  - To add a node, select Netmap > Insert and type a node name in the **Name** field.
  - To modify an existing node, double-click the node name in the Netmap window.
3. Define information in the following fields for the remote node you are configuring on the Main tab. Refer to the following table for information on each field:

Field Name	Description	Valid Values
Name	The name of the remote Sterling Connect:Direct node. If you are modifying a node, this field cannot be edited.	A 1- to 16-character alphanumeric string
Operating System	The operating system for the remote node.	OpenVMS   OS/390   OS/400   Tandem   UNIX   VM   VSE   Windows
Max Pnode Sess	The maximum concurrent connections for all remote nodes when the local Sterling Connect:Direct node originates the Process. This field is limited to the lesser of the values defined in the initialization parameters file and the network map definition for a given node.	A numeric value from 0–255. The default is 1. For a workstation version of Sterling Connect:Direct for Microsoft Windows, this field is limited to 1.

Field Name	Description	Valid Values
Max Snode Sess	The maximum concurrent connections, where the local Sterling Connect:Direct for Microsoft Windows, node is the partner, or secondary, node cooperating with a remote Sterling Connect:Direct node to execute a Process. The maximum number of concurrent sessions is limited to the lesser of the values defined in the initialization parameters file and the network map definition for a given node.	A numeric value from 0–255. The default is 1. For a workstation version of Sterling Connect:Direct for Microsoft Windows, maximum SNODE sessions are limited to 2.
Default Class	The default session class used to start session managers. A Process executes on the specified class or any higher session class. This value overrides the equivalent value for this node in the initialization parameters.	A numeric value from 1 to the value of maximum concurrent local node connections (sess.pnode.max). The default value is 1. The value cannot be greater than the maximum number of local sessions with primary control.
Short Term Retry Attempts	The number of retry attempts if a short-term connection failure occurs. Long-term retry parameters are used after the number of short-term attempts you specify has been reached.	A numeric value from 1–255. The default is 10.
Short Term Retry Interval	The amount of time to wait between each short-term retry attempt.	A 24-hour time value formatted as hh:mm:ss. The maximum value is 23:59:59. The default is 00:00:10 or 10 seconds.
Long Term Retry Attempts	The number of retry attempts after all of the short-term retry attempts are used.	A numeric value from 0–255. The default is 0.
Long Term Retry Interval	The amount of time to wait between each long-term retry attempt.	A 24-hour time value formatted as hh:mm:ss. The maximum value is 23:59:59. The default is 00:03:00, or 3 minutes.

- To configure TCP/IP settings, click the TCP/IP tab and set the TCP/IP attributes. Refer to the following table for definitions of the fields:

Field Name	Description	Valid Values
Host/IP Address	The host name or IP address of the remote node. Alias names are not supported.	A numeric value in the format nnn.nnn.nnn.nnn (IPv4) or nnnn:nnnn:nnnn:nnnn:nnnn:nnnn (IPv6) or the host name.
Port/Service	The communications port number for Sterling Connect:Direct if it differs from the default value specified in the initialization parameters.	A numeric value in the format nnnnn, where nnnnn is a positive integer from 0–65535.
Mode Override	Select the name of the network map TCP/IP communications mode definition record used when communicating with this remote node. If this parameter is not specified, its value defaults to the last TCP/IP mode in the list.	Name of a defined TCP/IP communications mode.

Field Name	Description	Valid Values
Alt Comm Outbound	<p>The alternate communication address (communication path) used for outbound Processes. This parameter provides the alternate addresses for a remote node that has multiple NIC cards. When the local node is the PNODE, the alternate addresses are tried (starting with the first IP address listed) if an initial attempt to the primary address fails. After a connection has been established, if the connection is subsequently lost, attempts to reestablish the connection through the retry mechanism use the same address as the initial connection.</p> <p>When the local node is the SNODE, the alternate addresses are used in the Netmap check.</p> <p><b>Note:</b> This parameter should not be used in a outbound Process if the SNODE is Sterling Connect:Direct/Plex.</p>	<p>Fully qualified host name or IP address and port number.</p> <p>A comma separates the list of alternate communication paths as shown in the following example:</p> <p>salmon;9400, 10.20.40.65;9500</p> <p>The list is processed from the top down.</p>
Alternate Comminfo	<p>Provides support for establishing netmap-checked sessions with high-availability (especially load balancing) systems with multiple IP addresses, such as Sterling Connect:Direct/Plex for z/OS. Use this parameter to list all IP addresses or host names that are part of the multiple IP address environment.</p> <p>For Sterling Connect:Direct/Plex, this list should include the address of each Sterling Connect:Direct/Server with a different IP address from the Sterling Connect:Direct/Plex Manager.</p> <p>If a remote node has more than one outgoing IP address (as in a load balancing environment), specify all of the remote node's possible outgoing addresses in the Alternate Comminfo field so that those outgoing IP addresses are contained in the local node's netmap entry for that remote node. This configuration allows netmap checking to succeed when the remote node connects to the local node using any of the possible outgoing IP addresses specified.</p>	<p>hostname1/IP address, hostname2/IP address, hostname3/IP address</p> <p>host name—Host name associated with the IP address. For example:</p> <p>hops (where hops is a machine on the local domain)</p> <p>hops.domain.com (fully-qualified host name)</p> <p>nnn.nnn.nnn.nnn or nnnn:nnnn:nnnn:nnnn:nnnn:nnnn—IP address of a machine running Sterling Connect:Direct</p>

- To configure UDT settings, click the UDT tab and set the UDT attributes. Refer to the following table for definitions of the fields:

Field Name	Description	Valid Values
Host/IP Address	The host name or IP address of the remote node. Alias names are not supported.	A numeric value in the format nnn.nnn.nnn.nnn (IPv4) or nnnn:nnnn:nnnn:nnnn:nnnn:nnnn:nnnn:nnnn (IPv6) or the host name.



Field Name	Description	Valid Values
Port/Service	The communications port number for Sterling Connect:Direct if it differs from the default value specified in the initialization parameters.	A numeric value in the format nnnnn, where nnnnn is a positive integer from 0-65535.
Mode Override	Select the name of the network map UDT communications mode definition record used when communicating with this remote node. If this parameter is not specified, its value defaults to the last UDT mode in the list.	Name of a defined UDT communications mode.
Alt Comm Outbound	<p>The alternate communication address (communication path) used for outbound Processes. This parameter provides the alternate addresses for a remote node that has multiple NIC cards. When the local node is the PNODE, the alternate addresses are tried (starting with the first IP address listed) if an initial attempt to the primary address fails. After a connection has been established, if the connection is subsequently lost, attempts to reestablish the connection through the retry mechanism use the same address as the initial connection.</p> <p>When the local node is the SNODE, the alternate addresses are used in the Netmap check.</p> <p><b>Note:</b> This parameter should not be used in a outbound Process if the SNODE is Sterling Connect:Direct/Plex.</p>	<p>Fully qualified host name or IP address and port number.</p> <p>A comma separates the list of alternate communication paths as shown in the following example:</p> <p>salmon;9400, 10.20.40.65;9500</p> <p>The list is processed from the top down.</p>

Field Name	Description	Valid Values
Alternate Comminfo	<p>Provides support for establishing netmap-checked sessions with high-availability (especially load balancing) systems with multiple IP addresses, such as Sterling Connect:Direct/Plex z/OS. Use this parameter to list all IP addresses or host names that are part of the multiple IP address environment.</p> <p>For Sterling Connect:Direct/Plex, this list should include the address of each Sterling Connect:Direct/Server with a different IP address from the Sterling Connect:Direct/Plex Manager.</p> <p>If a remote node has more than one outgoing IP address (as in a load balancing environment), specify all of the remote node's possible outgoing addresses in the Alternate Comminfo field so that those outgoing IP addresses are contained in the local node's netmap entry for that remote node. This configuration allows netmap checking to succeed when the remote node connects to the local node using any of the possible outgoing IP addresses specified.</p>	<p>hostname1/IP address, hostname2/IP address, hostname3/IP address</p> <p>host name—Host name associated with the IP address. For example:</p> <p>hops (where hops is a machine on the local domain)</p> <p>hops.csg.domain.com (fully-qualified host name)</p> <p>nnn.nnn.nnn.nnn or nnnn:nnnn:nnnn:nnnn:nnnn:nnnn:nnnn:nnnn—IP address of a machine running Sterling Connect:Direct</p>

- To configure the APPC settings, click the APPC tab and set the APPC attributes. Refer to the following table for a description of the fields:

Field Name	Description	Valid Values
Network Name	The name of the SNA network in which the remote Sterling Connect:Direct node resides.	SNA network name
Partner LU	The name of the partner node to be used as the remote connection end point for the LU-to-LU session. This is the VTAM APPLID for host connections or partner LU name for LU 6.2 only.	A 1-8 character alphanumeric string
Mode Override	The name of the network map APPC communications mode definition record that is used when communicating with this remote node. If this parameter is not specified, its value defaults to the last APPC mode in the list.	Name of a defined APPC communications mode

- To identify the communications path, click the Communication Paths tab.
- Perform the following actions as required:
  - To add a path defined in the network map, select a path name from the **Available Paths** box and click the right arrow button.
  - To view the properties of a path, select the path from the **Available Paths** box and click **Properties**.
  - To add a new path to the network map, click **New**.
  - To delete a path, select the path in the **Available Paths** box and click **Delete**.
  - To select all available paths, click **Add All**.

- To remove a selected path, select the path in the **Selected Paths** box and click the left arrow button.
  - To remove all selected paths, click **Remove All**.
9. To add a description of the node, click the Description tab. Sterling Connect:Direct does not use this information. Refer to the following table for a description of each field:

Field Name	Description	Valid Values
Name	The name of the Sterling Connect:Direct administrator or operator for the remote node.	A 1- to 49-character alphanumeric string
Phone Number	The phone number of the administrator or operator for the remote node. Do not use blanks in this string.	A 1- to 39-character alphanumeric string
Node Description	Any additional information you want to include specific to the remote node.	A 1- to 127-character alphanumeric string

10. Click OK.

## Adding or Modifying Communications Mode Settings

### About this task

You can add or modify the settings for a communications mode object. These values override the values in the initialization parameters file.

### Procedure

1. Select Admin > Netmap to open the network map.
2. Do one of the following:
  - To modify an existing mode definition, double-click the mode.
  - To add a new mode definition, right-click in the mode box and click **Insert**.
3. Modify the mode settings as required. If you are defining a new object, select either TCP/IP or APPC as the protocol to associate with the communications path. Refer to the following table for the definitions, descriptions, and valid values for each field.

Field Name	Description	Valid Values
Name	The name of the remote node and communications path object types. If you are modifying settings for a remote node, the Name field is not blank. You cannot change the name.	A 1- to 48-character alphanumeric string
Protocol	The type of communications protocol.	TCP/IP   APPC  TCP/IP is the default value.

4. To add or update TCP/IP settings, click the TCP/IP tab. Refer to the following table for a description of each field:

Field Name	Description	Valid Values
Buffersize	The buffer size for transmitting data to and from the remote Sterling Connect:Direct node. This value overrides the value in the initialization parameters file.	A numeric value from 256–65536. The default is 65535.
Pacing Send Count	The number of send operations to perform before automatically waiting for a pacing response from the remote Sterling Connect:Direct node. A value of 0 indicates that there is no pacing. This value overrides the value in the initialization parameters file.	A numeric value from 0–63. The default is 0.
Pacing Send Delay	The amount of time Sterling Connect:Direct waits before sending each outbound data buffer to the remote node. This can prevent flooding the network. A value of 0 indicates that Sterling Connect:Direct sends each data buffer as soon as possible. This value overrides the value in the initialization parameters file.	An integer from 0–86400. The default is 0.
CRC	Specifies whether CRC checking is turned on.  The default value for the local node is OFF. The default value for the remote node is blank.  The remote node defaults to blank to simplify the use of the <code>crc.override</code> parameter. When <code>crc.override</code> is enabled in the initialization parameter, only the nodes that require a different configuration need to be changed.	OFF   ON   blank

5. To add or update APPC settings, click the APPC tab and type the following values:
  - a. A valid RU size between 256 and 4096 in the **Max RU Size** field. The default is 4096.
  - b. The largest permissible pacing window size for sessions in this mode grouping in the **Max Pacing** field. Sterling Connect:Direct sends this number of data buffers before waiting for an acknowledgment from the remote node. A value of 0 indicates no pacing. The default is 7 and the maximum is 63.

- c. The maximum sessions allowed in this mode group. The default is 8. Specify if you are using dependent LUs as the communications path.
6. Click **OK**.

---

## Creating or Modifying a Communications Path Definition

### About this task

The communications path defines the physical communications path between the local Sterling Connect:Direct node and one or more remote Sterling Connect:Direct nodes.

If you install SNA software and select APPC support during installation, two communications path objects are created in the Microsoft Windows Registry: one for TCP/IP and one for APPC. If you do not have APPC support, only a TCP/IP default communications path object is created.

### Procedure

1. Do one of the following:
  - To modify a communications path definition, double-click the definition in the **CommPath** window.
  - To add a new communications path, right-click the **CommPath** box and click **Insert**.
2. To define a communications path, type the name of the communications path in the **Name** field, and select the protocol to associate with it: TCP/IP, APPC, or UDT.
3. Define a new mode or assign an existing mode to the communications path.
4. To associate an existing mode with the communications path, select the mode from the **Selected Mode** drop-down list.
5. To define a new mode to associate with the communications path:
  - Click **New**.
  - Type the name of the new mode in the **Name** field.
  - Select the protocol to associate with the mode: TCP/IP, APPC, or UDT, and click **OK**.
6. To add or update TCP/IP settings, click the TCP/IP tab. Refer to the following table for the name, definition, and valid values for each field.

Field Name	Description	Valid Values
Buffersize	The buffer size for transmitting data to and from the remote Sterling Connect:Direct node. This value overrides the value in the initialization parameters file.	A numeric value from 256–65536. The default is 65535.
Pacing Send Count	The number of send operations to perform before automatically waiting for a pacing response from the remote Sterling Connect:Direct node. A value of 0 indicates that there is no pacing. This value overrides the value in the initialization parameters file.	A numeric value from 0–63. The default is 0.

Field Name	Description	Valid Values
Pacing Send Delay	The amount of time Sterling Connect:Direct waits before sending each outbound data buffer to the remote node. This can prevent flooding the network. A value of 0 indicates that Sterling Connect:Direct sends each data buffer as soon as possible. This value overrides the value in the initialization parameters file.	An integer from 0–86400. The default is 0.
CRC	Specifies whether CRC checking is turned on.  The default value for the local node is OFF. The default value for the remote node is blank.  The remote node defaults to blank to simplify the use of the crc.override parameter. When crc.override is enabled in the initialization parameter, only the nodes that require a different configuration need to be changed.	OFF   ON   blank

7. To add or update APPC settings, click the APPC tab. The following table shows the name, definition, and valid values for each field on the APPC tab.

Field Name	Description	Valid Values
Adapter Number	Indicates whether the token ring adapter number to be used for this connection is Primary or Alternate.	Primary   Alternate
Adapter Address	The token ring address of the remote node. This address consists of hexadecimal digits. Enter all zeroes if the local node is the same as the remote node.	Valid remote node token ring address
Local SNA Network	The SNA network name of the local Sterling Connect:Direct node. This name must match the name of the SNA network in which the local Sterling Connect:Direct node resides.	Valid SNA network name
LU Name	The name of a Local APPC LU configured within Microsoft SNA Server. This parameter is required.	Valid LU alias name

8. To add or update UDT settings, click the UDT tab. The following table shows the name, definition, and valid values for each field on the UDT tab.

Field Name	Description	Valid Values
Buffersize	The buffer size for transmitting data to and from the remote Sterling Connect:Direct node. This value overrides the value in the initialization parameters file.	A numeric value in the range 256-65536.

Field Name	Description	Valid Values
UDT33 CRC	<p>Specifies whether CRC checking is turned on.</p> <p>The default value for the local node is OFF. The default value for the remote node is blank.</p> <p>The remote node defaults to blank to simplify the use of the <code>crc.override</code> parameter. When <code>crc.override</code> is enabled in the initialization parameter, only the nodes that require a different configuration need to be changed.</p>	OFF   ON   blank

9. Click OK.

---

## Defining a New Mode for a Communications Path

### About this task

To define a new mode for a communications path:

### Procedure

1. Select Admin > Netmap to open the network map.
2. Right-click the CommPath box and click **Insert**.
3. Type the name of the communications path in the **Name** field.
4. Click **New**.
5. Type the name of the new mode in the **Name** field.
6. Select TCP/IP, APPC, or UDT to identify the protocol to associate with the mode.
7. To add TCP/IP settings, click the TCP/IP tab. Refer to the following table for the name, definition, and valid values for each field.

Field Name	Description	Valid Values
Buffersize	The buffer size for transmitting data to and from the remote Sterling Connect:Direct node. This value overrides the value in the initialization parameters file.	<p>A numeric value from 256–65536.</p> <p>The default is 65535.</p>
Pacing Send Count	The number of send operations to perform before automatically waiting for a pacing response from the remote Sterling Connect:Direct node. A value of 0 indicates that there is no pacing. This value overrides the value in the initialization parameters file.	<p>A numeric value from 0–63.</p> <p>The default is 0.</p>

Field Name	Description	Valid Values
Pacing Send Delay	The amount of time Sterling Connect:Direct waits before sending each outbound data buffer to the remote node. This can prevent flooding the network. A value of 0 indicates that Sterling Connect:Direct sends each data buffer as soon as possible. This value overrides the value in the initialization parameters file.	An integer from 0–86400.  The default is 0.
CRC	Specifies whether CRC checking is turned on.  The default value for the local node is OFF. The default value for the remote node is blank.  The remote node defaults to blank to simplify the use of the <code>crc.override</code> parameter. When <code>crc.override</code> is enabled in the initialization parameter, only the nodes that require a different configuration need to be changed.	OFF   ON   blank

8. To add UDT settings, click the UDT tab. Refer to the following table for the name, definition, and valid values for each field.

Field Name	Description	Valid Values
Buffersize	The buffer size for transmitting data to and from the remote Sterling Connect:Direct node. This value overrides the value in the initialization parameters file.	A numeric value from 256–65536.  The default is 65535.
UDT33 CRC	Specifies whether UDT33 CRC checking is turned on.  The default value for the local node is OFF. The default value for the remote node is blank.  The remote node defaults to blank to simplify the use of the <code>crc.override</code> parameter. When <code>crc.override</code> is enabled in the initialization parameter, only the nodes that require a different configuration need to be changed.	OFF   ON   blank

9. Click **OK** twice to close Mode Properties and Path Properties.

---

## Deleting a Network Map Entry

### About this task

To delete a network map entry:

### Procedure

1. Select **Admin > Netmap**.
2. Right-click the network map entry you want to delete and click **Delete**.



3. Click **Yes** to delete the entry. You are returned to the Netmap for Nodename dialog box, and the entry is listed with a red bar to the left of it.
4. Right-click the dialog box and click **Apply**.

---

## Validating a Network Map Entry

### About this task

After you create a network map entry, you can validate the entry to ensure it was created correctly. For example, if you typed an invalid entry in a field, or accidentally deleted a communications path, the validation function generates an error message and explains why you received it.

To validate a network map entry:

### Procedure

1. Select Admin > Netmap.
2. Select the network map entry to validate.
3. Right-click the Netmap for Nodename window and click **Validate**.
4. After you validate the network map entry, close the Netmap for Nodename window.

---

## Viewing a Network Map as Text

### About this task

To view a network map entry as text:

### Procedure

1. Select Admin > Netmap.
2. Select the network map entry you want to view as text.
3. Right-click the Netmap for Nodename window to open the shortcut menu and click **Text View**.
4. Right-click the window again and select List View to view the network map entry in its original presentation.

---

## Applying a Network Map

### About this task

To apply a network map file to the node:

### Procedure

1. Select Admin > Netmap > Validate. If no errors are found, the output window contains the message Netmap validation Successful.
2. Select Netmap > Apply.
3. Select the node name and click **OK**.

---

## Printing and Viewing Node and Network Map Definitions

### About this task

After you set up a node and define a network map, use the Configuration Tool to extract the network map and user authorization information from the Registry as plain text files. You can then update the parameters in the extracted files for distribution to the nodes in an environment.

After you customize the files with site-specific parameters, you can insert them into the Microsoft Windows Registry where they are applied while the server is running, or you can apply them during a new Sterling Connect:Direct installation.

### Procedure

1. Click **Start** and point to **All Programs > IBM Sterling Connect:Direct > v4.6.0 > CD Configuration Tool**.
2. Select **File > Extract**.
3. Click **OK**. The network map and User Authorization information for the node are extracted as cascading windows named Map and User.
4. To save the extracted user authorization information:
  - a. Click the **User** dialog box.
  - b. Select **File > Save As**.
  - c. Select the directory where you want to save the file.
  - d. If necessary, type a different file name in the **File** name field and click **Save**.
5. To save the extracted network map information:
  - a. Click the **Map** dialog box.
  - b. Select **File > Save As**.
  - c. Select the directory where you want to save the file.
  - d. If necessary, type a different file name in the **File** name field and click **Save**.

---

## View the Sample Configuration Files

To update configuration information, you can use the sample configuration files as a template. These text files contain the valid keywords for a network map and user authorizations. You can customize these files to configure nodes in an enterprise.

**Note:** To automate the installation of Sterling Connect:Direct for Microsoft Windows, you can perform a silent installation that requires no user interaction and that applies the User.cfg and Map.cfg files during the installation. See *IBM Sterling Connect:Direct for Microsoft Windows Getting Started Guide* for information on silent installations.

Two sample configuration files are included with the Configuration Tool:

- Map.cfg file—Network map objects are created in the Registry during installation. These objects contain the remote node, communications path, and communications mode definitions. You can update the network map on your nodes by customizing the sample Map.cfg file and inserting it into the Microsoft Windows Registry.
- User.cfg file—Use the parameters in User.cfg to build user functional authorities and user proxies. Sterling Connect:Direct applies the information in this file to authorize local and remote users to issue commands and Process statements and

to perform tasks. Use the Configuration Tool to create authorizations for each user, including encrypted passwords for user proxies. After you have created the user authorizations, you can insert the User.cfg file into the Microsoft Windows Registry.

---

## Customizing Configuration Files

### About this task

You use the Configuration Utility to customize configuration files for your environment and prepare them for rollout. You can edit configuration information using this tool. You can also use it to add encrypted passwords to user proxies and validate the configuration files for use with Sterling Connect:Direct.

### Procedure

1. Select File > Open.
2. Select the drive and directory where the configuration file is located.
3. Select the file and click **Open**.

**Note:** To save the original file as a template for building future configuration files, save the file with a different name before you alter any of the configuration information.

4. Edit the parameters as necessary.
5. Select File > Save.

---

## Adding an Encrypted Password for a User Proxy

### About this task

You can set up and enable user proxies on the local Sterling Connect:Direct server that allow remote users to log on to the local server without revealing their password. User proxies improve security on the remote node by protecting remote users' passwords.

The Configuration Utility can be used to insert encrypted passwords into the proxy section of the USER.CFG file. When you enter a password, the Configuration Utility encrypts it for you.

To add a local user ID and encrypted password:

### Procedure

1. Open the User.cfg file.
2. Place the cursor on the line following the Proxy section header.
3. Select Tools > Password.
4. Type the user ID and password in the **Userid** and **Password** fields.
5. Retype the password in the **Verify Password** field.
6. Click **OK**. The encrypted password is inserted as the LocalPassword parameter value and the User ID is inserted as the LocalUserid parameter.

---

## Validating Configuration Files for Use with Sterling Connect:Direct

### About this task

After you have customized a file, validate the configuration to ensure that the file can be used with Sterling Connect:Direct. When you validate a file, error messages describe any errors and each error is highlighted so you can easily determine which information must be revised.

To validate a configuration file:

### Procedure

1. Open the configuration file to validate.
2. Select Tools > Validate. The file is validated.
  - If no errors are detected, a message indicating this is displayed. Click **OK** to return to the file.
  - If errors are detected, an error message is displayed with the error identifier and an explanation of the problem. The error is highlighted in the configuration file. Click **OK** to close the error message.
3. Edit the configuration information to clear each error.
4. Repeat this procedure until no errors are returned.

**Note:** When you save a configuration file, the Configuration Utility automatically validates it. You cannot save a file if it contains invalid information.

---

## Applying Updated Configuration Information

### About this task

You can update the network map and user authorizations, including proxies and group authorizations, by adding the updated configuration files to the Microsoft Windows Registry. After they are added, the settings are applied when the server is running.

**Restriction:** You cannot use cdconfig to change existing objects in the network map and user authorizations. It can only be used to create new objects (netmap entry or user auth name).

To create and apply user and netmap files in silent mode, type the following commands:

### Procedure

1. To extract a netmap to the my\_map.cfg file:  
`CDConfig.exe /nNODE_NAME /mc: \dir\my_map.cfg/q`
2. To extract a user configuration to my\_user.cfg:  
`CDConfig.exe /nNODE_NAME /uc:\dir\my_user.cfg /q`
3. To insert a netmap to the my\_map.cfg file:  
`CDConfig.exe /nNODE_NAME /i /fc:\dir\my_map.cfg /q`
4. To insert a user configuration to my\_user.cfg:  
`CDConfig.exe /nNODE_NAME /i /fc:\dir\my_user.cfg /q`

5. Review the log file CdConfig.log to verify success. The CD Configuration utility uses the following switches:
- /q - Silently runs the configuration utility while the file is extracted or inserted.
  - /n—Node to use for extracting or inserting the network map or user authorizations (/nnode name).
  - /i—Inserts the configuration file into the Registry.
  - /f—File to insert into the Registry (/ffilename).
  - /u - Output user configuration from the node specified (/uffilename).
  - /m—Output netmap from the node specified (m/ffilename).



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## Chapter 3. Stop Sterling Connect:Direct for Microsoft Windows

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### Stopping Sterling Connect:Direct for Microsoft Windows

You can stop the Sterling Connect:Direct for Microsoft Windows server in the following ways:

- Issue the Stop command from Sterling Connect:Direct Requester or the command line interface (CLI).
- Use the Services facility on the Microsoft Windows Control Panel.
- Use the Admin Tool utility.

---

### Stopping Sterling Connect:Direct for Microsoft Windows from Sterling Connect:Direct Requester

#### About this task

To stop Sterling Connect:Direct for Microsoft Windows from Sterling Connect:Direct Requester:

#### Procedure

1. Select Admin > Netmap to open the node you want to stop.
2. Select Admin > Stop Node.
3. Select one of the stop server options:
  - Terminate processes at end of step—Stops Sterling Connect:Direct when all executing Process steps are complete. Writes statistics records, closes files, and shuts down Sterling Connect:Direct.
  - Quiesce after active processes complete—Stops the server when all executing Processes are complete. No new Processes are started.
  - Immediate orderly shutdown—Stops all activity, terminates Processes and connections, writes statistic records, closes files, and shuts down Sterling Connect:Direct.
  - Force termination now—Forcibly terminates Sterling Connect:Direct. No attempt is made to terminate executing Processes or to write statistic records. All server resources are released. This is the least desirable way to stop the server.
4. Click **OK** to stop the node. If the server is stopped, the icon in the Control Panel nodes view is unavailable.

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### Stopping Sterling Connect:Direct for Microsoft Windows Using the Services Facility

#### About this task

To stop Sterling Connect:Direct for Microsoft Windows from the Microsoft Windows Services facility:

### **Procedure**

1. Click **Start > Settings > Control Panel >Administrative Tools > Services**.
2. Select the Sterling Connect:Direct node you want to stop.
3. Click **Stop**. The display changes to indicate that Sterling Connect:Direct has stopped.

**Note:** Sterling Connect:Direct for Microsoft Windows does not implement the Pause and Continue functions on the Services applet.

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## **Stopping Sterling Connect:Direct for Microsoft Windows Using the CLI**

### **Procedure**

To stop Sterling Connect:Direct for Microsoft Windows from the CLI, issue the stop command.

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## **Stopping Sterling Connect:Direct for Microsoft Windows from the Admin Tool Utility**

### **About this task**

To stop Sterling Connect:Direct for Microsoft Windows from the Admin Tool Utility:

### **Procedure**

1. Select the Sterling Connect:Direct for Microsoft Windows server to stop.
2. Click the red traffic light icon on the toolbar.



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## Chapter 4. Create a Process

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### About Processes

A Process is a set of statements grouped together to perform a series of Sterling Connect:Direct tasks. You define the tasks to perform and save the Process to a file. Finally, you use the Submit Process command to execute all the tasks defined in the Process.

Processes allow you to automate routine tasks, execute multiple tasks with one command, save the Process to a file for future use, and build blocks of work based on conditions. Before you build a Process, decide what tasks you want to perform and what nodes you want to use.

Building a Process requires the following tasks:

- Creating a Process statement
- Building the group of tasks that perform the work by adding commands
- Setting command options
- Validating Process content
- Saving the Process file

Before creating a Process, you can establish preferences related to Processes and other Sterling Connect:Direct Requester operations.

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### Establishing Preferences

#### About this task

Throughout your session with Sterling Connect:Direct Requester, certain predefined preferences are in effect. Sterling Connect:Direct establishes default user preferences during installation. You can modify preferences at any time to more accurately reflect how you work. Preferences save you time, since preferences are used for all instances, except when you override the values.

To establish preferences:

#### Procedure

1. From the Sterling Connect:Direct Requester Main Window, select Tools > Options.
2. To set general preferences, change the values in the fields on the General tab of the Options panel.

Field	Description
Reload last saved workspace at startup	When selected, Sterling Connect:Direct Requester displays the last saved workspace when you log in.
Track Processes in the execution status window	To obtain summary information about a Process and display the information in the Execution Status Window. This option establishes the default for the Submit Process page.

Field	Description
Enable in-place editing	To directly change the label field on the Program Definition Editor (PDE) and eliminate the need to edit the labels through the Process Properties page.
Activity log	<p>Use the options in this window to display the activity log in the Output window, save the activity log to a file, append data to the log file, or create a new log file every time you start Sterling Connect:Direct.</p> <p>Check Enable the activity log in the Output window to display the activity log there.</p> <p>Check Write the activity output to a file and type the name of the file to write the activity log to a file. Select the appropriate button to create a new file every time you start Sterling Connect:Direct Requester or to append activity to the existing log file at startup.</p>

3. To set Process preferences, click the Process Defaults tab and change the values.

Field	Description	Valid Values
Hold	To hold Processes in the Hold queue in HI (Held Initially) status until explicitly released. A Process submitted with Hold set to Yes is placed in the Hold queue even if you specify a Start Time.	<p>No—Execute a Process as soon as resources are available.</p> <p>Yes—Hold a Process.</p> <p>Call—Hold a Process until the remote node connects to the local node. At that time, the Process is released for execution.</p>
Retain	Processes are retained in the Hold queue in HR (Held for Retain) status after execution. You can release the Process for execution later through the Process Monitor function or explicitly delete it.	<p>No—Do not retain Processes after execution.</p> <p>Yes—Retain Processes after execution.</p> <p>Initial—Retain Processes in the Hold queue in HR status for automatic execution every time the Process Manager initializes. Do not provide a start time parameter when you choose this option.</p>
Plexclass	The class that directs the Process to only certain servers in a Sterling Connect:Direct/Plex. This parameter is only used in a Sterling Connect:Direct/Plex.	Name of the class.
CRC	<p>Specifies whether CRC checking is turned on.</p> <p>The default value for the local node is OFF. The default value for the remote node is blank.</p> <p>The remote node defaults to blank to simplify the use of the crc.override parameter. When crc.override is enabled in the initialization parameter, only the nodes that require a different configuration need to be changed.</p>	<p>OFF   ON   blank</p> <p>OFF—Do not perform CRC checking.</p> <p>ON—Perform CRC checking.</p> <p>blank—Use the value defined in crc.override.</p>
Priority	The preferred priority of a Process in the TCQ. Sterling Connect:Direct uses the priority parameter for Process selection. A Process with a higher priority is selected for execution before a Process with a lower priority.	The valid range is 1–15, where 15 is the highest priority.

Field	Description	Valid Values
Class	The preferred session class on which a Process can execute. A Process can execute in the class specified or any higher session class.	Values range from 1 to the maximum number of local node sessions in the network map definition.
Notify Userid	The computer name of the user to receive Process completion messages.	A valid computer name.
Accounting Data	An arbitrary string used as the preferred accounting information for the PNODE or the SNODE or both nodes.	The maximum length of the string is 256 characters.

4. To set Work List preferences, click the Work List tab and change the values.

Field	Description	Valid Values
Track worklist is the worklist status window	Determine if Work List statuses are reported in the status window.	On or Off
Max Delay for Serial Execution	Identifies the maximum amount of time to wait. This parameter is useful when the Process is submitted by a batch file and you want to suspend further execution of the batch file until the submitted Process completes.	Unlimited—The command processor waits until the Process completes execution.  Time and hh:mm:ss—Select this option and type the time to wait for a Process to complete.

5. To set directory preferences, click the Directories tab and change the values.

Field	Description
Processes	To define the default directory for Process files
Work Lists	To define the default directory for Work Lists.
Process Monitors	To define the default directory for Process Monitor files.
Statistics Monitors	To define the default directory for Statistics Monitors.
Start "Save as" in these directories	Select this check box to make these directories the default when saving.

6. To set file type preferences, click the File Types tab and select the file extensions to associate with Sterling Connect:Direct.

File Extension	Description
.cdp	Process Definitions
.cdw	Work Lists
.cds	Statistics Monitors
.cdm	Process Monitors
.cdn	Network Map

7. To set statistics preferences, click Select Stat Defaults and change the values.

Field	Description	Valid Values
Monitor	Determine if all statistics are monitored or only selected statistics, based on criteria or for Step and Process completion only. If you choose All, indicate the time range for the selection.	All Statistics For Last _ hrs:min  Filter Using Selection Criteria Pages  Step and Process Completion Statistics Only

Field	Description	Valid Values
Refresh Display	Identify whether you want the Statistics Monitor display to be refreshed. Specify the interval in minutes between refreshes if you choose the Refresh every _ minutes.	Refresh every _ minutes Refresh on open Autoscroll—Display the latest statistics

- To set Process Monitor preferences, click **Select Proc Defaults** and change the values.

Field	Description	Valid Values
Monitor	Determine if all Processes will be monitored or only selected Processes, based on selection criteria.	All Processes Filter Using Selection Criteria Page
Refresh Display	Identify whether you want the Process Monitor display to be refreshed. Specify the interval in seconds between refreshes if you choose Refresh every _ seconds.	Refresh every _ seconds Refresh on open

- Click **OK**.

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## Creating a Process

### About this task

A Process begins with a Process statement that defines general information about the Process. When you create a Process, the PEND statement is added to the end of the Process and is a required statement that marks the end of a Process. Do not edit or delete the PEND statement.

### Procedure

- Select File > New > Process.
- Type a Process name, from 1 to 8 alphanumeric characters, in the **Process Name** field.
- If all work will be performed on the PNODE, type or select the name of the PNODE in the PNODE Name field.
- To issue a warning message if an attempt is made to submit the Process on a different PNODE, click Warn if submitted to a different node.
- To issue a warning message if an attempt is made to submit the Process on a PNODE with a different operating system, click Warn if submitted to a different operating system.
- Specify the SNODE in one of the following ways:
  - Select the node from the drop-down menu.
  - Type the name of a Sterling Connect:Direct node.
  - Specify an IP address and port, using the following format:  
hostname|IPaddress;portnumber|servicename
- Click **OK**.
- Add commands as necessary to the Process.
- If desired, change the options for the Process.

## Commands and Statements

You can add commands and conditional statements to a Process statement to perform various functions. When you add a command to a Process, you use the preferences you defined or you set unique values for each command.

The following table lists the commands you can insert in a Process.

Command	Description
Copy	The Copy statement transfers data between two nodes. The Copy statement identifies the source files, applies any pre-transfer attributes such as compression or checkpointing, transfers the file to the destination, and saves the file to the new file name.
Run Task	You can run programs and commands by adding the Run Task command to a Process. The Run Task command executes programs on the PNODE or the SNODE.
Run Job	The Run Job command executes batch jobs or commands on the specified node. Jobs submitted using the Run Job command run in the background. The return code associated with the run job statement indicates the success of the Run Job command and not the success of the batch job or command.  Use the Run Job command to perform the following types of tasks: <ul style="list-style-type: none"><li>• Submit jobs in an z/OS environment to the internal reader, a facility that transfers jobs to the job entry subsystem (JES).</li><li>• Submit a job at the OpenVMS node in an OpenVMS environment.</li><li>• Submit an OS/400 CL command to run as a separate job through the SBMJOB command.</li><li>• Invoke a UNIX command shell and execute UNIX commands.</li><li>• Submit jobs through the VSE virtual reader, a facility that transfers jobs to VSE/POWER.</li><li>• Start programs in the Microsoft Windows environment.</li></ul>
Submit Process	Submits a Process from within an executing Process on the PNODE or the SNODE. To use the Submit statement, the Process must reside on the node you are submitting the Process to. Use the Submit statement to execute a Process on the SNODE which would, in turn, submit a Process to a third node.

You can use the following conditional statements to perform tasks based on conditions you establish.

Statement	Description
If	The If statement executes a block of statements based on the results of a previous statement. The results are categorized by a return code. The If statement checks the value of the return code and executes the block if the statement is true.  You must use the Eif statement (endif) with the If statement. If the conditions of the If statement are not satisfied, use an Else statement to designate the execution of alternate instructions.
Else	The Else statement defines a block of statements that execute when the If statement is not true. The Else statement is only valid when used in combination with the If statement.
Endif (Eif)	The Endif statement (Eif) marks the end of the If statement and any statements based on the If condition. The Endif statement is only valid when used in combination with the If statement.
Goto	The Goto statement executes a jump to a specific statement that occurs later in a Process. This statement cannot be used to loop to a statement earlier in the Process. Use the Goto statement with the step label to define the location of the statement in the Process.
Exit	The Exit statement bypasses all remaining steps in a Process and ends the Process.

## Add a Copy Statement to a Process

### About this task

Use the Copy statement to create a new file or append data to an existing file. To use the Copy statement in a Process, identify the PNODE and the SNODE. Identify the source file and, if symbolic variables are used, assign values to the variables or specify built-in variables before the Process is submitted.

Sterling Connect:Direct for Microsoft Windows supports the string (\*) and character (?) wildcards, allowing you to copy multiple files from a source directory to a target directory with a single copy statement.

**Note:** The list of files to be copied is generated at the start of a wildcard copy. When a Process restarts, in a wildcard copy statement, the step restarts with the first file that is not completely copied. If you are using checkpointing, the statement restarts at the last checkpoint of the file that is not completely copied.

### Procedure

1. Open a Process file.
2. Select Process > Insert > Copy.
3. To identify the step within the Process, type a label of up to 8 alphanumeric characters in Copy Statement Label.
4. Select one of the following actions:
  - To copy a file to the SNODE, select Send.
  - To copy a file from the SNODE, select Receive.
5. Type the name of the source file in the Source Filename field.
6. Enter the name of the file in the Destination Filename field.
7. Select one of the following destination disposition options:
  - NEW—To create a new file at the destination
  - RPL—To replace the information in an existing file if it exists or to create a new file if the file does not already exist.
  - MOD—To append the transferred information to an existing file.
8. To enter compression and checkpoint restart options, click the Transfer tab and select from the following options:
  - To use compression, select one of the following compression types in the Compression window:

Compression Option	Description	Valid Values
None	Turn on this option if you do not want compression.	None
Primary Char	Turn on this option to compress repetitive characters. Specify the primary character to compress. If the character is repeated 2–63 times, the characters are compressed to one byte. If other characters are repeated 3–63 times in succession, the characters are compressed to two bytes.	The hex or character to compare

Compression Option	Description	Valid Values
Extended	<p>Turn on this option to compress repetitive strings. Extended compression produces the best compression results. Specify this type of compression when lines are limited and data is repetitive.</p> <p>The Window value identifies the compression for windows. The greater the window size, the greater the degree of compression. A window size of 8 uses 1K of memory while a window size of 15 uses 128K of memory.</p> <p>Memory identifies how much virtual memory is allocated to maintain the internal compression state.</p>	<p>Comp Level—Select the level of compression from 1–9.</p> <p>Window—Select the window size level from 9–15. The Default is 13.</p> <p>Memory—Select a memory compression from 1–9. The Default is 4.</p>

- To use checkpoint restart, select one of the following options:
  - Default—To use checkpoint restart options defined in the default Process.
  - None—To turn off checkpoint restart.
  - Check—To eliminate the need to retransmit an entire file in the event of a transmission failure. If a copy procedure is interrupted, Sterling Connect:Direct restarts that copy at the last checkpoint. If you turn on this option, type the interval at which to mark a checkpoint restart and turn on either Kilobytes or Megabytes to indicate the measurement to use.
- 9. To override the preferences or provide additional parameters to describe the sending and receiving files, select one of the following:
  - To define options for the sending file, click the From <Operating system> tab, and type the sysopts parameters. Refer to the online help for more information.
  - To define options for the receiving file, click the To <Operating system> tab, and type the sysopts parameters. Refer to the online help for more information.

**Note:** These tabs reflect the operating system of the sending and receiving file location.
- 10. Click the Comment tab and add an optional description of the statement.
- 11. Click OK.

## Adding a Submit Statement

### About this task

Use the Submit statement to execute tasks defined in the Process.

To add a Submit statement:

## Procedure

1. Open a Process file.
2. Select Process > Insert > Submit.
3. Select the name of the node where the Process file is located in the **Location** field. You can submit from the default node or select another node.
4. In the **Filename** field, type the full path and Process file name. If you are submitting a Process on a Microsoft Windows node, you can click the browse button to locate the Process file.
5. To override the Process name, type a 1- to 8-character alphanumeric string in the **New Name** field.
6. If you want the Process to execute with a different SNODE, enter or select the SNODE in the **SNODE** field. The SNODE you define here overrides the SNODE defined in the Process file.
7. Select Track Execution in Output Window to view activity during execution.
8. Continue defining the command.

## Adding a Run Task Statement

### About this task

You can run programs and commands by adding the Run Task statement to a Process. The Run Task statement executes programs on the PNODE or the SNODE.

To add a Run Task statement:

### Procedure

1. Open a Process file.
2. Select Process > Insert > Run Task.
3. To identify the step within the Process, type a label of up to 8 alphanumeric characters in Run Task Statement Label.
4. Select the node where the program or command will execute in the **Submit To** field.
5. Type one of the following, based on the node type, in the **Program** field:
  - Type Windows for a Microsoft Windows node.
  - Type UNIX for a UNIX node.
  - For OS/400, type cmd(CL command) [parameter for OS/400 SBMJOB command] .
  - For z/OS, type the name of the program to be attached as a subtask in uppercase letters.
  - For HP NonStop, type the name of the object file.
  - For VSE, type the name of the program to be attached as a subtask in uppercase letters.
6. Use the Optional Parameters or Commands as necessary, for the operating system you selected in Step 5. Refer to the Help for syntax.
7. Click the Comment tab and add a description of the command. This information is optional.
8. Click **OK**.



## Adding a Run Job Command

### About this task

The Run Job command executes batch jobs or commands on the specified node.

Jobs submitted using the Run Job command run in the background. The return code associated with the run job statement indicates the success of the Run Job command and not the success of the batch job or command.

**Restriction: You cannot execute IBM Sterling Connect:Direct HP NonStop commands using Run Job.**

### Procedure

1. Open a Process statement.
2. Select Process > Insert > Run Job.
3. Type the statement label in the **Run Job Statement Label** field.
4. Select the node where the job will execute.
5. Type the Filename based on the operating system used by the node. This field is valid only for the following operating systems:
  - For Microsoft Windows nodes, type Windows.
  - For z/OS nodes, type the data set that contains the job in the format: DATASETNAME | DATASETNAME(MEMBER). The data set and member must be in uppercase. If the data set is a PDS, specify the member. The data set containing the job must exist on the z/OS node where the job will execute. A data set containing JCL is limited to a record length of 80 bytes.
  - For i5 Series nodes, type i5 Series.
  - For VSE nodes, type the name of the member in the LIBDEF source chain that contains the job to be submitted in the format: | membertype(member). If the membertype is not specified, this job must be cataloged with a membertype of J.
  - For UNIX, type dummy.
  - For OpenVMS, type PGM=VMS.
6. Type any Optional Parameters or Commands.
7. Click OK.

## Adding an If Statement

### About this task

The If statement executes a block of statements based on the results of a previous statement. The results are categorized by a return code. The If statement checks the value of the return code and executes the block if the statement is true.

You must use the Eif statement (endif) with the If statement. If the conditions of the If statement are not satisfied, use an Else statement to designate the execution of alternate instructions.

### Procedure

1. Select Process > Insert > If.
2. Enter the statement label in the **If Statement Label** field.

3. Select a step label on which to base the operator and value.
4. Select the type of comparison statement in the **Operator** field.
5. Select one of the following return codes in the **Value** field:

Return Code	Description
0	Indicates successful completion of the stop.
4	Indicates a warning.
8	Indicates an error condition.
16	Indicates a catastrophic error.

6. To add optional comments, click the Comments control tab.
7. Click **OK** to save the statement. The If statement is displayed in the Process window.
8. Create the block of statements that executes based on the If statement. You can add an Else statement to execute a block of statements if the condition in the If statement is not satisfied.
9. Add an Eif statement to the end of the block to designate the end of the block of statements.

## Adding an Else Statement

### About this task

The Else statement defines a block of statements that execute when the If statement is not true. The Else statement is only valid when used in combination with the If statement.

To add an Else statement:

### Procedure

1. Select Process > Insert > Else.
2. Optionally, add a comment to the Process.
3. Click **OK** to save. The Else statement is displayed in the Process window.

## Adding an Endif Statement

### About this task

The Endif statement (Eif) marks the end of the If statement and any statements based on the If condition. The Endif statement is only valid when used in combination with the If statement.

To use the Endif statement:

### Procedure

1. Select Process > Insert > End If.
2. Optionally, type a comment for the Process.
3. Click **OK** to save. The Endif statement is displayed in the Process window.

## Adding or Modifying a Goto Statement

### About this task

The Goto statement executes a jump to a specific statement that occurs later in a Process. This statement cannot be used to loop to a statement earlier in the Process. Use the Goto statement with the step label to define the location of the statement in the Process.

To add or modify a Goto statement:

### Procedure

1. Take one of the following actions:
  - To create a new Goto statement, select Process > Insert > Goto and enter the statement label in the **Target Label** field.
  - To modify an existing statement, double-click the Goto statement in the Process window.
2. To add or modify optional comments, click the Comments tab and type the comment.
3. Click **OK** to save the Process. The Goto statement is displayed in the Process window.

## Add an Exit Statement

### About this task

To add an Exit statement to a Process:

### Procedure

1. Select Process > Insert > Exit.
2. Optionally, click the Comments tab and add a comment to the Process.
3. Click **OK** to save the Process and exit the Exit Statement dialog box. The Exit statement is displayed in the Process window.

---

## Process or Command Options

After you create a statement, you set Process options, including when the Process is submitted, how the Process is handled in the TCQ, if a user is notified when a task is complete, who has access to the Process, and any defining comments associated with it.

You can use one or more of the following options in a Process or command:

- Control functions identify how tasks are managed and how resources are allocated by defining default options once. Then these values are used as the default values for each new command or Process you define.
- Security options identify user IDs and passwords needed to access the SNODE and the PNODE.
- Variable values assign values to all symbolic variables before execution. The values are then substituted during execution whenever the symbolic variable is encountered.
- Accounting data as a free-form, user-defined field sets up accounting and tracking information about Process execution and data transfers. You can track

data transfers by cost centers, department numbers, satellite locations, or any other type of code or identification that would benefit the management of data tracking.

- Comments about the statement explain the context of the statement. When you view a Process in text format, the comments appear before the associated statement.

---

## Setting Security Options

### About this task

Use the Security options to specify the user IDs and passwords needed to access the PNODE and the SNODE.

To set security options in the Requester:

### Procedure

1. Double-click the Process to open it and click the Security tab.
2. To set security for the PNODE, do the following:
  - a. Type the PNODE user ID in the **PNODE Userid** fields.
  - b. Type the PNODE password in the **Password** field.
3. To set security for the SNODE, do the following:
  - a. Type the SNODE user ID in the **Snode Userid** field.
  - b. Type the SNODE password in the **Snode Password** fields.
  - c. To change the password for the user ID on the SNODE, type the new password in the **New Password** field.
  - d. Type the new password a second time in the **Verify New Password** field to validate the change.
4. Click **OK** to close the dialog box or click one of the other tabs to continue modifying Process options.

---

## Setting Control Functions for a Command or Process

### About this task

When you run a command or submit a Process, you can set many control functions to use as the default values for each new command or Process you define.

To set control functions for a Process from the Requester:

### Procedure

1. Double-click the Process to open it and click the Control tab.
2. To specify a run date, select one of the following start dates:
  - Today—If you want the program to run today.
  - Date—To specify a date to run the Process. Click the selection arrow and click a date on the calendar to specify the date.
  - Day—If want to run the Process on a certain day; then select a day of the week from the drop-down box.
3. To specify the time to run the task, select one of the following:

- Immediate—To run the Process immediately. This option is only available if you selected Today or Date in the **Start Date** field.
  - Time—To run the Process at a specific time on the start date you selected. Type a time to start the Process in the format hh:mm:ss.
4. To place the Process in the Hold queue, select one of the following options in the **Hold** field:
    - Yes—To hold the Process in the queue in Held Initially status (HI) until explicitly released.
    - No—If you do not want to place the Process in the Hold queue. Process executes as resources are available.
    - Call—To hold the Process until a connection is established between the PNODE and the SNODE. The Process executes if another Process establishes connection between the nodes.
  5. To place the Process in the Retain queue, select one of the following options in the **Retain** field:
    - Yes—To retain the Process in the Hold queue in Hold Retain status (HR) after execution. You can release the Process later from the Process Monitor.
    - No—If you do not want to retain the Process after execution.
    - Initial—To retain the Process in the Hold queue in HR status for automatic execution every time the Process Manager initializes. Do not specify a start time with this option.

**Note:** If you select Yes for RETAIN and you specify a start time, HOLD status takes precedence. If you set HOLD to No or Call, and set RETAIN to Yes, HOLD is ignored.

6. If you are sending Processes to a location that supports CD Plexclass, type the class value of the remote node, from 1 to 8 characters, in the **Plexclass** field.
7. In the **CRC** field, select one of the following options:
  - Blank—To use the default value for the Process that was configured in the Initparms and the Netmap entry for the remote node.
  - OFF—To turn off CRC checking.
  - ON—To turn on CRC checking.
8. To change the TCQ priority, type a value in the Priority field from 1 to 15, where 15 is the highest priority.
9. To change the preferred session class, type the preferred session class in the **Class** field, from 1 to the maximum local sessions defined in the network map.
10. Type the user ID in the **Notify Userid** field.
11. Click **OK** to close the dialog box or click one of the other tabs to continue modifying Process options.

---

## Assigning Values to Symbolic Variables

### About this task

Use symbolic variables to assign values to variables before execution. The values are then substituted during execution whenever the symbolic variable is encountered.

To assign values to symbolic variables in a Process, from the Requester:

## Procedure

1. Double-click the Process to open it and click the Variables tab.
2. To create a new symbolic variable, type the symbolic variable name in the **Variable Name** field. Symbolic variable names are case-sensitive. Enter the symbolic variable exactly as used in the Process.
3. To change a symbolic variable, select the symbolic variable statement in the Variable list. If necessary, edit the variable name.
4. Type the symbolic variable value or built-in variable enclosed in quotation marks in the **Variable Value** field or edit the existing value.

Built-in Variable	Value
%JDATE	Specifies the date the Process was submitted in Julian format. The variable is resolved as the submission date of the Process in the format yyyyddd. Among other uses, the value returned is suitable for constructing a file name on the node receiving the file. <b>Note:</b> The value of the variable is resolved at Process submit time. The value will correspond to the date on which the Process was submitted, regardless of when or how many times the Process is actually executed.
%NUM1	Specifies the submission time of the Process in a 6-digit numeric-value format of minutes, seconds, and hundredths of seconds.
%NUM2	Specifies the submitted time of a Process as 1 hex digit
%PNODE	PNODE name where the submit occurs
%PRAND	Pseudo-random number (6 hex digits)
%SUBDATE	Specifies the date the Process was submitted in Gregorian format. The variable is resolved as the submission date of the Process in the format cyymmdd where c is the century indicator and is set to 0 for year 19yy or 1 for year 20yy. The value returned can be used to create a file name on the node receiving the file.
%SUBDATE1	Use this parameter to substitute the submitted date in the yyyyymmdd date format.
%SUBDATE2	Use this parameter to substitute the submitted date in the yyyyymmdd date format.
%SUBDATE3	Use this parameter to substitute the submitted date in the yyyyymmdd date format.
%SUBDATE4	Use this parameter to substitute the submitted date in the yyyyymmdd date format.
%SUBTIME	Specifies the time the Process was submitted. The variable is resolved as the submission time of the Process in the format hhmmss. The return value can be used to create a file name on the node receiving the file. <b>Note:</b> The value of the variable is resolved at Process submit time. The value will correspond to the time at which the Process was submitted, regardless of when or how many times the Process is actually executed.
%USER	Specifies a variable that resolves to the user submitting the Process

5. To remove a symbolic variable, select the variable and click **Delete**.
6. To save and add the variable to the Variable list, click **Add**.
7. Click **OK** to close the dialog box or click one of the other tabs to continue modifying Process options.

---

## Specifying Accounting Data

### About this task

Accounting Data is a free-form, user-defined field that sets up accounting and tracking information about Process execution and data transfers. You can track data transfers by cost center, department number, satellite location, or any other type of code or identification that would benefit the management of data tracking.

To specify accounting data:

### Procedure

1. Double-click the Process in the Requester and click the Accounting tab.
2. Type the information in the PNODE field to specify accounting data for the PNODE. The maximum length of the string is 256 characters.
3. Type the information in the SNODE field to specify accounting data for the SNODE. The maximum length of the string is 256 characters.
4. Click **Reset** to Defaults to reset to values specified in the Process Defaults page of the Options dialog.
5. Click **OK** to close the dialog, or click one of the other tabs to continue modifying Process options.

---

## Add Comments

### About this task

Use comments to explain the context of a statement. Adding comments is helpful to explain what the statement does. This information is optional. When you view a Process in text format, comments appear after the associated statement, except in the case of the process statement, when the comment appears before the statement.

To add comments to a statement in a Process, from the Requester:

### Procedure

1. In the Process window, select the statement about which you want to add comments.
2. Select Process > Statement Properties.
3. Click the Comment tab.
4. Type the text in the Comment field.
5. Click OK to save the changes.

---

## Validating Process Content

### About this task

When you finish creating or modifying a Process, validate the content of the Process.

Validating Process content checks the syntax for errors or missing information. Validation does not check the content of the statements, only that they are

formatted correctly. The Process validation sends messages to the Output window. A Validation Successful message means that the syntax is formatted correctly.

To validate the content of a Process:

### **Procedure**

1. Open the Process file.
2. Select Process > Validate.
3. View the messages displayed in the Output window. If messages indicate invalid statements, edit the statements and validate the content of the Process again.

---

## **Saving a Process**

### **About this task**

When you have finished creating or editing a Process, save the Process for future use. Processes are stored in the Process directory.

### **Procedure**

1. Select File > Save.
2. Type a name for the Process including the .CDP extension.

---

## **Copying a Process**

### **About this task**

You can use a Process as a template by copying the Process, making changes to the copy, and saving the copy to a new Process file.

To copy a Process:

### **Procedure**

1. Open the Process file.
2. Select File > Save As.
3. Save the Process with a new file name.
4. Change the Process statements. To change the Process statement, press **Enter** to access the Process Properties dialog box.
5. To save the Process file with the changes, from the File menu, select **Save**.

---

## **Changing a Submitted Process**

### **About this task**

You can change the following Process options once a Process is submitted:

- SNODE
- Hold
- Execution
- Class
- Priority



To change Process options:

### Procedure

1. Right-click the open Process Monitor window and select **Change Process**. The Change Process dialog box is displayed.
2. Make the necessary changes.
3. Click **OK**.

---

## Manage Processes Using a Work List

The Work List is a document containing a sequential list of Process submit requests. It may contain any of the commands that you can submit to the TCQ: send and receive file, submit a local or remote Process, submit a local or remote program, and submit a remote batch job. When you create these Processes, you can submit them directly to the TCQ or place them in a Work List for later submission.

You can use Work Lists in the following ways:

- Submit selected or all items in a Work List to the TCQ.
- Embed a Work List into another application and submit it using object linking and embedding (OLE).
- Specify substitution variables at the time you submit the Work List.
- Create, update, monitor, edit, or validate a Work List.
- Cancel Work List operations.
- Insert a task into a Work List

## Creating a Work List

### About this task

Using Work Lists saves you time and effort by automating routine or repetitive submission tasks. You can build a Work List to periodically submit related work as a single work flow. Your Work List can serve as a library of related or unrelated Processes.

To create a work list:

### Procedure

1. From the Sterling Connect:Direct Requester Main Window, select File > New > Work List.
2. Add Work List items as desired.
3. To establish an automatic status monitor for the Work List as it executes, perform the following actions:
  - a. Select WorkList > Work List Properties.
  - b. Activate Auto Monitor.
  - c. If you want the selected units of work to execute serially, turn on Serial Execution. This feature causes the Submit action to wait until each unit of work is completed before submitting the next unit of work in the Work List. Processes are considered successfully completed if they do not have a status of HI, PE, or EX.
4. To define substitution variables for the Work List, click the **Variables** tab. Select one of the following actions:

- To add a new variable, type a name and value in the appropriate boxes and click **Add**.
  - To modify a variable, double click the variable. Type a new name or value and click **Add**.
  - To delete a variable, highlight the variable and click **Delete**.
5. To add a comment describing the Work List, click the **Comment** tab and type the information in the dialog box provided.
  6. Click **OK**.

## Updating a Work List

### About this task

When you create a Process, a Send/Receive File Command, a Run Task Command, or a Run Job Command, you can add the command to a Work List.

Use the Work List to define substitution variables, which you can set at submit time. All the variables must have assigned or default values before the Work List is submitted.

To update a work list:

### Procedure

1. Add a command.
2. Select **Add to Worklist** from the command you are creating.

## Submitting a Work List

### About this task

You can submit all or selected items of a Work List to execute.

To submit a work list:

### Procedure

Once you create a Work List, perform one of the following actions.

- To submit all items in the Work List, select WorkList > Submit.
- Highlight the items to submit and select WorkList > Submit Selected.

When you submit a Work List or a task from the Work List, the Work List or task is submitted to the TCQ. If you activate Auto Monitor, a Work List status window displays the work items as they are submitted.

## Canceling Work List Operations

### About this task

Although you cannot close a Work List until all of its tasks are executed, you can cancel the execution of the tasks in a Work List.

To cancel work list operations:

## Procedure

Select Work List > Cancel Execution.

The system stops waiting on Processes or programs and will not submit any more tasks. Any tasks that have already started executing will finish, but no other tasks will execute.

## Editing a Work List in Text Format

### About this task

You can edit the text of a Work List to change command statements.

#### CAUTION:

**Editing the text of a Work List is a task for experienced users.**

To edit a work list in text format:

### Procedure

1. Open the Work List that you want to edit.
2. Select Work List > Edit/View Text.
3. Edit the text as necessary using the following keyword and syntax rules. The Work List Edit/View Text window enables you to see the full text of all tasks in a Work List. You can edit the text directly if necessary. Put a keyword on a line by itself.

Keyword	Description
Set	Work Task List
Submit	Ad Hoc Process Task
Submit File=	Submit Process Task
Run	Local Program Task

The following table lists the syntax types and restrictions:

Syntax Type	Restrictions
Work List Task Syntax	Must have the SET keyword May have AutoMonitor and Serial Execution May have variables
Local Program Task Syntax	Must have the RUN keyword Must have the FILE keyword Must have arguments or a working directory
Submit File Task Syntax	A Submit File task must have SUBMIT FILE= followed by the file name
Submit Run Task Syntax	Must have PEND at the end of the Run Task command

4. Close the window. The program displays a message asking if you want to save your work.
5. Click **Yes**. Your Work List is validated and saved. Any errors found during validation are displayed at the bottom of your screen.

## Inserting a Task into a Work List

### About this task

To insert a task into a Work List:

### Procedure

1. Select Work List > Insert.
2. Select one of the following options to identify the task type to add to the Work List:
  - Submit from File
  - Send/Receive
  - Run Task
  - Run Job
  - Local Program
  - Comment
3. Type any arguments in the box.
4. Enter the information for the Process in its dialog box.
5. Click **OK**. The Work List window is displayed.

## Validating a Work List

### About this task

To validate a Work List:

### Procedure

1. Open the Work List that you want to validate.
2. Select the tasks you want to validate.
3. Select Work List > Validate. The validation information is displayed at the bottom of your screen.

---

## Chapter 5. Manage Processes

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### SMTP Notification

Sterling Connect:Direct uses the SMTP notification method and exchanges e-mail using TCP/IP and a message transfer agent (MTA).

The SMTP standard is one of the most widely used upper layer protocols in the Internet Protocol stack. This protocol defines how to transmit messages (mail) between two users. SMTP uses spooling to allow mail to be sent from a local application to the SMTP application, which stores the mail in some device or memory. Once the mail has arrived at the spool, it is queued. A server checks to see if any messages are available and then attempts to deliver them. If the user is not available for delivery, the server tries later. Eventually, if the mail cannot be delivered, it will be discarded or returned to the sender.

---

### Manage Processes

Sterling Connect:Direct for Microsoft Windows provides the following tools to manage Processes:

- **Process Monitor**—Enables you to view Processes in the TCQ, release held Processes, change the status of a Process, and delete a Process. After you submit a Process, it is placed in the Transmission Control Queue (TCQ).
- **Process Notification Utility**—Enables you to change the notification method. You define the method of notifying users of Process execution when you install Sterling Connect:Direct for Microsoft Windows.
- **Microsoft Windows Event Logging**—Logs informational, warning, and error messages.
- **Messages**—If you need to troubleshoot the meaning of an error message, you can view more information about an error message with the Message Lookup.
- **SNMP**—If you use Microsoft Windows SNMP to capture messages, you must identify the messages you want to include and determine if messages are trapped or logged to the event log.
- **Activity Log**—This document contains a list of Sterling Connect:Direct activities, including every significant activity that you have requested from the time the activity log is opened until it is closed. Each activity record logged is maintained with the significant data associated with it. For example, when you save a file, the Save activity record is stored, with the file name of the saved document.

The Activity Log is created at startup and is enabled by default. It can be viewed in the Output window by clicking the Activity Log tab. You may create, save, open, close, and print Activity logs. To save an activity log, you must specify that you want the activity log written to a file. When you open a new activity log, the currently active Log is inactivated. You must close Sterling Connect:Direct Requester in order to open an activity log.

---

### Understanding the TCQ

After you submit Sterling Connect:Direct Processes, they are stored in the TCQ.

The TCQ controls Sterling Connect:Direct Process execution. As sessions are available, the TCQ releases Processes to begin execution according to the scheduling parameter values and the class and priority of each Process. Use the Process Monitor to manage and view the status of submitted Processes.

## TCQ at Server Startup

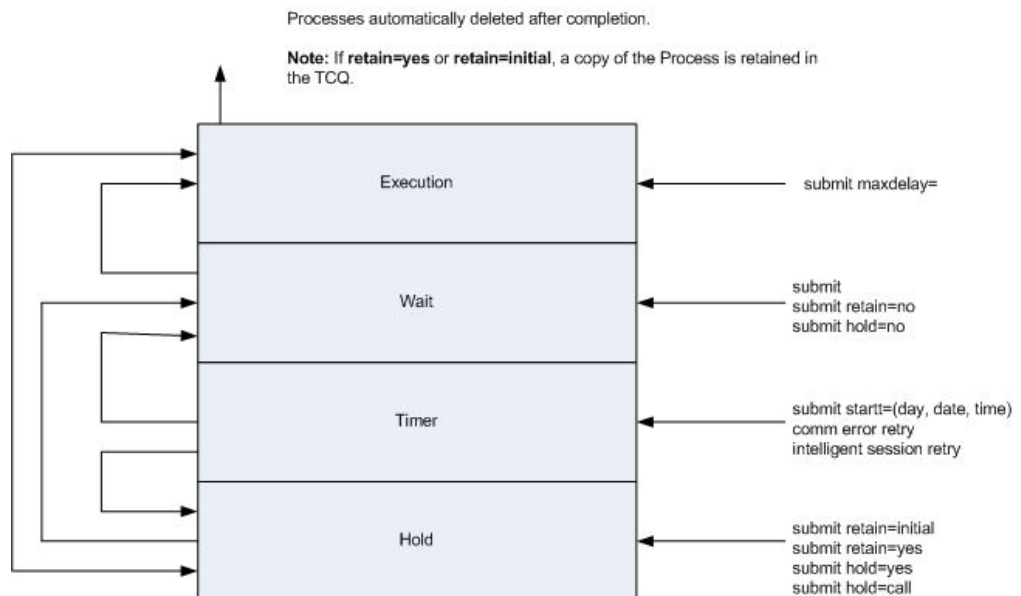
The initialization parameter **tcq.start** determines what the TCQ does with existing Processes. The default value is **tcq.start=w** (warm start), which specifies that all existing Processes in the TCQ are retained. A warm start restarts any Processes submitted with the **Process** statement parameter **retain=initial** as well as any Process that was executing in the TCQ when the server was brought down. You can change the parameter to **tcq.start=c** (cold start) to delete all existing Processes in the TCQ when the server restarts.

---

## TCQ Logical Queues

As Sterling Connect:Direct Processes are submitted, they are placed in one of the four TCQ logical queues: Execution, Wait, Timer, and Hold.

As sessions are available, the TCQ releases Processes to begin execution according to the Process class and priority, as shown in the following figure:



Each Process in the queue is assigned a status. The queues and status values are identified in the following sections.

### Execution Queue

Processes are placed in this queue after the connection to the SNODE occurs. Processes typically come from the Wait queue, but also can be placed in the Execution queue by a **submit** command with **maxdelay=** specified. After a Process successfully finishes, it is automatically deleted from the Execution queue. When a session is interrupted, the Process moves from the Execution queue to the Timer queue, if retry values are specified. If connection is not made before the retry

values are exhausted or if retry values are not specified, the Process moves to the Hold queue with a status of HE. The following table displays the status values assigned in the Execution queue:

Status	Comment
EX	Process is executing between two Sterling Connect:Direct nodes.
PE	Processes waiting for Process start messages to be exchanged between the PNODE and the SNODE. This is the initial queue status when a Process is submitted with maxdelay= specified.

## Wait Queue

Processes are placed in the Wait queue while waiting for an available connection between the PNODE and the SNODE. Processes can come to the Wait queue from the Hold queue or the Timer queue. Processes also can be placed in the Wait queue by a **submit** command with no parameters specified, **submit** with **retain=no**, or **submit** with **hold=no**. After the connection is made, Processes automatically move to the Execution queue. The following table displays the status values assigned in the Wait queue:

Status	Comment
WC	The Process is ready to execute, but no session is available. This Process runs as soon as a new session is created or an existing session becomes available.
WR	The Process is in retry status. The number of retries and intervals between retries is specified in the network map for the remote node.
WA	The initial queue status when a Process is submitted without HOLD or RETAIN specified. This Process is ready to execute as soon as possible.

## Hold Queue

Processes are placed in this queue while waiting for operator intervention before progressing to the Wait queue. This queue enables operators of the PNODE and SNODE to coordinate and control Process execution.

Processes are placed in the Hold queue by a **submit** command with **retain=initial**, **retain=yes**, or **hold=yes** parameters specified. Processes submitted with **hold=call** also are placed in the Hold queue. Processes are moved from the Timer queue to the Hold queue by a **change process** command with **hold=yes** specified. Processes are moved from the Hold queue to the Execution queue by a **change process** command with the **release** parameter specified.

The following table displays the status values assigned in the Hold queue:

Status	Comment
HC	The Process was submitted with hold=call specified. A session started from the remote node causes the Process to be moved to the Wait queue in WC status. The Process is placed in the Execution queue when the Process is selected for execution.
HI	The Process was submitted with hold=yes. The Process can be released later by a change process command with release or hold=no specified.
HE	A session error or other abnormal condition occurred.
HO	A change process command with hold=yes was specified.

Status	Comment
HR	The Process was submitted with retain=yes or retain=initial specified and has already executed. The Process can be released later by a change process command with release specified.
HS	The Process was suspended due to a server shutdown.

## Timer Queue

Processes are placed in this queue by a **submit command** with the **startt** parameter specified. Processes in the Wait for Start Time (WS) status are waiting for the start time to arrive before moving to the Wait queue. Processes also are placed in the Timer queue in Retry (WR) status after an error, such as a line break or a lost connection. Sterling Connect:Direct automatically tries to execute the Process again based on the number of times to retry and the delay between retries as specified in the **submit command**, **Process** statement, network map parameters, or initialization parameters. Processes move from the Timer queue to the Wait queue. A **change process** command with **hold=yes** specified moves the specified Process from the Timer queue to the Hold queue.

The following table displays the status values assigned in the Timer queue:

Status	Comment
RE	The Process is in retry status. The number of retries and intervals between retries is specified in the network map or initialization parameters.
WS	The Process was submitted with a start time (startt) or date that has not expired. When startt is reached, the Process is placed in the Wait queue for scheduling for execution.

---

## View Processes in the TCQ

To view the Processes in the TCQ, use a Process Monitor.

You can use more than one monitor to view different queues or to look at Processes based on different criteria. You can arrange Process Monitors and save the Workspace view so that when you enable that view, the Monitors are automatically displayed. You can define how you want to display the Process Monitor, what types of Processes you want to view, and what queues you want to view.

---

## Creating a Process Monitor

### About this task

To create a Process Monitor:

### Procedure

1. Select **File > New > Process Monitor**.
2. Do one of the following:
  - To monitor all Processes, select **All Processes**.



- To monitor only those Processes that meet certain criteria, select **Filter Using Selection Criteria Pages**. Define the criteria based on the options on the remaining property pages.
  - To refresh the monitor at specified intervals, select the Refresh every \_ seconds option and enter the interval from 1-999 seconds.
  - To monitor new data that was created since the Process Monitor was closed, select **Refresh on open**.
3. Select the node on which to monitor Processes in the **Node** field.
  4. Click **OK**.

---

## Monitoring Processes Based on Selection Criteria

### About this task

You can monitor Processes based on selection criteria.

Select the criteria to use to include in a Process Monitor. Select one or more of the following filters: the status of a Process in the queue, the remote nodes included in a Process, the user who submitted a Process, or a Process name or number.

To identify what Processes to include in a Process Monitor:

### Procedure

1. Open a Process Monitor window.
2. Select **Filter Using Selection Criteria Pages**.
3. To include Processes in a Process Monitor based on TCQ queue:
  - a. Click **Status**.
  - b. Select the status types you want to monitor. You are not limited to the number of status types you can request. The status types are defined in the following table:

Status	Description
Execution	Processes that are being serviced by the session manager.
Pending Execution	The Process was submitted with the maximum delay option set to zero.
Waiting Connection	The Process is ready to execute as soon as a session is available.
Waiting Start Time	The Process is waiting in the Timer Queue because it was submitted with a start time or date that has not expired. When the start time is reached, the Process is placed in the Wait queue to schedule for execution.
Held Suspension	The operator issued a delete process request with hold set to Yes.
Timer Retry	The Process is waiting for a retry attempt.
Held for Call	The Process was submitted with the Hold option set to Call. A session started from either node moves the Process to the Wait queue in WC status. The Process is placed in the Execution queue when the Process is selected for execution.
Held Due to Error	A session error or other abnormal condition occurred.
Held Initially	The Process was submitted with the Hold option set to Yes.
Held by Operator	A change process request with hold set to Yes has been issued.

Status	Description
Held by Retain	The Process was submitted with retention set to Yes or Initial.
Select All	To monitor all status types.
Unselect All	To deselect all status types.

4. To view Processes based on Process name:
  - a. Click the **Process** tab.
  - b. Select the Queue to search in the Queue(s) field.
  - c. To monitor a Process by name, click the **New** icon, type the name of the Process, and press **Enter**. Repeat this step to add additional Process names.
  - d. To monitor a Process by number, click the **New** icon, type the Process number, and press **Enter**. Repeat this step to add additional Process numbers.
5. To view Processes based on a remote node:
  - a. Click the **Nodes** tab.
  - b. Choose one of the following:
    - Select the network map node in the **Netmap Nodes** field.
    - Click the right arrow or select All to select all network map nodes.
    - To type a remote node name, click the **New** icon, type the remote node name, and press **Enter**. Repeat this step to add remote node names.
6. To view Processes based on a user ID:
  - a. Click the **Submitter** tab.
  - b. Type the user ID or user proxy in the **User** field.
  - c. Type the node name in the **Node** field and click **Add**. Continue entering node names and clicking **Add** until you have added all user IDs you want to monitor.
7. Click **OK**.

---

## Opening a Process Monitor File

### About this task

To open a Process Monitor file:

### Procedure

1. Select Files > Open.
2. From Files of Type, select Process Monitors (\*.cdm) to display only Process Monitor files.
3. Locate and select the Process Monitor file to open.

---

## Saving a Process Monitor

### About this task

Saving a Process Monitor to a file lets you use the same format and monitor criteria again. When you save a Process Monitor, you are saving the criteria and the format of the Process Window; not the Process information displayed at the time you save the monitor.

## Procedure

1. Select File > Save.
2. Type the name of the Process monitor with the extension .cdm.
3. Click **OK**.

---

## The Process Monitor Output

Each line in a Process Monitor is a summary record of the current status of the Process in the TCQ. Depending on the status of the Process or the step being executed, some fields may be blank. The lines are numbered sequentially. A "W" to the left of the sequence number indicates the Process has met the warning conditions you established.

The following information is displayed:

Field	Content
Name	Process name.
Number	Process number.
Step Name	Process step name currently executing.
Status	Current status of the Process.
Queue	Logical queue where the Process is currently located (Execution, Hold, Wait, or Timer).
Byte Count	Number of data bytes read or written.
Submit Node	Node name from which the Process was submitted.
Submitter	User ID of the person who submitted the Process.
Pnode	Primary node in the Process.
Snode	Remote or partner node in the Process.
Message	Message associated with the current Process step.
Source File	Name of the source file.
Submit Date/Time	Date and time the Process was submitted.
Schedule Date/Time	Date and time the Process was scheduled to be submitted.
Retain	Identifies if the Process is to be retained in the TCQ for future submission.
Function	Type of Process statement currently executing (COPY, RUNJOB, RUNTASK, SUBMIT).
CC	Completion Code.  0—Success  4—Warning  8—Error  16—Severe error
FDBK	Feedback code.
Message Text	Message short text.
Message Data	The substitution variables with their values for the short text.
Log Date/Time	The date and time the Process record was created.

Field	Content
Hold	The hold status of the Process.
Class	Session class on which the Process is executing.
Priority	TCQ priority of the Process.
Local Node	Indicates whether the local node is the SNODE or the PNODE in the Process.
From Node	Indicates whether the local or remote node is the FROM node in a COPY.
Compression	Compression factor used in a copy step
Checkpoint Restart	Indicates use of checkpointing in a copy step.
Restart	Indicates whether the Process was restarted.
Source Disp 1	Source file disposition parameters.
Source Disp 2	Source file disposition parameters.
Source Disp 3	Source file disposition parameters.
Record Count	Number of data records read or written.
Xmit Bytes	Number of data bytes plus RU bytes sent
Xmit RUs	Number of request/response units sent.
Dest File	Name of the destination file.
Dest Disp 1	Destination file disposition parameters.
Dest Disp 2	Destination file disposition parameters.
Dest Disp 3	Destination file disposition parameters.

---

## Using the Output Display

### About this task

Through the output display, you can accomplish the following tasks:

- View details associated with a Process
- View the condition that caused a warning flag on a Process
- Change the order of fields displayed

To use the output display:

### Procedure

Do one of the following:

- To view the detail fields associated with a Process, double click the Process summary line
- To view the condition which caused the warning flag on a Process, select the flagged Process. The condition is posted at the bottom of the display.

**Note:** You cannot change the size of the rows.

- To change the order of the fields in your display, select the heading of the field you want to move, point the mouse at the heading, and drag and drop the column to its new location. You may move any column. After you close the reformatted display, that format becomes your default format.

---

## Notification

When you install Sterling Connect:Direct for Microsoft Windows, you identify the method used to notify a user of Process execution. If you want to change the method used to notify selected users when a Process executes, use the Change Notification utility. This application updates the Registry entries used by Sterling Connect:Direct to perform the specified notification.

### Notification Methods

Sterling Connect:Direct for Microsoft Windows provides two notification methods:

- NT Broadcast—NT Broadcast notification is performed using the Microsoft Windows msg command.
- SMTP—E-Mail notification is performed using Simple Mail Transfer Protocol (SMTP) notification, a simple ASCII protocol.

---

## NT Broadcast

Sterling Connect:Direct for Microsoft Windows uses the msg command to accomplish notification through NT Broadcast. The notification is sent to the specified user or users attached to a particular computer or domain on behalf of the user context that Sterling Connect:Direct is running in.

After the notification ID is specified from within the Process Control Options category of the Process Definition dialog box, Sterling Connect:Direct supplies the user as an argument in the msg command. If the specified recipient cannot be located, or is not logged on, the notification fails and is not attempted again.

---

## Changing Process Notification

### About this task

To change the Process notification setup:

### Procedure

1. Validate that the Sterling Connect:Direct service has been stopped by selecting **Start > Settings > Control Panel > Administrative Tools > Services** and making sure the Sterling Connect:Direct service is stopped. If not, select the service and click **Action > Stop**.
2. Click **Start > Programs > IBM Sterling Connect:Direct > v4.6.00 > CD Change Notification Utility**.
3. In the **Node Name** field, type or select the local node to configure. The current notification for the node is displayed in the **Transport** field.
4. NT Broadcast is the default setting for the notification methods. If want to use SMTP as the notification method, select **SMTP in the Transport** field and type the following information in the fields provided:
  - Host Address—SMTP server address, as the DNS name or IP address.
  - Host Port—Port to connect to the SMTP server. Default=25.
  - Sender—e-mail address uses for the sender.
  - Turn on Authentication to enable it. Provide a user ID and password to sign on to the SMTP server.

5. Click **Save**.
6. Click **OK**.

---

## View Process Statistics

Sterling Connect:Direct records the history of a Process in a single relational database. You can review this information to examine details about server execution.

Sterling Connect:Direct for Microsoft Windows also uses the Microsoft Windows Event Logging facility to log certain messages that the server generates during execution. Sterling Connect:Direct selects specific record IDs or event types when logging statistics. Sterling Connect:Direct assigns these record IDs severities and passes them on to the Microsoft Windows Event Logging facility. The event.log initialization parameter controls the statistics IDs that Sterling Connect:Direct sends to the Microsoft Windows event log.

The statistics file stores information about all events that take place within the Sterling Connect:Direct server for a specific period of time. The amount of time is determined by the value specified for the stat.max.age initialization parameter. Each record within the statistics file consists of fields that contain general information about the record and a field that contains the statistics or audit information to log.

In the fixed portion, the following fields are defined for the statistics files:

Field	Description
EntryDateTime	Date and time that the record was inserted into the statistics file. The format is YYYYMMDD HHMMSS.TTT.
SeqNum	Sequence number.
RecID	A 4-character ID that describes the type of record.
RecCat	A 4-character ID that describes the category of record.
PrcName	Name given to the Process when it is submitted.
PrcNumber	Number assigned to the Process when it is submitted.
StartTime	Start time of a Process step, if this is a Process step statistics record.
StopTime	Stop time of a Process step, if this is a Process step statistics record.
SubmitterNode	Node that the Process was submitted on.
SubmitterUserID	User that submitted the Process.
RemoteNode	Remote node for the Process.
ConditionCode	Condition code for the statistics record.
AuditInfo	Variable portion of the statistics record.

If the existing statistics file cannot be extended, the server issues a message to the Microsoft Windows event log and terminates immediately. The server terminates all activity as if issuing a stop command with the immediate parameter. Any statistics records that are usually written during stop immediate processing are not created in this situation.

---

## The Statistics Monitor Window

The Statistics Monitor window displays the following information:

Field	Definition
Log Date/Time	Specifies the date and time the statistics record was created.
Type	Specifies whether the record is event or Process related. CAEV indicates that the record is related to an event. CAPR indicates that the record was related to a Process.
RecID	Specifies the type of statistics record generated.
CC	Specifies the completion code.
FDBK	Specifies the feedback code for the module.
MSGID	Specifies the Message ID.
PName	Specifies the Process name.
PNum	Specifies the Process number.
Step Name	Name of the Process step.

Each row is a statistics record. Select the row to view statistics record details. You can also modify the appearance of the Statistics Monitor window.

---

## Delete Statistics Records

The server deletes statistics records based on the value specified for the statistics initialization parameter `stat.max.age`.

The `stat.max.age` parameter controls the amount of time that the server retains the statistics record in the database. When statistics records reach the value specified by the `stat.max.age` parameter, the server automatically deletes them. To retain all of your records, back up your database regularly or set `stat.max.age=` to disable automatic deletion.

---

## Control Statistics File Content

Use the `log.commands` and `log.select` initialization parameters to control whether the statistics file logs output from all commands and whether the file logs commands that select Processes and select statistics.

See “Statistics Parameters” on page 111 for a description of the statistics parameters.

---

## Creating a Statistics Report

### About this task

To create a statistics report:

## Procedure

1. To open a new statistics monitor, select File > New > Statistics Monitor.
2. To modify an existing statistics monitor, select File > Open and select from the Statistics Monitor directory.
3. To view statistics for all Processes executed over a specific period of time:
  - a. Select All Statistics for Last \_ hrs.min.
  - b. Enter the time period in hours and minutes.
  - c. Click **OK**.
4. To view only those Processes that meet certain criteria:
  - a. Select Filter Using Selection Criteria Pages.
  - b. Define the criteria on the remaining property pages.
5. To view statistics based on step and Process completion only select Step and Process Completion Statistics Only.
6. To refresh the monitor at specified intervals:
  - a. Select Refresh every \_ minutes.
  - b. Type the interval in minutes (1–60).
7. To view new statistics that were created since the Statistics Monitor was closed, select Refresh on open.
8. To view the last statistic as it occurs, select Autoscroll.
9. If necessary, select the node to monitor in the Node field.
10. Click **OK**.

---

## Selecting Statistics Based on Process Name or Number

### About this task

You can select statistics based on Process names or Process number.

The Process number is the number assigned by Sterling Connect:Direct when the Process is submitted.

To select statistics based on Process name or number:

### Procedure

1. Open or create a Statistics Monitor.
2. Select Filter Using Selection Criteria Pages.
3. Click **Add**.
4. To view statistics based on Process name:
  - a. Click the **Process** tab.
  - b. Click the **New** icon.
  - c. Type the Process name and press **Enter**.
  - d. Continue the previous two steps until you have added all Process names to monitor.
5. To view Statistics based on Process number:
  - a. Click the **New** icon.
  - b. Type the Process number and press **Enter**.
  - c. Repeat this step until you have added all Process numbers to monitor.
6. To view statistics based on a user ID:



- a. Click the **Nodes** tab.
  - b. Click the **New** icon.
  - c. Type the user ID or user proxy and press **Enter**.
  - d. Repeat the previous two steps until you have added all user IDs to monitor.
7. To view statistics based on who submitted a Process:
- a. Click the **Submitter** tab.
  - b. Type the user ID or user proxy.
  - c. Type the node on which the user is located.
  - d. Click **Add**.
  - e. Repeat the previous three steps until you have added all submitters to monitor.
8. To view statistics based on a range of date or time:
- a. Click the **Ranges** tab.
  - b. Activate the **Date/Time Range** option.
  - c. Select one of the following options:
    - **Range**—Type the time range to monitor in hours and minutes.
    - **Start and Stop**—Type the beginning and ending date and time range or select the date from the calendar in the Start and the Stop fields. Type the date in the format mmm/dd/yyyy and the time in the format hh:mm:ss Xm.
    - **Start Only**—Type the beginning date and time range or select the date from the calendar in the Start field. Type the date in the format mmm/dd/yyyy and the time in the format hh:mm:ss Xm.
    - **Stop Only**—Type the ending date and time range or select the date from the calendar in the Stop field. Type the date in the format mmm/dd/yyyy and the time in the format hh:mm:ss Xm.
9. To select statistics based on a condition code, select the condition code on which the condition is based and select a conditional operator as detailed in the following table:

Option	Description
Conditional Code Range Delimiters	To limit the statistics based on error code values, select the condition code delimiters in the first drop-down box including: <ul style="list-style-type: none"> <li>• Equal to</li> <li>• Greater than or equal to</li> <li>• Greater than</li> <li>• Less than or equal to</li> <li>• Less than</li> <li>• Not equal to</li> </ul>
Conditional Code Range Error Codes	To limit the statistics to selected error codes, select the error code value from this drop-down box including: <ul style="list-style-type: none"> <li>• 0</li> <li>• 4</li> <li>• 8</li> <li>• 16</li> <li>• Any</li> </ul>

10. To generate statistics for specific source or destination files:

- a. Click the **Files** tab.
  - b. Click the **Add** icon for the file type: either source or destination files.
  - c. Type the name of the file including the full path name.
  - d. Press Enter.
  - e. Repeat this procedure until all files to monitor are identified.
11. To generate statistics based on record types:
    - a. Click the **Records** tab.
    - b. Select a record category from the drop down menu for the **Record Category** field.
    - c. Select a record from list. To remove a selection, click the item again.
    - d. To select all the records, click Select All.
    - e. To clear all selections, click Unselect All.
  12. To generate statistics based on user-defined records:
    - a. From the **Records** tab, click **Add** in the **User Defined Records** dialog box.
    - b. Type the first four characters of the message ID.
    - c. Press **Enter**.
    - d. Repeat the three previous steps until you have added all records you want to monitor.
  13. Click **OK**.

---

## Statistics Report Output

Each line in the Statistics report represents a statistics record. The following information is displayed for each record type.

Field	Description
Log Date/Time	The date and time the statistics record was created.
Type	The record category.  CAEV—Specifies that the record is related to an event, such as a Sterling Connect:Direct shutdown.  CAPR—Specifies that the record is related to a Process.
Rec ID	The type of statistics records, such as Copy Termination records or Sterling Connect:Direct initialization event records.

Rec ID (Identifiers) are as follows:

Record ID	Category
CHGP	Event
COAC	Event
CRHT	Event
CSTP	Event
CTRC	Process
CTRM	Event
CUKN	Event
CXIT	Event

<b>Record ID</b>	<b>Category</b>
DELP	Event
FLSP	Process
FMRV	Process
FMSD	Process
GPRC	Process
IFED	Process
LIEX	Event
LIOK	Event
LWEX	Event
NAUH	Event
NMOP	Event
NUIC	Event
NUTC	Event
NUIS	Event
NUTS	Event
PERR	Process
PFLS	Process
PRED	Process
PSAV	Event
PSED	Process
PSTR	Process
RJED	Process
RNCF	Process
RTED	Process
SBED	Process
SELP	Event
SELS	Event
SEND	Event
SERR	Event
SHUD	Event
SIGC	Event
SSTR	Event
STOP	Event
SUBP	Event
TRAC	Event
UNKN	Event
USEC	Process
xxxx	Event

Other fields displayed depend on the record type.

You can accomplish the following tasks through this display:

- To redefine the selection criteria, click the Criteria button.
- To see the detail fields associated with the Process, double-click on the Process summary line.
- To change the size of a field in your display, point the mouse at the boundary edge of the heading of the field you want to change. While holding down the mouse button, move the mouse horizontally until the width of the field is as desired.
- To change the width of a row, move the cursor to the line between any of the line numbers. While holding down the mouse button, move the mouse vertically until the width of the row is as desired.
- To change the order of the fields in the display, select the heading of the field you want to move, press SHIFT, point the mouse at the heading, and drag and drop the column to its new location. You can move any column.

After you close the reformatted display, that format becomes the default format.

---

## Understand the Microsoft Windows Event Logging Facility

Sterling Connect:Direct for Microsoft Windows uses the Microsoft Windows Event Logging facility to log informational, warning, and error messages that the server generates during execution. A subset of the Sterling Connect:Direct statistics records are also sent to the event log. The event.log initialization parameter determines which of these records to log.

Merging this critical error information with the event log enables the system administrator to have a single point of focus for error information from all Microsoft Windows subsystems. The Event Logging facility also allows for easy correlation of the various error messages that both Sterling Connect:Direct and Microsoft Windows generate.

**CAUTION:** Sterling Connect:Direct can generate numerous event records. For control purposes, define a large event log, use the event.log initialization parameter to reduce the number of events Sterling Connect:Direct generates, or define the event log to be wraparound.

The event log receives the following information from Sterling Connect:Direct for Microsoft Windows:

Information	Sterling Connect:Direct Record IDs	Microsoft Windows Event Type
Server initialization/termination	NUIC and NUTC	Informational
Communications session start/end	COAC and SEND	Informational
Communications error	SERR	Error
Sterling Connect:Direct Process start/end	PSTR and PRED	Informational
Sterling Connect:Direct Process step information	CTRC, PSED, RJED, RTED, and SBED	Informational
Sterling Connect:Direct Process flush/error	PERR and PFLS	Warning

Information	Sterling Connect:Direct Record IDs	Microsoft Windows Event Type
User logon/logoff	ULGN and ULOF	Success
User security violation	USEC	Failure
Resource Warning	RWRN	Warning
Resource Error	RERR	Error
Generic Messages	Generic	Informational, Warning, Error
SNMP	None	Informational

---

## Control Event Log Content

Use the `event.log` initialization parameter to control the Sterling Connect:Direct statistics IDs that Sterling Connect:Direct sends to the event log. It specifies the statistics IDs the system sends to the Microsoft Windows event log. You can specify a list of Sterling Connect:Direct Statistics IDs or the keyword `All`. If you specify more than one statistics ID, use a comma to separate IDs in a list. The default is `All`.

The following sample uses the `event.log` initialization parameter to log Process start and stop, Process flush, and Process errors to the event log.

```
event.log=PERR,PFLS,PRED,PSTR
```

---

## Filter the Event Log

The Microsoft Windows Event Viewer utility also enables you to filter the event log.

If you want to view a category of events in the log, you can sort the event log by using the Filter Events option. You can filter the event log by specifying settings that control a range of events by date and time. You can also filter the event log by particular event types, application source and category, particular user, computer, and Event IDs. See the Microsoft Windows documentation for more information on the Event Viewer and the filter functionality.

Use the Sterling Connect:Direct Message Lookup Utility to assist you in troubleshooting. Enter a message ID to access the short and long text explanations for Sterling Connect:Direct messages.

**Note:** You can also view messages with the `select message` command from the CLI.

---

## Viewing Messages

### About this task

Use the Sterling Connect:Direct Message Lookup Utility to view the short and long text explanations for error messages.

## Procedure

1. Select **Start > All Programs > IBM Sterling Connect:Direct > v4.6.0 > CD Message Lookup**.
2. Enter the message ID in the **Message ID** field.
3. Click **Lookup** to display the short and long message text.

---

## Send Messages to an SNMP Management System

The Simple Network Management Protocol (SNMP) defines a set of protocols that describe management data and the protocols for exchanging that data between systems.

Sterling Connect:Direct for Microsoft Windows provides an extension agent that works with Microsoft Windows SNMP Extensible Agent to send traps to a configured Network Manager. See Microsoft documentation for details on configuring the SNMP service to send traps.

Sterling Connect:Direct for Microsoft Windows enables messages to be written to the event log. Traps are triggered by Sterling Connect:Direct for Microsoft Windows messages. Certain messages are associated with trap events. However, you can also define any message to be a trap event. When Sterling Connect:Direct for Microsoft Windows starts, it processes the configuration file to create a table of trap-event messages. When a trap-event message occurs, it is forwarded to the extension agent. The extension agent works with the Microsoft Windows SNMP Extensible Agent to forward the trap to all configured network managers. The network managers who receive the messages are defined when you install Microsoft SNMP.

To activate SNMP trapping, set the SNMP initialization parameter to Y. The default is N.

When a trap-event message occurs, Sterling Connect:Direct for Microsoft Windows writes the message to the application event log.

To activate event logging, set the initialization parameter called EVENTLOG to Y. The default is N.

The configuration file is used by both SNMP and event logging. It is specified by the SNMP.DSN initialization parameter and the default file name is:

```
installation directory/snmp/snmp.ini
```

where installation directory is the location where you installed Sterling Connect:Direct for Microsoft Windows.

The configuration file enables you to customize the events that can be trapped. By default, all events are enabled. If you want to disable some events or define other messages to be trap events, edit this file with any standard editing tool.

Do one or more of the following to customize the configuration file:

- To turn off an event, set its value to N.
- To turn off all status traps, set sendStatusTraps=No.
- To turn off all alarm traps, set sendAlarmTraps=No.

- To define a list of Sterling Connect:Direct messages that will produce an alarm trap, use the following: USERMESSAGEALARM = (message ID, message-list)
- To define a list of Sterling Connect:Direct messages that will produce a status trap, use the following: USERMESSAGESTATUS = (message ID, message-list)

When the server is started, the SNMP and EVENTLOG initialization parameters are checked. If the SNMP and EVENTLOG parameters are not specified, SNMP and event logging are not activated.

---

## Identify the Trap Variables

Traps are defined as alarm or status alerts that enable the network manager to display the trap in the appropriate color on the network manager console.

Alarm trap variables signal events that are critical to the operation of Sterling Connect:Direct for Microsoft Windows. Status trap variables signal events that are not critical to the operation of Sterling Connect:Direct for Microsoft Windows but show valuable information. The tables in the following sections describe the predefined traps, the message that triggers the trap, and a description of the trap and associated text.

The categories for trap variables are as follows:

- Type events
- Initialization events
- Shutdown events
- API events
- Execution events
- Miscellaneous events

Valid values for all events are YES (or Y) to enable and NO (or N) to disable.

This section identifies the Sterling Connect:Direct traps supported and identifies the messages associated with the trap. Sterling Connect:Direct traps are defined in two groups: status traps and alarm traps.

- Status traps are not critical to the operations of Sterling Connect:Direct for Microsoft Windows but display important information.
- Alarm traps are more serious.

Following are lists of Sterling Connect:Direct for Microsoft Windows specific or predefined traps and the message that triggers the event. All traps are enabled by default. If any of the traps need to be disabled, specify them in the SNMP.DSN parameter with the following syntax:

Trap-name= Yes / No (YES=Enable and NO=Disable)
---

---

## Initialization Events

The following table details status events that occur at initialization.

Trap Variable	Description	Trap Trigger
initializationComplete	This node was initialized successfully.	NUIC00I

Trap Variable	Description	Trap Trigger
snaNotAvailable	The SNA support is temporarily unavailable because the APPC/SNA feature could not be initialized.	LSNA003I
snaNowAvailable	SNA/APPC has been successfully initialized.	LSNA004I
tcpNotAvailable	The TCP support is temporarily unavailable because the TCP environment could not be initiated.	LTCP003I
tcpNowAvailable	The connection to TCP/IP has been successful and all TCP functions are supported.	LTCP004I

---

## Shutdown Events

The following table details status events that occur at shutdown.

Trap Variable	Description	Trap Trigger
shutdownRequested	A Sterling Connect:Direct for Microsoft Windows Stop command has been issued. Type can be QUIESCE, STEP, IMMEDIATE, or FORCE.	LSMG421I
normalShutdownComplete	Sterling Connect:Direct for Microsoft Windows termination has been completed successfully.	NUTC001I

The following table details the alarm event that occurs at shutdown:

Trap Variable	Description	Trap Trigger
abnormalShutdown	An abnormal termination of Sterling Connect:Direct for Microsoft Windows has occurred.	LSMG419I

---

## API Events

The following table details the status event that occurs from the API.

Trap Variable	Description	Trap Trigger
maxUserReached	MAX.API.CONNECTS has been reached.	LCOA009I

---

## Execution Events

The following table details status events that occur when a Process executes.

Trap Variable	Description	Trap Trigger
processRetryExceeded	The Process has exceeded the retry threshold and has been placed in the Hold queue.	SVTM506I
tcqMovement	A IBM Sterling Connect:Direct for Microsoft Windows Process has been moved to the Hold queue due to errors during Process execution.	LPMM001E LSMG007E SVTM105I



Trap Variable	Description	Trap Trigger
userMessageStatus	A user defined Sterling Connect:Direct message has been issued.	Any Sterling Connect:Direct message

The following table details alarm events that occur when a Process executes:

Trap Variable	Description	Trap Trigger
processFailure	A Process failed with a return code greater than 4 due to abnormal session termination, network map check failure, or FM security failure.	LSMG420I
maxPnode	The maximum number of PNODE Processes has been reached.	LPMM055E
processNot Started	Process was not started because session manager could not be initialized.	LSMG418I
maxSnode	The maximum number of SNODE Processes has been reached.	LSMI013E
userMessageAlarm	A user-defined Sterling Connect:Direct message has been issued.	Any message ID

---

## Miscellaneous Events

The following table details other status events.

Trap Variable	Description	Trap Trigger
tracesEnabled	Sterling Connect:Direct traces enabled.	STRA029I
netmapUpdate	The Sterling Connect:Direct network map has been updated.	SMUP192I
authFileUpdate	Dynamic update of the Sterling Connect:Direct AUTH has occurred.	SAFC006I
initparmRefresh	Dynamic update of the Sterling Connect:Direct INITPARM has occurred.	SITA993I
changeProcess	A CHANGE PROCESS command has occurred.	SOPB017I
deleteProcess	A DELETE PROCESS command has occurred.	SOPC011I

---

## Use the Activity Log

This Activity Log contains a list of Sterling Connect:Direct activities, including every significant activity you have requested from the time the activity log is opened until it is closed. Each activity record logged is maintained with the significant data associated with it.

For example, when you save a file, the Save activity record is stored, with the file name of the saved document. The Activity Log is created at startup. It is minimized and located in the lower left-hand corner. You may create, save, open, close, and print Activity logs. When you open a new activity log, the active Log that is already open is deactivated.

---

## Opening an Activity Log

To open an activity log, click the **Activity Log** in the bottom pane of the Sterling Connect:Direct Requester window.

---

## Saving an Activity Log

### About this task

The activity log information is lost when you close Sterling Connect:Direct Requester unless you set the activity log information to write to a file.

### Procedure

1. Select Tools > Options.
2. To display the activity log in the output window, check Enable the activity log in the output window.
3. To write the activity log to a file:
  - a. Select **Write the Activity Output to a File**.
  - b. Type the name of the file.
  - c. To create a new activity log every time you start Requester, select **Create New File at Startup**.
  - d. To append activity to the existing log file at start up, select **Append to Existing Activity File**.
4. Click **OK**.

---

## Type Events

Use the events in the following table to enable or disable all alarm or status events.

Trap Event	Description	Event
sendAlarmTraps	NO—Disables all alarm trap variables regardless of individual settings. YES—Enables all alarm trap variables, allowing you to disable individual alarm trap variables.	Alarm
sendStatusTraps	NO—Disables all status trap variables regardless of individual settings. YES—Enables all status trap variables, allowing you to disable individual status trap variables.	Status

---

## Chapter 6. Manage a Sterling Connect:Direct Server

---

### Manage a Sterling Connect:Direct Server

The Sterling Connect:Direct Admin Tool enables you modify a Sterling Connect:Direct server and databases. You configured the server when you installed Sterling Connect:Direct for Microsoft Windows. If you want to change the server configuration or start or stop a Sterling Connect:Direct server, use the Admin Tool utility.

---

### Starting the Admin Tool Utility






1. Click **Start > All Programs**.
2. Click **IBM Sterling Connect:Direct > v4.6.0 > CD Admin Tool**.

The main window contains an icon representing the local computer and a traffic light icon for each Sterling Connect:Direct node on the computer. A running server is represented by a green light, a stopped server is represented by a red light, and a server in the process of starting or stopping is represented by a yellow light.

---

### About the Toolbar

The Admin Tool toolbar provides icons to perform frequently performed actions. The Admin Tool provides the following utility icons.

Select	To
	Start a server. The traffic light icon displays a green light when the server is starting or running.
	Stop a server. The traffic light icon displays a red light indicating the server is not running.
	Set general properties for a Sterling Connect:Direct for Microsoft Windows server. Stop the server before setting general properties.
	Display the About Admin Tool dialog box.
	Click a menu bar or toolbar item, to access a description of its function. This action does not work when a dialog box is open.

---

### Starting and Stopping a Sterling Connect:Direct Server

#### About this task

Use the Admin Tool utility to start and stop a Sterling Connect:Direct server.

To start and stop a server:

#### Procedure

1. Select the server to start or stop.

2. Select **Server > Start**. If the server is already started, the server icon changes to yellow and then changes to green. If the server is unable to start, the light changes back to red.

---

## Configuring a Sterling Connect:Direct Server

### About this task

To configure general, TCP/IP, SNA, and database properties for a server, use the Properties dialog box.

**CAUTION:** You must stop the Sterling Connect:Direct service before you configure properties. Stopping the service interrupts any Processes that are running.

To configure server properties:

### Procedure

1. Click the server to configure.
2. If the server is running, click the stop icon to stop the server.
3. Select **Server > Initialization Properties**.
4. Select one of the following Service Startup methods from the pull-down menu:
  - Automatic to start Sterling Connect:Direct every time the system starts.
  - Manual to start Sterling Connect:Direct manually.
  - Disabled to prevent Sterling Connect:Direct from being started.
5. If necessary, change the settings on the General properties page. Refer to the following table for a description of the fields:

Field Name	Definition	Valid Values
Max API Connections	Specifies the maximum number of concurrent client API connections permitted for the local node. It defines the maximum number of connections by different userids. API connections by a single user ID has no limit.	A numeric value from 1–255. The default is 10.
Max Pnode Sessions	Specifies the maximum concurrent connections for all remote nodes where the local Sterling Connect:Direct for Microsoft Windows server node is the originator of the Process.  This field is limited to the lesser of the values defined in the initialization parameters file and the network map definition for a given node.	A numeric value from 1–255 for the server version of Sterling Connect:Direct for Microsoft Windows. The default is 1 for the server version. The workstation version is limited to 1 PNODE session.
Max Snode Sessions	Specifies the maximum concurrent connections, where the local Sterling Connect:Direct server node is the partner node cooperating with a remote Sterling Connect:Direct node to execute a Process.  This field is limited to the lesser of the values defined in the initialization parameters file and the network map definition for a given node.	A numeric value from 1–255 for the server version of Sterling Connect:Direct for Microsoft Windows. The default is 1 for the server version. The workstation version of Sterling Connect:Direct for Microsoft Windows is limited to 2 SNODE sessions.

Field Name	Definition	Valid Values
TCQ Startup	Specifies how the Sterling Connect:Direct server program starts with respect to the TCQ.	Warm to retain all existing Processes in the TCQ at server startup. If you select a warm start, all Processes in executing state when the server was stopped will restart when the server is restarted. Cold to delete all existing Processes in the TCQ at startup.
TCQ Max Age	Specifies the maximum number of days a Process with Held due to Error (HE) status remains in the TCQ before it is automatically deleted.	A numeric value from 0–30. The default is 30 days. Sterling Connect:Direct does not automatically delete Processes when you specify 0.
Stat Max Age	Specifies the maximum age (in days) that statistics records are allowed to reach before the system automatically deletes them.	A numeric value from 0–30. The default is 7 days. Sterling Connect:Direct does not automatically delete statistics records when you specify 0.

6. Click the API tab. If necessary change the default values of API fields. Refer to the following table for a description of the fields:

Field Name	Definition	Valid Values
Enable TCP/IP API Support	Enables TCP/IP API support.	enabled   disabled
API IP Address	Specifies the IP address that the Sterling Connect:Direct Requester or user-written API programs use to establish client sessions with the Sterling Connect:Direct server.  API Additional Addresses and Ports	A numeric value in the format nnn.nnn.nnn.nnn (IPv4) or nnnn:nnnn:nnnn:nnnn:nnnn:nnnn (IPv6), or the host name.
API Port	Specifies the port number that the Requester or user-written API programs use to establish client sessions with this Sterling Connect:Direct server.	A numeric value in the format nnnn, where nnnn is a positive integer from 0 to 65535.  The default is 1363.
API Additional Addresses and Ports	Specifies additional addresses and ports that the Sterling Connect:Direct Requester or user-written API programs use to establish client sessions with this Sterling Connect:Direct server. Multiple address/host names (and combinations with port numbers) can be specified in this field. The port is separated from its corresponding address/host name with a semi-colon (;), and each address/host name and port combination is separated by a comma (,). A space may be added after the comma for readability.	A numeric value in the format nnn.nnn.nnn.nnn (IPv4) or nnnn:nnnn:nnnn:nnnn:nnnn:nnnn (IPv6), or the host name.  For example, 10.20.9.175;2363, fd00:0:0:2014::7; 2364  This is an optional field.

Field Name	Definition	Valid Values
Host Additional Addresses and Ports	<p>Specifies additional IP addresses and ports for incoming communications from remote Sterling Connect:Direct nodes to this Sterling Connect:Direct server node.</p> <p>Multiple address/host names (and combinations with port numbers) can be specified in this field. The port is separated from its corresponding address/host name with a semi-colon (;), and each address/host name and port combination is separated by a comma (.). A space may be added after the comma for readability.</p>	<p>A numeric value in the format nnn.nnn.nnn.nnn (IPv4) or nnnn:nnnn:nnnn:nnnn:nnnn (IPv6), or the host name.</p> <p>For example, 10.20.9.175:2364, mdallas;1364</p> <p>This is an optional field.</p>
Enable Dynamic Addressing (DHCP)	Enables dynamic addressing, so that the DHCP server will assign an IP address when it is requested for the Sterling Connect:Direct server node.	Disabled   Enabled

7. Click the TCP/IP tab. If necessary change the default values of TCP/IP fields. Refer to the following table for a description of the fields:

Field Name	Definition	Valid Values
Enable TCP/IP Support	Enables TCP/IP support.	enabled   disabled
Host IP Address	Specifies the IP address for incoming communications from remote Sterling Connect:Direct nodes to this Sterling Connect:Direct server node.	A numeric value in the format nnn.nnn.nnn.nnn (IPv4) or nnnn:nnnn:nnnn:nnnn:nnnn (IPv6), or the host name.
Host Port	Specifies the port number for incoming communications from remote Sterling Connect:Direct nodes to this Sterling Connect:Direct server node.	A numeric value in the format nnnn, where nnnn is a positive integer from 0 to 65535.  The default is 1364.
Host Additional Addresses and Ports	<p>Specifies additional IP addresses and ports for incoming communications from remote Sterling Connect:Direct nodes to this Sterling Connect:Direct server node.</p> <p>Multiple address/host names (and combinations with port numbers) can be specified in this field. The port is separated from its corresponding address/host name with a semi-colon (;), and each address/host name and port combination is separated by a comma (.). A space may be added after the comma for readability.</p>	<p>A numeric value in the format nnn.nnn.nnn.nnn (IPv4) or nnnn:nnnn:nnnn:nnnn:nnnn (IPv6), or the host name;nnnn</p> <p>For example, 10.20.9.175:2364, mdallas;1364</p> <p>This is an optional field.</p>
Buffer Size	Specifies the data buffer size for transmitting data to and from a remote Sterling Connect:Direct node if the value is not in the network map entry. The value entered in the Buffer Size field of the network map TCP/IP Communication Mode object overrides this value.	A numeric value from 256–65536.  The default is 65535.
Enable Dynamic Addressing (DHCP)	Enables dynamic addressing, so that the DHCP server will assign an IP address when it is requested for the Sterling Connect:Direct server node.	Disabled   Enabled

8. Click the UDT tab. If necessary change the default values of UDT fields. Refer to the following table for a description of the fields:

Field Name	Definition	Valid Values
Enable UDT33 Support	Enables UDT33 support.	enabled   disabled
Host IP Address	Specifies the IP address for incoming communications from remote Sterling Connect:Direct nodes to this Sterling Connect:Direct server node.	A numeric value in the format nnn.nnn.nnn.nnn (IPv4) or nnnn:nnnn:nnnn:nnnn:nnnn:nnnn (IPv6), or the host name.
Host Port	Specifies the port number for incoming communications from remote Sterling Connect:Direct nodes to this Sterling Connect:Direct server node.	A numeric value in the format nnnn, where nnnn is a positive integer from 0 to 65535.  The default is 1364.
Host Additional Addresses and Ports	Specifies additional IP addresses and ports for incoming communications from remote Sterling Connect:Direct nodes to this Sterling Connect:Direct server node.  Multiple address/host names (and combinations with port numbers) can be specified in this field. The port is separated from its corresponding address/host name with a semi-colon (;), and each address/host name and port combination is separated by a comma (.). A space may be added after the comma for readability.	A numeric value in the format nnn.nnn.nnn.nnn (IPv4) or nnnn:nnnn:nnnn:nnnn:nnnn:nnnn (IPv6), or the host name;nnnn  For example, 10.20.9.175:2364,mdallas;1364  This is an optional field.
Buffer Size	Specifies the data buffer size for transmitting data to and from a remote Sterling Connect:Direct node if the value is not in the network map entry. The value entered in the Buffer Size field of the network map UDT Communication Mode object overrides this value.	A numeric value from 256–65536.  The default is 65535.
Enable Dynamic Addressing (DHCP)	Enables dynamic addressing, so that the DHCP server will assign an IP address when it is requested for the Sterling Connect:Direct server node.	Disabled   Enabled

9. Click the SNA tab. If necessary, change SNA field values. Refer to the following table for a description of the SNA fields:

Field Name	Definition	Valid Values
Enable SNA Support	Enables SNA support.	Enabled or Disabled  If SNA is activated at installation, the default value is enabled.
Local LU Name	Specifies the Local LU name for the Sterling Connect:Direct server node.	Local LU Name  If you want to monitor multiple LUs, leave this field blank. The default value is the local LU name.

10. Click the **Database** tab.
11. Click **Modify Settings** to invoke the Database Wizard utility. Use the utility to configure the ODBC and database environments.
12. Select one of the following database types:

- Microsoft SQL Server
  - MySQL
  - IBM solidDB
13. If you selected Microsoft SQL server:
    - a. Identify the TCQ/Stats data source in the **TCQ/Stats Datasource** field.
    - b. Identify the data source for message in the **Message Datasource** field.
    - c. Identify the database name in the **Database Name** field.
    - d. To specify the SQL server, type or select the name of the SQL server or click (...) to select a network SQL server.
  14. When you validate the information, click **Finish**.
  15. Click **Yes** to build the database.
  16. Click **OK**.

---

## Work with Active Directory

When you install Sterling Connect:Direct on a computer, you can add the node to Active Directory during the installation. However, you can use the Admin Tool to add or delete Active Directory entries after the initial installation.

You can also view or print a report that lists all nodes that are registered in Active Directory. In order to add or delete a node from Active Directory, you must be a member of the Enterprise Admins group.

**Note:** You can only add or delete Active Directory entries if Active Directory services have been implemented in your environment.

---

## Adding an Active Directory Entry

### About this task

To add a node entry to Active Directory:

### Procedure

1. Start the Admin Tool utility.
2. Select Active Directory > Create.
3. Select the node to add and click **Add**.

---

## Deleting an Active Directory Entry

### About this task

To delete a node entry from Active Directory:

### Procedure

1. Start the Admin Tool utility.
2. Select Active Directory > Delete.
3. Select the node to delete and click **Remove**.



---

## Creating an Active Directory Report

### About this task

To create a report that identifies all nodes registered in Active Directory:

### Procedure

1. Start the Admin Tool utility.
2. Select Active Directory > Report. The Active Directory Report is displayed.



---

## Chapter 7. Troubleshoot Sterling Connect:Direct

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### Diagnose a Server Problem Using Traces

If you have a problem with a server, you can start a trace. A trace provides detailed information about Sterling Connect:Direct activity and assists in diagnosing problems related to Sterling Connect:Direct operations. The trace facility writes this information to a file. You can set the size of the output file and specify a wrap if the file reaches its maximum size.

You can set a trace to one of the following levels:

- A basic trace to capture the function entry and exit only.
- An intermediate trace to capture the function argument and its start and stop.
- A full trace to capture internal control blocks and the function argument, start, and stop.

The trace timestamp is specified in microseconds to pinpoint server activity with greater precision.

You can create a trace using Requester or the CLI.

Refer to “Traceoff Command” on page 140 and Traceon Command for instructions on using the CLI to define or turn off traces.

---

### Defining a Trace

#### About this task

To define a Sterling Connect:Direct trace:

#### Procedure

1. Start Requester.
2. Select Admin > Tracing.
3. To set trace information for selected functions, turn on tracing for the specific Sterling Connect:Direct events.
  - CMGR—Capture the interaction between clients and the server.
  - PMGR—Capture server Process changes.
  - MAIN—Capture server initialization and termination.
  - STAT—Capture statistics activity.
  - SMGR—Capture the execution of Processes and the interaction of the server with other nodes.
  - COMM—Capture interactions with external communications facilities invoked from Session Manager.
4. To set tracing for all available events, click **Full Tracing**.
5. Generate a configuration report is selected by default. If you do not want to generate a configuration report, turn off this option.
6. To specify output file information:
  - a. Click the **File** tab.

- b. Enter the output file name. Do not select the name of an active trace file. A file can only be used for one trace at a time. The default file name is CDTRACE.CDT.
  - c. Enter the maximum file size allowed in the **Max Size** field. Select Kilobytes or Megabytes to specify the size unit.
  - d. Wrap tracing output when max file size is reached is selected by default. If you do not want the tracing output to wrap when the maximum file size is reached, turn off this option.
7. Click **OK**.

---

## Stopping a Trace

### About this task

To stop a trace:

### Procedure

1. Select Admin > Tracing.
2. Set the trace that you want to stop to OFF.
3. Click **All Off** to turn off all tracing.
4. Click **OK**.

## Trace Startup Parameters

The following startup parameters for Sterling Connect:Direct traces are all optional:

Parameter	Description and Options
-ttyp=	<p>Specifies the type of trace to start during initialization. You must provide this parameter in order to generate any trace output. Any combination of the following options is valid.</p> <p>c — Starts a Command Manager trace. This trace affects all Command Managers started on behalf of users logging in to the Sterling Connect:Direct for Microsoft Windows server. It shows both the command processing flow and the interactions between the server executable and the Sterling Connect:Direct for Microsoft Windows.</p> <p>p — Starts a Process Manager trace. This trace shows all events related to the Process Manager and to Session Manager startup by the main server executable.</p> <p>s — Starts a Session Manager trace. This trace shows all Session Manager processing, including file and communications API access, but does not display information that is sent across the communications line. If you do not specify any further qualifying parameters, the system traces all Session Managers.</p> <p>o — Starts a Communications trace. This trace shows all the communications data that flows across the network between the local and remote Sterling Connect:Direct Session Managers.</p> <p>m — Starts a trace of the main-line logic that includes initialization and termination.</p> <p>a — Starts a trace of the Statistics subsystem. This trace shows all records sent to the Statistics thread.</p> <p>x — Starts all trace types. Specifying a value of x is the same as specifying cpsoma.</p>
-tlvl=	<p>Specifies the trace level. The values are:</p> <p>b — Starts a basic trace that includes only module entry and exit records. This is the default.</p> <p>i — Starts an intermediate trace that shows all trace data produced by b plus function arguments.</p> <p>f — Starts a full trace that shows all trace data produced by i plus certain Sterling Connect:Direct control blocks and internal information.</p>
-twrp	<p>Specifies that the trace file should wrap once it reaches its maximum size.</p>
-tfil=filespec	<p>Specifies the fully qualified name of the trace file that receives output. The default is CDTRACE.CDT in the directory where the Sterling Connect:Direct for Microsoft Windows server executable resides. Microsoft Windows Services treats a backslash (\) as an escape character, so type two backslashes for each backslash in the file path.</p> <p>Example:</p> <pre>-tfil=c:\\users\\default\\trace.it</pre>

Parameter	Description and Options
-tfsz=	<p>Specifies the maximum file size the trace file can reach before it wraps if -twrp is also specified. If -twrp is not specified, -tfsz indicates that the trace file will terminate when it reaches this size.</p> <p>The default is -tfsz=100K.</p> <p>bytes: You can specify the file size in bytes.</p> <p>bytesK: You can specify the file size by using the K (x1000) suffix.</p> <p>bytesM: You can specify the file size by using the M (x1000000) suffix.</p>

For Session Manager (s) or Communications (o) trace types, the following parameters are also available:

Parameter	Description and Options
-tpnum=	<p>Requests a trace of up to eight Process numbers upon the initiation of the Process. If you specify -tpnum, Sterling Connect:Direct will only trace the specified Processes.</p> <p>pnum: Process number.</p> <p>(pnum1,pnum2,...,pnum8): Trace of up to eight Process numbers.</p>
-tpnam=	<p>Requests a trace of up to eight Process names upon the initiation of the Process. If you specify -tpnam, Sterling Connect:Direct will only trace the specified Processes. Arguments are:</p> <p>pnam: Process name.</p> <p>(pnam1,pnam2,...,pnam8): Trace of up to eight Process names.</p>
-tdest=	<p>Requests a trace of up to eight Sterling Connect:Direct remote node names that have interaction with this local node. This parameter generates trace information when Sterling Connect:Direct submits a Process that is destined for the specified remote node or when the specified remote node establishes a sessionam with this local node. If you specify -tdest, Sterling Connect:Direct will only trace the specified remote node names.</p> <p>dest: Destination node name.</p> <p>(dest1,dest2,...,dest8): Trace of up to eight destination node names.</p>
-tlnode= or -tpnode=	<p>Requests a trace of initiating node sessions only. This parameter modifies the effect of the -tpnam, -tpnum, and -tdest parameters by allowing only traces of Processes submitted on the local node.</p> <p><b>Note:</b> Sterling Connect:Direct for Microsoft Windows also supports -tpnode in place of -tlnode.</p>
-trnode= or -tsnode=	<p>Requests a trace of remote node sessions only, that is, a session initiated by a remote node. This parameter modifies the effect of the -tpnam, -tpnum, and -tdest parameters by allowing only traces of Processes submitted on remote Sterling Connect:Direct nodes.</p> <p><b>Note:</b> Sterling Connect:Direct for Microsoft Windows also supports -tsnode in place of -trnode.</p>

---

## Recover from a Problem

Sterling Connect:Direct provides several ways to recover from a system malfunction, such as an abnormal termination of a connection between local and remote Sterling Connect:Direct nodes. Process recovery enables you to resume execution as quickly as possible and to minimize redundant data transmission after a system failure.

Sterling Connect:Direct uses the following facilities to address errors for Process recovery:

- Process step restart
- Automatic session retry
- Checkpoint/restart
- Run Task restart

---

## Process Step Restart

As a Process executes, Sterling Connect:Direct records the step that is executing in the TCQ. If Process execution is interrupted, the Process is held in the TCQ in retry (RE) status, unless you explicitly delete the Process with the Hold parameter set to No. After all attempts to restart have failed, the Process goes into Held due to Error (HE) status. When a wildcard copy command restarts, it restarts at the file that was being copied when the Process was interrupted.

When you release the Process for execution, Sterling Connect:Direct automatically begins execution at the beginning of that statement. No user specification is required for Process step restart. Sterling Connect:Direct always performs Process step restart.

---

## Automatic Session Retry

The network map remote node object has short-term and long-term connection retry parameters. If no value is specified for these parameters, the default values are taken from the initialization parameters file.

Short-term parameters allow a quick succession of retry attempts in the event of a short-term connection failure. Long-term parameters are used after the number of short-term attempts you specify has been reached. The assumption is that the connection problem cannot be fixed quickly; therefore, Sterling Connect:Direct can retry infrequently to save the overhead of connection retry attempts.

If a session error occurs, the Process moves to the Timer queue in retry (RE) status and short-term and long-term wait times begin. After short-term and long-term wait times expire, the Process is moved to the Hold queue.

The `tcq.max.age` initialization parameter specifies the maximum number of days a Process with a Held due to Error (HE) status remains in the TCQ before it is automatically deleted.

---

## Checkpoint/Restart

Checkpoint/restart is specific to the Process copy statement. Sterling Connect:Direct records file positioning checkpoint information at specified intervals during a copy operation. If a copy step is interrupted for any reason, it can be restarted at the last checkpoint position.

**Note:** Sterling Connect:Direct must support checkpoint/restart on both the local and the remote node.

The file sender provides positioning information to the receiver when a checkpoint interval is reached. The receiver stores this information, along with its destination file positioning information, in the checkpoint file. The last four sets of positioning information are retained in the checkpoint file. At restart, each set of information is used until the file is successfully repositioned. If repositioning fails, then the entire file is retransmitted.

### Checkpoint Parameter for the Copy Statement

The checkpoint parameter in the Process copy statement specifies the byte interval at which checkpoints are taken.

**Note:** See the *IBM Sterling Connect:Direct Process Language Reference Guide* for use of the checkpoint parameter in the copy statement.

A checkpoint value of No disables checkpointing. If you do not specify a checkpoint value in the copy statement, the default is defined by the checkpoint interval initialization parameter, `ckpt.interval`.

---

## Restart During Run Task Operations

Sterling Connect:Direct for Microsoft Windows provides checkpoint/restart capabilities with the run task Process statement. If a run task operation is executing on the SNODE and a session failure occurs, the PNODE recognizes the session failure and puts the Process in the Timer queue for retry. The SNODE, however, is still running the run task operation and is not notified of the session failure until the operation finishes. The checkpoint/restart feature for run task ensures that when the Process restarts on the PNODE, the run task operation does not execute a second time on the SNODE.

### Restart Process Operations

If a run task Process step restarts, the node where the operation executes attempts to find the checkpoint information in the TCQ header. If the run task step is still executing, the Process that is running for the restart of the step waits for the run task operation to finish the first task and proceed to the next step of the Process, if there is one.

When the first Process finishes, it determines that the session under which it was running has been lost and terminates without logging statistics records that indicate a session failure. The second Process records how the run task step that was still executing ended and proceeds to the next step in the Process.



## Determine Reexecution of the Run Task Step

If Sterling Connect:Direct determines at restart that the run task operation ended because it finished before the PNODE restarted the Process, then the run task step does not execute again. However, if the run task operation did not finish and is not currently running, then the value of the `runtask.restart` initialization parameter determines whether to restart the Process.

If `runtask.restart=yes`, Sterling Connect:Direct executes the program again. If `runtask.restart=no`, the Process skips the run task step.

**Note:** For a full description of all run task statement parameters, see the *IBM Sterling Connect:Direct Process Language Reference Guide*.

---

## Troubleshoot Sterling Connect:Direct Problems

Before calling IBM Support, gather information to help support personnel analyze and troubleshoot your problem. Have the following information available when you call:

- Network map parameter definitions
- Initialization parameter definitions
- Statistics report
- For SNA sites, gather the following:
  - If you are using Microsoft SNA software, type `snacfg/print>snacfg.dat` from a command prompt.
  - If you are using IBM Communications Server SNA software, open `filename.acg`, where *filename* is the name specified during Communications Server installation.

If you are troubleshooting a Sterling Connect:Direct for z/OS server, gather the following information:

- Network map parameter definitions
- Local Node source
- Remote Node source
- For SNA connectivity, provide the following:
  - z/OS LU definition
  - z/OS PU definition
  - z/OS APPLID
  - z/OS LOGMODE definition entry



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## Chapter 8. Worksheets

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### Network Map Communications Mode Object Worksheet

The communications mode object defines the protocol and characteristics of sessions that are established using this mode group. Use the information on this worksheet when you create or modify a Communication Mode in your network map.

**Note:** See “Define and Manage the Sterling Connect:Direct Network” on page 13 for field content.

Make a copy of this worksheet for each communications mode in the network.

Communications Mode	Information Needed
TCP/IP	Communications Mode Name Buffer Size Pacing Send Count Pacing Send Delay CRC
UDT	Communications Mode Name Buffer Size CRC
APPC	Communications Mode Name Max RU Size Max Pacing Size Max Sessions

---

### Network Map Communications Path Object Worksheet

The communication path object defines the communications path between the local node and one or more remote nodes. Use this worksheet when you create a communications path in your network map.

**Note:** See “Define and Manage the Sterling Connect:Direct Network” on page 13 for field content.

Make a copy of this worksheet for each communications path in the network.

Communications Path	Information Needed
TCP/IP	Communication Path Name Communications Mode

Communications Path	Information Needed
UDT	Communication Path Name Communications Mode
APPC	Communications Path Name Communications Mode Transport Type Token Ring or Ethernet <ul style="list-style-type: none"> <li>• Adapter Number <ul style="list-style-type: none"> <li>– Primary</li> <li>– Alternate</li> </ul> </li> <li>• Address</li> </ul> SDLC <ul style="list-style-type: none"> <li>• Local SNA Network</li> <li>• LU Name</li> </ul>

---

## Network Map Remote Node Object Worksheet

The Remote Node object provides information about remote nodes to which the local node establishes sessions or that establish sessions with the local node.

Use the information on this worksheet when you modify your network map. See “Define and Manage the Sterling Connect:Direct Network” on page 13 for field content.

Make a copy of this worksheet for each remote node.

**Note:** The components below correspond to the tabs on the Netmap Node Properties dialog box.

Network Map Component	Information Needed
Main Options	Node Name Operating System Maximum Concurrent Local Node Session Maximum Concurrent Remote Node Session Default Class Short Term Number of Retries Interval (Time Between Retries) Long Term Number of Retries Interval (Time Between Retries)

Network Map Component	Information Needed
TCP/IP Information	Host Name/IP Address Port Number/Service Name TCP/IP Communication Mode Name Alt Comm Outbound (Alternate Outbound Addresses) Alternate Comminfo (Alternate Netmap-Checked Addresses)
UDT Information	Host Name/IP Address Port Number/Service Name UDT Communication Mode Name Alt Comm Outbound (Alternate Outbound Addresses) Alternate Comminfo (Alternate Netmap-Checked Addresses)
APPC Information	Network Name Partner LU Name APPC Mode
Communications Path	Communications Path Names <b>Note:</b> You must designate at least one path.
Description Information	Contact Name Contact Phone Number Comment

---

## User Functional Authorization Worksheet

User Functional Authorizations control the user's right to issue various Sterling Connect:Direct commands and statements or perform tasks through the Sterling Connect:Direct Requester. Use this worksheet when making updates to the functional user authorization object in the Registry.

See "Configuring the Sterling Connect:Direct Local Node" on page 1 for field content. Make a copy of this worksheet for each Sterling Connect:Direct user.

Type of Authorization Information	Information Needed
Main Options	Local User ID Default User Type (choose one): <ul style="list-style-type: none"> <li>• General User</li> <li>• Administrator</li> </ul>

Type of Authorization Information	Information Needed
Administrative	Indicate whether the administrator has the authority to update the following: <ul style="list-style-type: none"> <li>• User Authorizations</li> <li>• Upload</li> <li>• Remote User Proxies</li> <li>• Download</li> </ul>
Directory Restrictions	Specify the directory where you are allowed to perform the specific tasks. If you do not specify a directory, you can perform the specific task from any directory to which the Microsoft Windows security enables access. This authority is effective regardless of whether the request is submitted from the local or remote system. However, the remote user proxy can override the directory specification. <ul style="list-style-type: none"> <li>• Upload Directory</li> <li>• Download Directory</li> <li>• Process Directory</li> <li>• Program Directory</li> </ul>
Server Control	Grants authority to perform the following tasks in Sterling Connect:Direct: <ul style="list-style-type: none"> <li>• Stop (Sterling Connect:Direct)</li> <li>• Refresh (initialization parameters)</li> <li>• Trace</li> <li>• Update Network Map</li> <li>• Update Translation Table</li> </ul>
Statements Authorization	Grants authority to use the following statements in Sterling Connect:Direct Processes: <ul style="list-style-type: none"> <li>• Trace</li> <li>• Copy</li> <li>• Run Job</li> <li>• Run Task</li> <li>• Submit</li> </ul>
Process Control Submit	Grants authority to manipulate and observe Processes in the TCQ.
Overrides Authorization	Grants authority to override the following Microsoft Windows defaults: <ul style="list-style-type: none"> <li>• Execution Priority</li> <li>• ACL Updates</li> <li>• File Attributes</li> <li>• Remote Node ID</li> <li>• CRC</li> </ul>

---

## Remote User Proxy Worksheet

The Remote User Proxy object defines a relationship between a remote node and a local user ID.

**Note:** See “Configuring the Sterling Connect:Direct Local Node” on page 1.

Make a copy of this worksheet for each Sterling Connect:Direct Remote User Proxy you want to define.

Type of Authorization Information	Information Needed
Main Options	Remote Node Name  Remote User ID  Local User ID  Local User ID Password  Allow the remote user to: <ul style="list-style-type: none"> <li>• Upload</li> <li>• Download</li> </ul>
Directory Options	Specify the directory where the remote user can perform tasks. The directory properties allow you to restrict the Process directory and data directories that remote users can access. If you do not specify a directory, the directories specified in the functional authorization for the local user account will apply. If there are no directories specified in the local user functional authorizations, the remote user can perform the specific task from any directory that the server security enables access to.  Upload Directory  Download Directory  Process Directory  Program Directory





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## Chapter 9. Change Sterling Connect:Direct Settings

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### Change Sterling Connect:Direct for Microsoft Windows Settings

When you install Sterling Connect:Direct for Microsoft Windows, initialization parameters are created in the Microsoft Windows registry and are used to determine settings at initialization. Initialization parameters (also called initparms) set the default values of Sterling Connect:Direct functions.

Initparms determine how Sterling Connect:Direct behaves during operation. You can change the default Sterling Connect:Direct for Microsoft Windows settings by changing the value of these parameters.

Initialization parameters are organized in the following groups:

Category	Description
Miscellaneous	Miscellaneous commands describe server path, download and upload directories, dialup entries, and security exits.
Statistics Information	Statistics settings determine the maximum age that statistics records are kept and what commands are logged in the statistics file.
TCQ Information	TCQ settings determine default values for the Process file directory, remote node run task operations, the length of time a Process is held in error, and how the TCQ handles Processes during server startup.
Global Copy Parameters	Global copy settings determine default checkpoint intervals, translation tables and translation directories.
Local Node Characteristics	Node settings define the name of the local node, and determine default values for functions such as session class, maximum connections, maximum API connections, buffer sizes, and short- and long-term attempts and retries.

---

## Sample Initialization Parameters Format

The following figures illustrate the format of the initialization parameters. The initialization parameters are listed in groups that are labeled in brackets.

The example below shows the miscellaneous parameters:

```
[Miscellaneous Commands]
server.path=C:\Program Files\Sterling\Connect Direct v4.6.00\Server\
proc.prio.default=10
exec.prio.default=7
download.dir=C:\Program Files\Sterling\Connect Direct v4.6.00\Server\DOWNLOAD\
upload.dir=C:\Program Files\Sterling\Connect Direct v4.6.00\Server\UPLOAD\
program.dir=C:\Program Files\Sterling\Connect Direct v4.6.00\Server\PROGRAM\
restrict.cmd=N
security.exit=<None>
notify.level=A
file.exit=<None>
event.log=All
snmp=N
snmp.eventlog=N
snmp.trapstat=Nsnmp.dsn=C:\Program Files\Sterling\Connect Direct v4.6.00\Server\
snmp\snmp.ini
certificate.directory=C:\Program Files\Sterling Commerce\Connect Direct v4.6.00\
Server\Secure+\Certificates
s+cmd.enforce.secure.connection=Y
```

The example below shows the local node parameters:

```
[Local Node Characteristics]
max.api.connects=10
conn.retry.stwait=00:00:10
conn.retry.stattempts=10
conn.retry.ltwait=00:03:00
conn.retry.ltattempts=10
contact.name=not specified
contact.phone=not specified
descrip=no description specified
name=CDSWIFNET-4500
sess.pnode.max=1
sess.snode.max=1
sess.default=1
netmap.check=Y
node.check=B
proxy.attempt=N
protocol=1
tcp.api.port=cswiftnet;4463
tcp.host.port=cswiftnet;4464
outgoing.address=<None>
tcp.src.ports=<None>
tcp.src.ports.list.iterations=1
comm.bufsize=65535
pacing.send.delay=00:00:00
pacing.send.count=0
tcp.crc=0FF
tcp.crc.override=N
tcp.max.time.to.wait=00:03:00
tcp.window.size=0
runstep.max.time.to.wait=00:00:00
active.directory.enabled=N
quiesce.resume=N
```

The example below shows the parameters related to the Transmission Control Queue (TCQ):

```
[TCQ Information]
tcq.max.age=30
tcq.start=W
process.dir=C:\PROGRAM FILES\STERLING COMMERCE\CONNECT DIRECT V4.6.00\SERVER\
PROCESS\
runtask.restart=N
```

The example below shows the Global Copy parameters:

```
[Global Copy Parameters]
ckpt.interval=10240K
xlate.dir=C:\PROGRAM FILES\STERLING COMMERCE\CONNECT DIRECT V4.6.00\SERVER\XLATE\
xlate.send=XLATESND.CDX
xlate.recv=XLATERCV.CDX
disable.cache=N
continue.on.exception=N
ecz.cmprlevel=1
ecz.windowsize=13
ecz.memlevel=4
strip.blanks=I
record.wrap=N
retry.msgids=<None>
retry.codes=<None>
```

The example below shows the parameters related to statistical information:

```
[Statistics Information]
stat.max.age=7
log.select=N
log.commands=Y
stat.sort=Y
```

---

## Changing Initialization Parameters

### About this task

You can change the Sterling Connect:Direct for Microsoft Windows initialization settings by editing the initialization parameters.

### Procedure

1. Click **Start > All Programs > IBM Sterling Connect:Direct > v4.6.00 > CD Requester**.
2. In Sterling Connect:Direct Requester, select **Admin > Initialization Parameters**. If you have not attached to Sterling Connect:Direct, the Connect:Direct Attach dialog box is displayed.
3. Attach to the server.
4. In the initialization parameters file, place the cursor after the equal sign following the parameter you want to change.
5. Type the new value. Refer to the parameters tables for the name, definition, and valid values for each command parameter.
6. Select **Initparms > Apply** to update and save changes.

- Close the Initparms dialog box by clicking the X in the upper-right-hand corner.

## Miscellaneous Parameters

The miscellaneous parameters determine the server path, default Process priority, event log values, and various restricted directories.

The following table lists the miscellaneous commands parameters:

Parameter Name	Description	Valid Values
certificate.directory	Default certificate directory for Sterling Connect:Direct Secure Plus commands issued from the Sterling Connect:Direct client API. If the directory is not configured, the default directory created during installation is used.	Directory path name
s+cmd.enforce.secure.connection	Determines if Sterling Connect:Direct Secure Plus commands are accepted from the Sterling Connect:Direct client API on unsecure connections.	y   n y=default. Commands from unsecure connections are not accepted. n=commands from unsecure connections are accepted
server.path	Fully-qualified path to all Sterling Connect:Direct files. Terminate the path name with a trailing backslash (\).  If you do not provide this parameter, all subdirectories for Sterling Connect:Direct are copied in the installation directory.	Valid, fully-qualified path name.
proc.prio.default	The default Sterling Connect:Direct Process priority information to assign any time a Process is submitted without the selection priority parameter (selprty) on the Process statement.	A numeric value from 1 to 15, where 15 is the highest priority.  The default is 10.
exec.prio.default	The priority of the Process. The execution priority parameter is used to influence the Microsoft Windows operating system priority given to the Session Manager when it begins execution of this Process. A Process with a higher priority is assigned a higher operating system priority and receives more system resources. <b>Note:</b> Scheduling Processes with a high execution priority value can affect the execution of other applications on the system.	A numeric value from 1 to 15, where 15 is the highest priority.  The default is 7.  These values are mapped to Microsoft Windows Process priority classes and values.
download.dir	The default directory to copy the destination file to if a copy statement does not specify a fully-qualified path.	Valid, fully-qualified path name. The default is X:\installation directory\DOWNLOAD
upload.dir	The default directory that source files are copied from if a copy statement does not specify a fully-qualified path.	Valid, fully-qualified path name. The default is X:\installation directory\UPLOAD
program.dir	The default working directory for a program started using a run task or run job statement when a fully-qualified path is not specified.	Valid, fully-qualified path name. The default is X:\installation directory\PROGRAM

Parameter Name	Description	Valid Values
restrict.cmd	<p>Restricts the use of operating system commands in run task or run job statements by preventing the use of the CMD syntax in those statements. In addition, it prevents the use of the special characters: "&amp;", " ", and "&gt;".</p> <p>To enable running of cmd tasks and the use of special characters, specify N.</p> <p>Only use restrict.cmd=Y when the controlling group or user functional authority record includes a directory restriction.</p>	<p>Y   N</p> <p>The default is N.</p>
security.exit	<p>Specifies whether a security exit is implemented as a user exit during Process execution. See the <i>IBM Sterling Connect:Direct for Microsoft Windows SDK Programmer Guide</i> for details as presented in the sample user exit program userexit_samp.c.</p>	<p>Valid, fully-qualified path name to a user-defined DLL. The default is &lt;NONE&gt;.</p>
notify.level	<p>The level of Process notification based on the Process step return code. If you want notification to occur regardless of the return code, specify a value of A.</p> <p>Specify a value of W for a warning-level return code greater than 0. Specify a value of E for an error-level return code greater than 4.</p>	<p>A   W   E</p> <p>The default is A.</p>
file.exit	<p>The name of a user-written dynamic link library (DLL) file. The DLL file opens a source or destination file during processing of the COPY statement and overrides the values specified in the COPY statement. If the DLL file is not in the search path, a fully qualified path name must be specified.</p>	<p>Valid, fully-qualified path name to a user-defined DLL. The default is &lt;NONE&gt;.</p>
event.log	<p>The statistics IDs the system sends to the Microsoft Windows event log. Either specify a list of statistics IDs or select All to log all IDs to the event log. Use a comma to separate IDs in a list.</p> <p>Refer to View Process Statistics for a list of statistics IDs.</p>	<p>statistics ID   All   (list)</p> <p>The default is All.</p>
snmp	<p>Causes the SNMP trap agent environment to be initialized.</p>	<p>N   Y</p> <p>The default is N.</p>
snmp.eventlog	<p>Initializes the SNMP event logging environment.</p>	<p>N   Y</p> <p>The default is N.</p>
snmp.dsn	<p>Defines the configuration file used to initialize the default traps variables.</p>	<p>configuration file</p> <p>The default is <i>installation directory\snmp\snmp.ini</i>.</p>
snmp.trapstat	<p>Defines the configuration file used to determine if the SNMP traps are written to the statistics file.</p>	<p>N   Y</p> <p>The default is N.</p>

## Local Node Parameters

The local node characteristics parameters define the name of the local node and default information used to communicate with a remote node.

The following table identifies the local node characteristics parameters:

Parameter Name	Description	Valid Values
max.api.connects	The maximum number of concurrent API client connections permitted for the local node by different user IDS. There is no limit to the number of API connections by a single user ID.	A numeric value from 1 to 255. The default is 10.
conn.retry.stwait	The time to wait between retries immediately after a connection failure occurs. The value entered in the Short Term Retry Interval field of the network map remote node object overrides this value.	A 24-hour time value formatted as hh:mm:ss. The maximum value is 23:59:59. The default is 00:00:10, or 10 seconds.
conn.retry.stattempts	The number of times to attempt connection after a connection failure occurs. The value entered in the Short Term Retry Count field of the network map remote node object overrides this value.	A numeric value from 0–9999. The default is 10.
conn.retry.ltwait	The time to wait between long-term retry cycles. This parameter is a long-term connection retry parameter. The value entered in the Long Term Retry Interval field of the network map remote node object overrides this value.	A 24-hour time value formatted as hh:mm:ss. The maximum value is 23:59:59. The default is 00:03:00, or 3 minutes.
conn.retry.ltattempts	The number of times to attempt connection after a connection failure occurs. This parameter is a long-term connection retry parameter. The value entered in the Long Term Retry Count field of the network map remote node object overrides this value.	A numeric value from 0–9999. The default is 10.
contact.name	The name of a contact.	Any name description.
contact.phone	A phone number to use to contact the contact name.	Any valid phone number.
descrip	The description of the local node.	Any valid text string.
name	The name of the local node used when identifying the local server to remote nodes and the server object name for which API programs search when locating active Sterling Connect:Direct servers. You cannot change the value of this parameter. If you want to change the local node name, you must reinstall Sterling Connect:Direct for Microsoft Windows.	A 1- to 16-character alphanumeric string specified during installation.

Parameter Name	Description	Valid Values
sess.pnode.max	<p>The maximum concurrent connections for all remote nodes where the local server node is the originator of the Sterling Connect:Direct Process.</p> <p>This field is limited to the lesser of the values defined in the initialization parameters file and the network map definition for a given node.</p>	<p>A numeric value from 1 to 255. The default value is 1 or half of the maximum sessions specified during installation. The workstation version of the product is limited to a maximum of one PNODE session.</p>
sess.snode.max	<p>The maximum concurrent connections for all remote nodes where the local node is the partner node of a Process.</p> <p>This field is limited to the lesser of the values defined in the initialization parameters file and the network map definition for a given node.</p>	<p>A numeric value from 1 to 255. The default value is 1 or half of the maximum sessions specified during installation. The workstation version of the product is limited to a maximum of two SNODE sessions.</p>
sess.default	<p>The default session class for starting session managers. A Process executes on the specified class or any higher session class. If the value specified exceeds sess.pnode.max, a warning is issued and the value is reset to the default value. The value entered in the Default Class field of the remote node object overrides this value.</p>	<p>A numeric value from 1 to the value specified for sess.pnode.max.</p> <p>The default is 1.</p>
netmap.check	<p>The level of network map checking that occurs for each node that you communicate with.</p> <ul style="list-style-type: none"> <li>• Y—Checks the network map for all nodes that Sterling Connect:Direct will communicate with to validate the node name and the IP address.</li> <li>• L—Checks the network map only for nodes that the local Sterling Connect:Direct will initiate sessions with.</li> <li>• R—Checks the network map only for remote nodes that will communicate with this node.</li> <li>• N—Does not validate any session establishment requests in the network map.</li> </ul>	<p>Y   L   R   N</p> <p>The default is Y.</p>
node.check	<p>The level of node checking.</p> <p>A—Checks the node address only.</p> <p>B—Checks both the node address and the node name.</p> <p>C—Checks the node name only.</p>	<p>A   B   C</p> <p>The default is B.</p>
proxy.attempt	<p>Enables the use of a proxy user ID for a remote node. The use of a proxy user ID offers improved security because neither the local system nor the remote system requires a real user ID from the other side.</p>	<p>Y   N</p> <p>The default is N.</p>

Parameter Name	Description	Valid Values
protocol	The communications protocol or protocols to be used by the local node. If more than one, separate entries with commas.	TCP   UDT33   APPC  TCP—Specifies TCP/IP. This is the default.  UDT33—Specifies UDT protocol.  APPC—Specifies APPC protocol.
tcp.api.port	One or more IP addresses (or host name) and optional port numbers used to establish client sessions with this Sterling Connect:Direct node.	[IP address   hostname][;port number]  The default port number is 1363.  See “IP Addresses” on page 113.
tcp.host.port	One or more IP addresses (or host name) and port numbers that remote Sterling Connect:Direct nodes will connect to for Process execution with this local Sterling Connect:Direct for Microsoft Windows node.  One or more IP addresses (or host names) and/or port numbers that remote Sterling Connect:Direct nodes will connect to for Process execution with this local Sterling Connect:Direct for Microsoft Windows node. You can specify IP address/hostname, IP address/hostname and port, or just a port.	[IP address   hostname][;port number]  The default port number is 1364.  See “IP Addresses” on page 113.
udt.host.port	One or more IP addresses (or host name) and port numbers that remote Sterling Connect:Direct nodes will connect to for Process execution with this local Sterling Connect:Direct for Microsoft Windows node.	[IP address   hostname][;port number]  The default port number is 1364.  See Sterling Connect:Direct.
outgoing.address	A virtual IP address for adjacent nodes in a cluster (in a high-availability environment) to use for netmap checking by the remote node.  In a Sterling Connect:Direct for Microsoft Windows high-availability cluster, each instance of Sterling Connect:Direct for Microsoft Windows has a separate IP address and a virtual IP address assigned to the cluster. After all of the Sterling Connect:Direct for Microsoft Windows high-availability nodes are configured to bind to the virtual IP address, remote nodes see the single virtual address during a session. If a node in the cluster fails, another high-availability node takes over. Any remote system that is using netmap checking will still allow communications with the high-availability system.  Be sure remote nodes specify this virtual IP address in their netmap entries for each node in the high-availability cluster.	IP address   hostname  See “IP Addresses” on page 113.



Parameter Name	Description	Valid Values
tcp.src.ports	An IP address or multiple addresses and the ports permitted for the address when going through a packet-filtering firewall.	Valid IP address with an optional mask for the upper boundary of the IP address range and the associated outgoing port number or range of port numbers for the specified IP address, for example:  (199.2.4.*, 1024), (fd00:0:0:2015:::*, 2000-3000), (199.2.4.0/255.255.255.0, 4000-5000),(fd00:0:0:2015::0/48, 6000, 7000)  See “IP Addresses” on page 113.  A wildcard character (*) is supported to define an IP address pattern. If the wildcard character is used, the optional mask is not valid.
udp.src.ports	An IP address or multiple addresses and the ports permitted for the address when going through a packet-filtering firewall.	Valid IP address with an optional mask for the upper boundary of the IP address range and the associated outgoing port number or range of port numbers for the specified IP address, for example:  (199.2.4.*, 1024), (fd00:0:0:2015:::*, 2000-3000), (199.2.4.0/255.255.255.0, 4000-5000),(fd00:0:0:2015::0/48, 6000, 7000)  See “IP Addresses” on page 113.  A wildcard character (*) is supported to define an IP address pattern. If the wildcard character is used, the optional mask is not valid.
tcp.src.ports.list.iterations	The number of times that Sterling Connect:Direct scans the list of available ports defined in tcp.src.ports to attempt a connection before going into a retry state.  This parameter is automatically added to the initialization parameter and is assigned a value of 1. If desired, change this value.	A numeric value from 1–255. The default value is 1.
udp.src.ports.list.iterations	The number of times that Sterling Connect:Direct scans the list of available ports defined in udp.src.ports to attempt a connection before going into a retry state.  This parameter is automatically added to the initialization parameter and is assigned a value of 1. If desired, change this value.	A numeric value from 1–255. The default value is 1.
comm.bufsize	The data buffer size for transmitting data to and from a remote node. For TCP/IP, this value will be overridden by the value in the Buffer Size field of the TCP/IP Communications Mode Object.	A numeric value from 256 to 65536.  The default is 65535.

Parameter Name	Description	Valid Values
pacing.send.delay	The default time, in milliseconds, to wait between send operations if the value is not in the network map entry. The value entered in the Pacing Send Delay field of the TCP/IP Communication Mode object overrides this value. A value of zero indicates that a data buffer should be sent as soon as possible.	A numeric value from 0–86,400,000 (one day in milliseconds).  The default is 00.00.00.
pacing.send.count	The default number of send operations to perform before automatically waiting for a pacing response from the remote node if the value is not in the network map entry. The value entered in the Pacing Send Count field of the TCP/IP Communication Mode object overrides this value. Specify zero for no pacing.	A numeric value from 0 to 32768.  The default is 0.
tcp.crc	Globally turns on or off the CRC function for TCP/IP processes.	ON   OFF  The default is OFF.
udp.crc	Globally turns on or off the CRC function for UDP processes.	ON   OFF  The default is OFF.
tcp.crc.override	Determines whether node and Process statement overrides for CRC checking are allowed. If this value is set to n, setting overrides for CRC checking will be ignored.	Y   N  The default is N.
udp.crc.override	Determines whether node and Process statement overrides for CRC checking are allowed. If this value is set to n, setting overrides for CRC checking will be ignored.	Y   N  The default is N.
tcp.max.time.to.wait	The maximum time to wait for each pending TCP/IP Read on node to node communications. If the value is 0, Reads will not time out.	A 24-hour time value formatted as hh:mm:ss. The maximum value is 23:59:59. The default is 00:03:00.
udp.max.time.to.wait	The maximum time to wait for each pending UDP Read on node to node communications. If the value is 0, Reads will not time out.	A 24-hour time value formatted as hh:mm:ss. The maximum value is 23:59:59. The default is 00:03:00.

Parameter Name	Description	Valid Values
tcp.window.size	<p>The maximum amount of data in bytes that can be sent without receiving an acknowledgement. After a window size of data is sent without acknowledgement, no more data can be sent until an acknowledgement is received. When tcp.window.size=0 (default), the system's default value is used, which may be too low for a high-latency, high-bandwidth connection, causing slow data transfer rates. To improve performance in this situation, the window size configured for Sterling Connect:Direct for Microsoft Windows must be large enough to allow a packet to be sent and its acknowledgement received without triggering a wait for an acknowledgement. The optimum window size is the smallest quantity of data that does not trigger waits.</p> <p>In order for this parameter to take effect, ensure that the following criteria are met:</p> <ul style="list-style-type: none"> <li>• RFC1323 support is enabled on the system.</li> <li>• The system's maximum TCP window size is larger than the configured value.</li> </ul> <p>The formula for determining the optimum window size is as follows:</p> <p>BDP (bytes) = 125 x &lt;bandwidth (Mb/s)&gt; x &lt;roundtrip delay in ms&gt;</p> <p><b>Note:</b> This system configuration must be done on any Microsoft Windows system involved in the transfer, regardless of whether it is a PNODE or an SNODE.</p>	<p>A numeric value from 0 to 2147483646.</p> <p>The default is 0.</p>
runstep.max.time.to.wait	<p>The maximum time to wait for each pending run task or run job on node-to-node communications on the remote node only. If the value is 0, the run task or run job will not time out. This parameter prevents a task from being terminated when the tcp.max.time.to.wait value is reached. When runstep.max.time.to.wait is set to 0, tasks running on the remote node never terminate. When this variable is set to a value, a task is terminated if the remote task has not finished the job at the time interval defined. When a job is terminated, it is placed in the Hold (HE) queue and no retry effort is attempted. The statistics error reported is "FMH71 was not received."</p>	<p>A 24-hour time value formatted as hh:mm:ss. The maximum value is 23:59:59. The default is 00:00:00.</p>
active.directory.enabled	<p>Specifies whether Sterling Connect:Direct for Microsoft Windows updates its Active Directory entry at startup. This parameter is set automatically at installation. You do not need to update this parameter unless a node is inserted into or removed from the Active Directory after installation.</p>	<p>Y   N</p> <p>The default is N.</p>

Parameter Name	Description	Valid Values
quiesce.resume	Specifies whether testing mode is enabled for Sterling Connect:Direct for Microsoft Windows . To enable the testing mode, you must specify Y for this parameter and have a valid NDMPXTBL parameter table in the Server directory where Sterling Connect:Direct for Microsoft Windows is installed.  See “Use Sterling Connect:Direct in Test Mode” on page 155.	Y   N  The default is N.
tcp.api.inactivity.timeout	The number of seconds of session inactivity to wait before exiting a session. This helps prevent maximum connections (api.max.connects) being reached because of abrupt disconnections that do not free up resources in an orderly manner.  If you are using IBM Sterling Control Center to monitor your Sterling Connect:Direct for Microsoft Windows server, set this value to at least twice the value of the Monitor Rest Time setting in Sterling Control Center.	A numeric value from 0 to 32767.  The default is 0.

## Transmission Control Queue Parameters

The Sterling Connect:Direct Transmission Control Queue (TCQ) holds submitted Processes. The TCQ information parameters define information about the TCQ, such as the default Process directory.

See Manage Processes.

The following table identifies the TCQ information parameters:

Parameter Name	Description	Valid Values
tcq.max.age	The maximum number of days a Process with Held due to Error (HE) status remains in the TCQ before it is automatically deleted. Processes are not automatically deleted when you specify 0.	A numeric value from 0 to 999.  The default is 30 days.
tcq.start	Specifies how to start the Sterling Connect:Direct node with respect to the TCQ.	W   C  w (warm)—Retain all existing Processes in the TCQ at startup. This is the default.  c (cold)—Delete all existing Processes in the TCQ at startup.
process.dir	The default directory a Process runs from if a submit statement does not specify a fully-qualified path.	Valid, fully qualified path name. The default is X:\installation directory\PROCESS.

Parameter Name	Description	Valid Values
runtask.restart	Specifies whether a run task operation executes on a remote Windows node after a session failure. If a run task operation is executing on the remote node and a session failure occurs, the local node recognizes the session failure and puts the Process in the Timer queue for retry. The remote node is not aware of the session failure until the Process completes. The checkpoint/restart feature for run task ensures that when the Process restarts on the local node, the run task operation does not execute again on the remote node.	Y   N  The default is N.

## Global Copy Parameters

The global copy parameters define default information for the copy operation, such as the number of bytes transmitted in a copy operation before a checkpoint is taken.

See the *IBM Sterling Connect:DirectProcess Language Reference Guide* for a description of the copy Process statement.

Parameter Name	Description	Valid Values
ckpt.interval	The default checkpoint interval used. The interval is the number of bytes transmitted before a checkpoint is taken. The maximum possible value is gigabytes.	no   bytesK   bytesM  The default is 10240K bytes.
xlate.dir	The default directory containing the translation table. The default is the XLATE subdirectory where Sterling Connect:Direct is installed.	Valid, fully qualified path name. The default is X:\installation directory\XLATE.
xlate.send	The name of the default translation table to use when sending data to a remote node.	Valid name for the send translation table. The default is XLATESND.CDX
xlate.recv	The name of the default translation table to use when copying data from a remote node.	Valid name for the receive translation table. The default is XLATERCV.CDX
disable.cache	Enables or disables the Microsoft Windows file cache.	Y   N  The default is N.
continue.on.exception	Specifies whether a Process attempts to continue processing or goes into HOLD status if an abnormal termination occurs during a Sterling Connect:Direct session.  Y—Attempt to continue processing.  N—Go into HOLD status.	Y   N  The default is N.
ecz.cmprlevel	The compression level to use. Level 1 is the fastest method and offers the least degree of compression. Level 9 provides the greatest degree of compression and is the slowest method.	1   2   3   4   5   6   7   8   9  The default is 1.

Parameter Name	Description	Valid Values
ecz.windowsize	The size of the compression window or history buffer. The greater the window size, the greater the degree of compression, and the greater the amount of virtual memory used.	9   10   11   12   13   14   15 The default is 13.
ecz.memlevel	The amount of virtual memory allocated to maintain the internal compression rate. Memory level 1 uses the least amount of memory, but slows processing and reduces the degree of compression.	1   2   3   4   5   6   7   8   9 The default is 4.
strip.blanks	Determines whether trailing blank characters at the end of each record are removed from a line of text before it is written to the Microsoft Windows text file or ignored (I). The strip.blanks parameter is ignored when datatype(binary) is specified.	Y   N   I The default is I.
record.wrap	<p><b>Note:</b> This parameter is needed only in certain circumstances because it restructures the data.</p> <p>Influences the way that a sending copy step works when a logical record size (LRECL) is specified for the remote platform.</p> <p>If record.wrap is set to N, and a record length greater than LRECL is encountered in the source file, Sterling Connect:Direct for Microsoft Windows reports an error. This is the desired behavior in most cases.</p> <p>If record.wrap is set to Y, and a record length greater than LRECL is encountered in the source file, the record is broken into records of length at most LRECLs before being sent to the remote node.</p>	Y   N The default is N.
retry.msgids	<p>The message IDs to use to support a file allocation retry attempt.</p> <p>Since error codes can vary from one operating system to another and the same error code can have different meanings, use message IDs to identify retry conditions when communicating between two different platforms. When a file allocation or open error occurs on either the local or remote node, the PNODE searches for the message ID in the retry.msgids parameters. If the message ID is found, the Process is retried.</p> <p>You can perform retry attempts based on codes only, message IDs only, or a combination of the two.</p> <p>When a retry condition is detected, the session is terminated cleanly and the Process is placed in the Timer queue.</p>	Any of the valid file allocation retry messages.

Parameter Name	Description	Valid Values
retry.codes	<p>The codes to recognize as a file allocation retry attempt. File allocation retry enables a Process with a file allocation or open error on either the local or remote node to run the Process again, beginning at the copy step where the error occurred. This feature supports the ability to retry a Process that failed when a file is already in use.</p> <p>When a file allocation or open error occurs on either the local or remote node, the PNODE searches for the error or message ID in the retry.codes and retry.msgids parameters. If the error code or message ID is found, the Process is retried.</p> <p>Since error codes can vary from one operating system to another and the same error code can have different meanings, use message IDs to identify retry conditions when communicating between two different platforms.</p> <p>You can perform retry attempts based on codes only, IDs only, or a combination of the two.</p> <p>When a retry condition is detected, the session is terminated cleanly and the Process is placed in the Timer queue.</p>	Any valid error code

## Statistics Parameters

The Sterling Connect:Direct statistics facility logs information about Sterling Connect:Direct operations. The statistics information parameters define the characteristics of the statistics facility, such as the maximum age of a statistics record.

The following table identifies the statistics information parameters.

Parameter Name	Description	Valid Values
stat.max.age	How many days to store statistics before automatically deleting them. If you set this value to zero, no statistics records are deleted.	A numeric value from 0 to 365. The default is 7 days.
log.select	Specifies whether Sterling Connect:Direct logs the select process and select statistics commands to the statistics file. This specification does not affect the logging of other Sterling Connect:Direct commands.	Y   N The default is N.
stat.sort	Determines whether statistics are sorted by timestamp date.	Y   N The default is Y.

Parameter Name	Description	Valid Values
log.commands	Specifies whether Sterling Connect:Direct logs all commands issued from Sterling Connect:Direct for Microsoft Windows to the statistics file. This capability enables you to review the statistics file and determine who issued specific commands and what the responses to those commands were. You can override this parameter for the commands that select Processes and statistics with the log.select parameter.	Y   N  The default is Y.



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## Chapter 10. Specify an IP Address

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### Specify IP Addresses, Host Names, and Ports

Sterling Connect:Direct for Microsoft Windows accepts both Internet Protocol version 4 (IPv4) and Internet Protocol version 6 (IPv6) as well as host names.

You can enter IP addresses/host names and ports in several ways depending on the field you are specifying:

- Address or host name only
- Port number only
- Address/host name with a port number
- Multiple address/host name and port combinations

### IP Addresses

Sterling Connect:Direct for Microsoft Windows accepts both IPv4 and IPv6 addresses. Wherever an IP address is specified in Sterling Connect:Direct for Microsoft Windows, you can use either IPv4 or an IPv6 addresses.

#### IPv4 Addresses

IPv4 supports  $2^{32}$  addresses written as 4 groups of dot-separated 3 decimal numbers (0 through 9), for example, 10.23.107.5.

#### IPv6

IPv6 supports  $2^{128}$  addresses written as 8 groups of colon-separated 4 hexadecimal digits, for example, 1001:0dc8:0:0:0:ff10:143e:57ab. The following guidelines apply to IPv6 addresses:

- If a four-digit group contains zeros (0000), the zeros may be omitted and replaced with two colons (::), for example:

```
2001:0db8:85a3:0000:1319:8a2e:0370:1337
```

can be shortened as

```
2001:0db8:85a3::1319:8a2e:0370:1337
```

- Any number of successive 0000 groups may be replaced with two colons (::), but only one set of double colons (::) can be used in an address. For example:

```
001:0db8:0000:0000:0000:0000:1319:58ab
```

can be shortened as:

```
2001:0db8:0000:0000::1319:58ab
```

- Leading zeros in a four-zero group can be left out (0000 can be shortened to 0). For example:

```
2001:0db8:0000:0000::1319:58ab
```

can be shortened as:

```
2001:0db8:0:0:0:0:1319:58ab
```

- You can write a sequence of 4 bytes that occur at the end of an IPv6 address in decimal format using dots as separators. For example:

```
::ffff:102:304
```

or

```
0000:0000:0000:0000:0000:ffff:0102:0304
```

Can be written as:

```
::ffff:1.2.3.4
```

This notation is useful for compatibility addresses.

## Host Names

When you specify a host name rather than an IP address, Sterling Connect:Direct for Microsoft Windows does a DNS lookup to get the IP address from the operating system. The first IP address returned in the DNS lookup is used regardless of whether it is in IPv4 or IPv6 format.

A host name (net, host, gateway, or domain name) is a text string of up to 24 characters comprised of the alphabet (a-z and A-Z), digits (0-9), minus sign (-), and period (.), for example, msdallas-dt.

The following guidelines also apply:

- No blank or space characters are permitted as part of the name.
- Periods are allowed only when they are used to delimit components of domain-style names.
- Host names are not case sensitive.
- The first and last character must be a letter or digit.
- Single-character names or nicknames are not allowed.

## Port Numbers

Port numbers can be appended to the end of IP/host addresses when they are preceded by a semicolon (;), for example, 10.23.107.5;1364. This convention is specific to Sterling Connect:Direct for Microsoft Windows and is not an industry standard.

A port number must be in the range of 0 through 65535. Port numbers lower than 1024 are designated as reserved and should not be used. The following examples show port numbers appended to IP/host addresses using these conventions:

```
10.23.107.5;1364
fe00:0:0:2014::7;1364
msdallas-dt;1364
```

## Multiple Addresses, Host Names, and Ports

You can specify multiple IPv4 and IPv6 addresses and host names by separating them with a comma (,).

A space can be added after the comma for readability. For example:

```
10.23.107.5, fe00:0:0:2014::7, msdallas-dt
```

You can also specify a port number for each address or host name. The port is separated from its corresponding address/host name with a semicolon (;), and each address/host name and port combination is separated by a comma (,). A space may be added after the comma for readability. The following example shows multiple address/host name and port combinations:

```
10.23.107.5;1364, fe00:0:0:2014::7;1364, msdallas-dt;1364
```

Multiple address/host names (and combinations with port numbers) are limited to 1024 characters.

## Use Masks for IP Address Ranges

When you specify a value for the `tcp.src.ports` parameter in the initialization parameters file, you can use masks to specify the upper boundary of a range of IP addresses that use a specific port, multiple ports, or a range of ports.

Sterling Connect:Direct for Microsoft Windows supports masks for both IPv4 and IPv6 addresses, as shown in the following sample entry from the `initparms.cfg` file:

```
tcp.src.ports=(199.2.4.*, 1000), (fd00:0:0:2015::*, 2000-3000),
(199.2.4.0/255.255.255.0, 4000-5000), (fd00:0:0:2015::0/48, 6000, 7000)
```

These sample addresses specify the following information:

(199.2.4.\*, 1000)—Any IPv4 address that falls in the range from 199.2.4.0 through 199.2.4.255 and uses only port 1000.

(fd00:0:0:2015::\*, 2000-3000)—Any IPv6 address that falls in the range from fd00:0:0:2015:0:0:0:0 through fd00:0:0:2015:ffff:ffff:ffff:ffff and uses a port in the range of 2000 through 3000.

(199.2.4.0/255.255.255.0, 4000-5000)—Any IPv4 address that falls in the range from 199.2.4.0 through 199.2.255.255 and uses a port in the range of 4000 through 5000.

(fd00:0:0:2015::0/48, 6000, 7000)—Any IPv6 address that falls in the range from fd00:0:0:2015:0:0:0:0 through fd00:0:0:ffff:ffff:ffff:ffff:ffff and uses port 6000 or port 7000.

As shown in the sample entry above, the wildcard character (\*) is supported to define an IP address pattern. You can specify up to 255 unique IP address patterns or up to 1024 characters in length, each with its own list of valid source ports. If the wildcard character is used, the optional mask is not valid.

**Restriction:** Masks in hexadecimal format are not supported in Sterling Connect:Direct for Microsoft Windows.

---

## Chapter 11. Submit a Process Using the Command Line Interface

---

### Submit Processes Using the CLI Command

The Command Line Interface (CLI) provides another tool to submit Process statements and commands to the Sterling Connect:Direct server.

See “Creating a Process” on page 36 for instructions on using the Sterling Connect:Direct Requester to submit Process statements.

If you prefer to use a command line interface, use the CLI to issue requests interactively, or you can submit them automatically from batch files or command files. The CLI enables you to perform the following tasks:

- Connect to the Sterling Connect:Direct server
- Issue Sterling Connect:Direct commands
- Submit a Process
- Change a Process
- Delete a Process
- Retrieve Process status information
- Retrieve Process statistics records

---

### Creating a Configuration File to Connect to a Server

#### About this task

If you want to connect to a Sterling Connect:Direct server using the CLI, use the Logon Connection utility.

This utility can be used to run batch-oriented jobs. It enables you to identify the parameters necessary to connect to a server. It then saves this information to a configuration file. If you do not identify a directory, the file is saved in the root directory.

After you create the configuration file, invoke the CLI and include the -f parameter, to identify the location and file name for the configuration file. Then define a user ID and password in the Microsoft Windows setup utility.

To create the configuration file:

#### Procedure

1. Type the following command to run the LCU batch file:

```
LCU -fx:\directory\filename
```

where x:\directory is the location to save the configuration file and file name is the name of the configuration file.

2. Enter the following information to identify the connection parameters for the server:

- IP Address of the Sterling Connect:Direct server
- Port number of the Sterling Connect:Direct server
- User ID to use to connect to the server
- User password of the user ID used to connect to the server.

The information is automatically saved to the file you identified with the `x:\directory\filename` variable. If you do not enter this variable, the configuration file is saved in the root directory to the file called `cddef.bin`.

## Invoke the CLI

### About this task

To run the command line client:

### Procedure

1. From a command prompt, navigate to the Common Utilities directory where the CLI is installed or define the CLI location in the user's path.
2. To start the CLI, type the following command, including any of the parameters you wish to specify:

```
direct -nNodeName -uUserId -pPassword -mScrollLineCount -l -x -fLogonFile-zfilename
```

Below is an explanation of the parameters:

Parameters	Description
<i>-fLogonFile</i>	File to use to automatically connect to a Sterling Connect:Direct server.
<i>-nNodeName</i>	Node name or IP address.
<i>-uUserId</i>	User ID to use to connect to the node.
<i>-pPassword</i>	Password to use connect to the Sterling Connect:Direct node.
<i>-l</i>	By default, the CLI limits output to 128 characters per line. Include this switch to display longer lines, such as file names or sysopts strings.
<i>-mScrollLineCount</i>	The number of lines to display before pausing the statistics and Process output. Value is calculated automatically if parameter is not defined.  Do not use this option if the output is piped to a file because it will be paused with no evidence on the screen.
<i>-x</i>	Echoes the command input on the display. Writes the command immediately before the output.
<i>-zfilename</i>	Copies command output to the specified file as well as displaying the output.
<i>-?</i>	Provides help for the command line interface.

## Terminating the CLI

### Procedure

To terminate the CLI, use the quit command followed by a semicolon as shown in the following example:

```
quit;
```

---

## CLI Commands

The following table provides a summary of all available commands that can be used with the CLI.

Command	Abbreviations	Description
submit	sub	Submits a Process to the Sterling Connect:Direct node.
change process	cha, chg, c	Modifies the specified parameters for a nonexecuting Process.
delete process	del, d pro, proc, procs, p	Deletes the specified Process from the TCQ.
select process	sel pro, proc, procs, p	Retrieves status information about the specified Process.
select message	sel mes, msg, m	Retrieves the text explanation of any message Sterling Connect:Direct issues.
select statistics	sel sta, stat, stats, st	Retrieves statistics records for the specified Process.
traceoff	tof, troff	Disables the trace facility.
tracoon	ton, tron	Enables the trace facility.
help		Lists the supported Sterling Connect:Direct commands.
quit	qui, q	Stops the Sterling Connect:Direct CLI.
stop	sto	Stops the Sterling Connect:Direct server.

---

## Command Syntax

The following information describes the general conventions used in the command syntax:

- All commands must be followed by a semicolon.
- User names, passwords, and parameters are case sensitive.
- Command keywords are not case sensitive.
- File names, group names, user IDs, and passwords are defined as variable-length strings. Names referring to objects on other nodes can be subject to restrictions imposed by the other node type.
- Length restrictions for Sterling Connect:Direct node names are specific to type of field and data.
- If a parameter specifies the word generic as a parameter value, you can type a string that includes an asterisk (\*) or a question mark (?) to provide pattern matching or wildcard matching for parameter values. The asterisk matches zero or more characters, and the question mark matches any single character.

- When list is a parameter value in the syntax definition, you can specify multiple parameter values by enclosing the group in parentheses and separating values with commas. A list can also include generic values. An example follows:

```
pname=(payproc,arproc,ivproc,a?prod5*)
```

- Most CLI commands can be entered using abbreviations. When abbreviations can be used in place of a command, these abbreviations are identified in the command description table.

---

## Piping Conventions

The Sterling Connect:Direct for Microsoft Windows CLI supports the following piping conventions:

- <filename.ext uses the file for input
- >filename.ext uses the file for output

The following example demonstrates the Sterling Connect:Direct piping convention being used on a COMMANDS.TXT file containing the Sterling Connect:Direct commands you want to issue.

```
submit
test    process snode=dsd.unix
cp      copy from (file=testfile.dat pnode)
to      (file=test.dat snode)
pend;
select statistics;
select process;
quit;
```

By typing the following command, you can execute all of the commands in the COMMANDS.TXT file.

```
direct < commands.txt
```

**Note:** A batch file can also be created containing the direct < commands.txt line if you want to execute these commands from a batch file.

---

## Submit Process Command

Use the submit command to request that Sterling Connect:Direct execute the operations specified in the Process being submitted.

Parameters override the same parameters specified in the Process statement. The submit command also enables you to resolve symbolic parameters found in the Process.



Parameter	Description
file=filename	The name of the Process file, up to 256 characters. If you specify the file parameter, you must specify it before any other parameter. If you do not specify this parameter, then the text of the Process must follow the submit command.
class=nn   session number	The node-to-node session on which a Process can execute. A Process can execute in the class specified or any higher session class.
execprty=nn	<p>The operating system execution priority, from 1 to 15, of the Process. The execution priority parameter is used to influence the priority given to the Session Manager when it starts this Process. The higher the priority, the higher the Session Manager priority and, therefore, the more system resources. Scheduling Processes to run in the High priority class can have an adverse effect on the execution of other applications in the system.</p> <p>The values for the execution priority range from 1 to 15 and are mapped to Microsoft Windows Process priority classes and values. The highest priority is 15.</p> <p>Only Sterling Connect:Direct for Microsoft Windows supports the execution priority option.</p>
hold=yes   no   call	<p>The TCQ hold status of the Process.</p> <p>yes—Places the Process in the Hold queue in HI (Held Initial) status until you explicitly release it by a change process command. When you specify both hold=yes and a startt value, the hold specification takes precedence. A Process with hold=yes is placed in the Hold queue even if you specify a start time.</p> <p>no—Does not place the Process in the Hold queue. The Process executes as soon as resources are available.</p> <p>call—Holds the Process until the SNODE connects to the PNODE. At that time, the software releases the Process for execution. It also releases the Process when another Process on the PNODE connects to the SNODE.</p>
pacct="pnode accounting data"	A string, up to 256 characters, to be used as accounting data for the PNODE. Enclose the string in double quotation marks.
pnodeid=(id , pswd)	Security user IDs and passwords at the PNODE. The subparameters can contain 1 to 48 alphanumeric characters. You must specify both the ID and the password.
maxdelay=unlimited   hh:mm:ss   0	<p>Causes the command processor to wait until the submitted Process completes execution or the specified time interval expires.</p> <p>If the time interval expires, the command processor returns a warning status code and message ID. The Process is not affected by the time interval expiration and executes normally.</p> <p>unlimited—Specifies that the submit command processor is to wait until the Process completes execution.</p> <p>hh:mm:ss—Specifies that the submit command is to wait for an interval no longer than the specified hours (hh), minutes (mm), and seconds (ss).</p> <p>0—Specifies that the submitted Process must begin execution immediately. If the submitted Process cannot begin execution immediately, the submit operation fails.</p>
newname=new process name	Specifies a new Process name, 1 to 8 alphanumeric characters long, to override the name within the submitted Process.
notify=userid	The user to receive Process completion messages.

Parameter	Description
sacct="snode accounting data"	Accounting data, from 1 to 256 characters, for the SNODE. Enclose the string in double quotation marks.
retain=yes   no   initial	<p>Determines whether a copy of the Process is retained in the TCQ for re-execution after the Process executes.</p> <p>yes—Specifies that the software retains the Process in the Hold queue in HR status after execution. Issue a change process command to release the Process for execution.</p> <p>no—Specifies that the Process is deleted after execution.</p> <p>initial—Specifies that the software is to retain the Process in the Hold queue in HR status for automatic execution every time Sterling Connect:Direct initializes.</p> <p>If startt is set, you must set retain=yes to execute the Process at regular intervals based on the value of startt.</p> <p>If retain=initial, do not use the startt parameter. This causes the submit command to fail.</p>
snode=[nodename]   [hostname   IPaddress ; portnumber   servicename]	<p>Identifies the SNODE. The SNODE name is a 1- to 16-character alphanumeric string. Specify the node either on the submit command or Process statement. If you specify the node in this submit command, it overrides the node specified in the Process statement.</p> <p>nodename—Identifies the remote node object in the Sterling Connect:Direct network map.</p> <p>hostname   IPaddress ; portnumber   servicename—Specifies an IP address for the SNODE. This is used for TCP/IP connectivity only.</p> <p>Specify the host name or IP address, a semicolon, and the port number or service name. For more information on specifying valid IPv4 and IPv6 addresses and ports, see Specifying IP Addresses, Host Names, and Ports.</p> <p>If you specify an IP address, you must also specify netmap.check=r or netmap.check=n in your initialization parameters.</p> <p>If you use IPv6 temporary addresses for outbound connections, the connection will fail unless you configure a well-known address for the PNODE server or you disable temporary addresses for the SNODE.</p>
snodeid=(id [,pswd [,newpswd]])	<p>The security user IDs and security passwords on the SNODE. The subparameters can contain one or more alphanumeric characters.</p> <p>newpswd—Specifies a new password value. This subparameter is not supported by all types of Sterling Connect:Direct nodes. On z/OS systems only, the user password changes to the new value on the SNODE if the userid and old password are correct. If the SNODE is a UNIX node, the password does not change.</p> <p>If you specify the password, you must also specify the ID. If you specify a new password, you must also specify the existing password.</p>
prty=nn	<p>The selection priority of the Process for execution. This priority parameter is used for Process selection. A Process with a higher priority is selected for execution before a Process with a lower priority. The priority value does not affect the priority during transmission.</p> <p>Values range from 0 to 15, where 15 is the highest priority.</p>

Parameter	Description
startt=( <i>[date   day   daily] [,time]</i> )	<p>Identifies the specified date, day, or time to execute the Process. The Process is placed in the Timer queue in WS status. The date, day, daily, and time are positional parameters. If you do not specify date or day, type a comma before the time.</p> <p><i>date</i>—Specifies the day, month, and year, that you can code as <i>mm/dd/yyyy</i> or <i>mm-dd-yyyy</i>. You can code month and day as one or two digits and year as two or four digits. If you only specify date, the time defaults to 00:00:00. The current date is the default.</p> <p><i>day</i>—Specifies the day of the week. Values are today, tomorrow, Monday, Tuesday, Wednesday, Thursday, Friday, Saturday, and Sunday.</p> <p><i>daily</i>—Runs the Process daily.</p> <p><i>time</i>—Specifies the time of day in <i>hh:mm[:ss] [am   pm]</i> where <i>hh</i> is hours, <i>mm</i> is minutes, and <i>ss</i> is seconds. Seconds are optional. You can specify the hour in either 12- or 24-hour format. If you use the 12-hour format, then you must specify am or pm. The default format is the 24-hour format.</p> <p>If the time you specify has already passed, Sterling Connect:Direct schedules the Process for the next valid date and time. For example, if you set the Process to start daily at 5:00 PM, or <i>startt=(, 17:00)</i>, and the Process submits at 5:30 PM, Sterling Connect:Direct schedules the Process to run the next day.</p> <p>If you specify only the day value, the time defaults to midnight (00:00:00). This means that if you submit a Process on Monday, with Monday as the only <i>startt</i> parameter, the Process does not run until the following Monday at midnight.</p> <p>Do not set the <i>startt</i> parameter if <i>retain=initial</i>. This causes the submit command to fail.</p>
& <i>symbolic name n</i> ="variable string n"	A symbolic parameter assigned a value. The value is substituted within the Process when the software encounters the symbolic parameter. The symbolic within the Process must be enclosed within quotes.

## Examples

The following command submits the Process named payroll.cdp. Because the command specifies *retain=yes*, the Process is retained in the TCQ after execution. The Process starts the next Monday at 00:00:00. The command specifies Process accounting data for the PNODE.

```
submit file=payroll.cdp retain=yes startt=monday pacct="2003,dept-27";
```

The following command submits the Process named copyfil.cdp. Because the command specifies *startt*, the Process executes on the first day of January 2003 at 11:45 a.m.

```
submit file=copyfil.cdp snode=vmcent startt=(01/01/2003, 11:45:00 am);
```

## Change Process Command

Use the change process command to modify specified parameters for a nonexecuting Process or Processes in the TCQ.

Select the Processes to change by Process name, Process number, SNODE name, submitter ID, or a combination of these.

**Note:** All changes affect the Process in the TCQ, not the original text of the Process as submitted.

The change process command performs the following functions:

- Changes the class, SNODE name, destination node, or priority of a Process
- Places a Process in the Hold queue or releases a Process from the Hold queue

The format for the change process command follows:

Command	Parameters
change process	/* Search Criteria */
	[pname=Process name   generic   (list)]
	[pnumber=Process number   (list)]
	[snode=snode name   generic   (list)]
	[submitter=(node name, userid)   generic   (list)]
	/* The following parameters specify the characteristics of Sterling Connect:Direct Processes that you can modify. */
	class=   session number
	execprty=nn
	hold=yes   no   call
	newsnode=new snode name
	release
	prty=nn

## Search Parameters

Specify at least one of the following search criteria parameters:

Parameter	Description
pname=Process name   generic   (list)	The name of the Process or Processes. The name can be 1 to 8 alphanumeric characters long.
pnumber=Process number   (list)	The Process number of the Process. The Process numbers are assigned when you submit the Process. Valid Process numbers range from 1 to 99999.
snode=snode name   generic   (list)	Searches for a Process or Processes by the SNODE (partner) name. The SNODE name can contain 1 to 16 alphanumeric characters. You can use the IP address of the SNODE as your SNODE name.

Parameter	Description
submitter=(node name, userid)   generic   (list)	Searches for a Process or Processes by the node specification and userid of the Process owner. The maximum combined length, including the node name and userid for this parameter, is 66 characters.

## Change Parameters

You can change one or more of the following characteristics of a Sterling Connect:Direct Process:

Parameter	Description
class=nn   session number	Changes the node-to-node session on which the Process can execute. A Process can execute on the specified class or any higher session class.
execprty=nn	The execution priority of the Process. The values for the execution priority range from 1 to 15 and are mapped to Microsoft Windows Process priority classes and values. The highest priority is 15.  Only Sterling Connect:Direct for Microsoft Windows supports the execution priority option.
hold=yes   no   call	Moves the Process to the Hold or Wait queue.  yes—Places the Process in the Hold queue in HO (Held by Operator) status until another change process command explicitly releases it.  no—Places the Process in the Wait queue in WC (Waiting for Connection) status. The Process executes as soon as resources are available.  call—Places the Process in the Hold queue in HC (Held for Call) status until the SNODE connects to the PNODE or another Process is submitted. At that time, Sterling Connect:Direct releases the Process for execution.
newsnode=new snode name	Specifies a new SNODE name to assign to the Process.
release	Releases the Process from a held state. This parameter is equivalent to Hold=no.
prty=nn	The selection priority in the TCQ. This priority parameter is used for Process selection. A Process with a higher priority is selected for execution before a Process with a lower priority. The priority value does not affect the priority during transmission.  Values range from 0 to 15 inclusive, where 15 is the highest priority.

## Example

The following command changes the SNODE name for any nonexecuting Process named cdproc to a new SNODE name, paris.

```
change process pname=cdproc newsnode=paris;
```

## Delete Process Command

Use the delete process command to remove a Process from the TCQ.

You can select the Processes to delete by Process name, Process number, SNODE name, submitter, or a combination of these. The format for the delete process command follows:

Command	Parameters
delete process	/* Search Criteria */
	[pname=Process name   generic   (list)]
	[pnumber=Process number   (list)]
	[snode=snode name   generic   (list)]
	[submitter=(node name, userid)   generic   (list)]
	/* Processing Parameters */
	[force=yes   no]
	[hold=yes   no]

### Search Parameters

Use the parameters to identify the Processes you want to delete. You can delete Processes by name, number, node, or a combination of the criteria.

Parameter	Description
pname=Process name   generic   (list)	The name of the Processes, from 1–8 alphanumeric characters, to delete.
pnumber=Process number   (list)	The number of the Process to delete. The Process number is assigned when the Process is submitted.
snode=snode name   generic   (list)	The SNODE name of the Processes to delete. The SNODE name can be 1 to 16 alphanumeric characters long.
submitter=(node name, userid)   generic   (list)	The submitter node name and user ID of the Processes to delete. The maximum combined length, including the node name and user ID, is 66 characters.

### Processing Parameters

Define one or more of the following parameters to identify how the deleted Processes are managed:

Parameter	Description
force=yes   no	<p>Forcibly terminate an executing Process. Use this parameter if a Process is in the executing state and is waiting for unavailable resources.</p> <p>yes—Forcibly and immediately terminates the Process or Processes.</p> <p>no—Notifies the partner node of the intent to terminate and terminates the Processes. This is the default.</p>
hold=yes   no	<p>Specifies whether the terminated Process is placed in the Hold queue.</p> <p>yes—Places the Process in the Hold queue in HS (Held Due to Execution Suspension) status after termination.</p> <p>no—Deletes the Process from the TCQ after termination. This is the default.</p>

## Examples

The following command deletes all Processes submitted by userid `cduser` on node `dallas`. If the Processes are executing, it stops and removes them from the TCQ.

```
delete process submitter=(dallas, cduser);
```

The following command deletes all Processes named `rome` from the TCQ. If the Processes are executing, the command forcibly terminates them.

```
delete process pname=rome force=yes;
```

---

## Select Process Command

Use the `select process` command to display information about Processes in the TCQ. Select Processes by name, number, queue, `SNODE`, status, submitter, or a combination of these.

## Format

The format for the select process command follows:

Command	Parameters
select process	/* Selection Criteria */
	[pname=Process name   generic   (list)]
	[pnumber=Process number   (list)]
	[queue=all   exec   hold   wait   timer]
	[snode=snode name   generic   (list)]
	[status=ex   hc   he   hi   ho   hr   hs   pe   re   wa   wc   ws   (list)]
	[submitter=(node name, userid)   generic   (list)]
	/* Display option */
[detail=yes   no]	

## Selection Parameters

Specify one or more of the following selection parameters. If you do not specify one of the following selection parameters, all Processes in the TCQ you are authorized to access are selected.

Parameter	Description
pname=Process name   generic   (list)	Identifies the Process name, up to 8 alphanumeric characters long.
pnumber=Process number   (list)	Identifies Processes numbers to select. The Process number is assigned when you submit the Process. Valid Process numbers range from 1–99999.
queue=all   exec   hold   wait   timer	Identifies queue names to select. all—Selects all queues. This is the default. exec—Selects Processes from the Execution queue. hold—Selects Processes from the Hold queue. timer—Selects Processes from the Timer queue. wait—Selects Processes from the Wait queue.
snode=snode name   generic   (list)	Identifies the SNODE name, from 1 to 16 alphanumeric characters, to select.



Parameter	Description
status=ex   hc   he   hi   ho   hr   hs   pe   re   wa   wc   ws   (list)	<p>Selects a Process status to select. If you do not specify a status value, information is generated for all status values.</p> <p>ex—Selects Processes from the Execution queue.</p> <p>hc—Selects Processes submitted with hold=call.</p> <p>he—Selects Processes held due to a connection error.</p> <p>hi—Selects Processes submitted with hold=yes.</p> <p>ho—Selects Processes held by a change process command issued with hold=yes.</p> <p>hr—Selects Processes submitted with retain=yes.</p> <p>hs—Selects Processes suspended by a delete process command issued with hold=yes.</p> <p>pe—Selects submitted Processes that are awaiting the Session Manager. After the Session Manager initializes, it places the Process in the Execution queue and changes the status to EX.</p> <p>re—Selects Processes that are waiting for restart after session failure.</p> <p>wa—Selects Processes that are eligible for execution but not yet selected or running.</p> <p>wc—Selects Processes that are ready for execution and awaiting an available connection to the SNODE.</p> <p>ws—Selects Processes waiting in the Timer Queue for a start time.</p>
submitter=(node name, userid)   generic   (list)	Selects Processes by node name and user ID of the submitter of each Process. The maximum combined length, including the node name and userid, is 66 characters.

## Display Parameter

The following display parameter generates a detailed report of the select process command.

Parameter	Description
detail=yes   no	<p>Specifies the type of report generated for the selected Process or Processes. The default is no.</p> <p>yes—Generates a detailed report</p> <p>no—Generates a short report</p>

## Examples

The following example shows the report information returned when specifying detail=yes.

```

=====
                        SELECT PROCESS
=====
Process Name      =>SAMPLE      Class      =>
Process Number    =>38          Priority    =>
Submitter Node    =>CSDPUBS     Pnode      CSGPUBS
Submitter         user1          Snode      CSGPUBS
Retain Process    =>N
Submit Time       =>09:54:33     Schedule Time =>
Submit Date       =>10/30/2002  Schedule Date =>
Queue             =>HOLD
Process Status    =>HI
Message Text      =>
-----
Process Name      =>SAMPLE      Class      =>
Process Number    =>39          Priority    =>0
Submitter Node    =>CSGPUBS     Pnode      =>CSGPUBS
Submitter         user          Snode      =>CSGPUBS
Retain Process    =>N
Submit Date       =>09:54:35     Schedule Time =>
Submit Date       =>10/30/2002  Schedule Date =>
Queue             =>HOLD
Process Status    =>HI
Message Text      =>
-----

```

The following example shows the report information returned when specifying detail=no or omitting the detail parameter.

```

=====
SELECT PROCESS
=====
PROCESS NAME NUMBER USER      SUBMITTER NODE      QUEUE STATUS
-----
SAMPLE      39    user    CSGPUBS             HOLD HI
SAMPLE      39    user    CSGPUBS             HOLD HI

```

The following command returns status information for Process number 9.

```
select process pnumber=9;
```

## Select Message Command

Use select message to retrieve the text of any Sterling Connect:Direct message.

## Format

The format for the select message command follows:

Command	Parameters
select message	Selection Criteria
	msgid=message ID

The following parameter specifies the message IDs to display:

Parameter	Description
msgid=message id	The Sterling Connect:Direct message ID of the message request. Do not use generic specifications. This parameter is required.

## Example

Type the following command at the CLI prompt to retrieve the text of Sterling Connect:Direct message LCCC00I:

```
select message msgid=LCCC00I;
```

---

## Select Statistics Command

Issue the select statistics command to examine records in the Sterling Connect:Direct statistics database. The type of information in the output from this command includes such data as copy status and execution events. The search criteria provide flexibility in selecting information you want to retrieve. Additional parameters determine the form in which the information is presented.

When using the select statistics command, specify your selection criteria carefully to avoid displaying excessive volumes of records. If you do not provide selection criteria, all records for the day are retrieved.

## Format

The format for the select statistics command follows.

Command	Parameters
select statistics	/* Selection Criteria */
	[ccode=(operator, code)]
	[dfile=destination filename   (list)]
	[pname=Process name   generic   (list)]
	[pnumber=Process number   (list)]
	[reccat=caev   capr   (caev,capr)]
	[recids=record id   (list)]
	[snode=snode name   generic   (list)]
	[sfile=source filename   (list)]
	[startt=([date   day][, hh:mm:ss[am   pm]])]
	[stopt=([date   day][, hh:mm:ss[am   pm]])]
	[submitter=(node name, userid)   generic   (list)] <b>Note:</b> To use a wildcard within the submitter parameter, you must have administrator access.
	/* Display option */
	[detail=yes   no]

## Parameters

Provide one or more of the following parameters to determine what statistics are returned:

Parameter	Description
ccode=(operator, code)	<p>Select statistics records based on the completion code operator and return code values associated with step termination. The condition code operator default is eq. You must specify the return code.</p> <p>Following are the valid completion code operators:</p> <p>eq   =   == Equal (This is the default.)</p> <p>ge   &gt;=   =&gt; Greater than or equal</p> <p>gt   &gt; Greater than</p> <p>le   &lt;=   =&lt; Less than or equal</p> <p>lt   &lt; Less than</p> <p>ne   != Not equal</p> <p>Following are the valid completion codes:</p> <p>0—Successful execution of the Process.</p> <p>4—A warning level error was encountered. The statement probably completed normally but you should verify the execution results.</p> <p>8—An error occurred during Process execution.</p> <p>16—A Severe error occurred during Process execution.</p>
dfile=destination filename   (list)	<p>Enables you to search all copy termination records (CAPR category, CTRC record ID) to find those with a destination file name matching the filename or list of filenames specified.</p> <p>This parameter is not supported by Sterling Connect:Direct for UNIX.</p>
pname=Process name   generic   (list)	<p>Selects Process statistics by Process name, a generic name, or a list of names. The name can be 1 to 8 alphanumeric characters long.</p>
pnumber=Process number   (list)	<p>Selects statistics by Process number or a list of Process numbers. The Process number is assigned when the Process is submitted.</p>

Parameter	Description
reccat=caev   capr   (caev , capr)	<p>Selects statistics based on whether the record category is related to events or to a Process.</p> <p>The default for this keyword depends on the other search criteria specified. If you specify Process characteristics, such as Process name, Process number, or Submitter, the default is capr. If you perform a general search using startt or stopt, the default is caev and capr.</p> <p>caev—Specifies that the retrieved statistics file records should include those related to Sterling Connect:Direct events, such as a Sterling Connect:Direct shutdown.</p> <p>capr—Specifies that the retrieved statistics file records should include those related to one or more Sterling Connect:Direct Processes.</p>
recids=record id   (list)	<p>Specifies selection by record ID or a list of record IDs. This parameter identifies particular types of statistics records, such as a copy termination records or initialization event records. Following is a list of the record IDs:</p> <p>AUPR—Authorization file processing</p> <p>CHGP—Change Process command issued</p> <p>COAC—Communication activated</p> <p>CMLT—CMGR listen thread terminated</p> <p>CRHT—Sterling Connect:Direct copyright</p> <p>CSTP—Child Process stopped</p> <p>CTRC—Copy control record written</p> <p>CTRM—Child Process terminated</p> <p>CUKN—Child process unknown status</p> <p>CXIT—Child process exited</p> <p>DELP—Delete Process command issued</p> <p>FLSP—Flush Process command issued</p> <p>FMRV—Formatted Header (FMH) received</p> <p>FMSD—Formatted Header (FMH) sent</p>

Parameter	Description
	<p>GPRC—Get Process issued</p> <p>IFED—If statement ended</p> <p>IPPR—Initialization parameter processing</p> <p>LIOK—Listen okay</p> <p>LSST—The record ID of a step on the local node</p> <p>NAUH—Node Authorization check issued</p> <p>NMOP—Network map file opened</p> <p>NMPR—The network map is updated through Sterling Connect:Direct Browser User Interface, Sterling Control Center, or KQV Interface.</p> <p>NUIC—Sterling Connect:Direct initialization complete</p> <p>NUIS—Sterling Connect:Direct start initialization</p> <p>NUT1—Sterling Connect:Direct phase one termination complete status</p> <p>NUT1—Sterling Connect:Direct phase two termination complete status</p> <p>NUTC—Sterling Connect:Direct termination complete</p> <p>NUTR—Sterling Connect:Direct termination requested</p> <p>PERR—Process error was detected</p> <p>PFLS—Process was flushed</p> <p>PMED—Process Manager ended</p>
<p>recids=record id   (list)</p> <p>(continued)</p>	<p>PMIP—Process Manager Initprocs thread initialized</p> <p>PMMX—Process Manager Max Age thread initialized</p> <p>PMRC—Process Manager release cell thread initialized</p> <p>PMST—Process Manager started</p> <p>PPER—Pipe error</p> <p>PRED—Process ended</p> <p>PRIN—Process interrupted</p> <p>PSAV—Process was saved</p> <p>PSED—Process step was detected</p> <p>PSTR—Process has started</p>

Parameter	Description
	QCEX—A Process moved from another queue to the EXEC queue
	QCHO—A Process moved from another queue to the HOLD queue
	QCWA—A Process moved from another queue to the WAIT queue
	QCTI—A Process moved from another queue to the TIMER queue
	QCHO—A Process moved from another queue to the HOLD queue
	RJED—Run Job command completed
	RNCF—Remote Sterling Connect:Direct server call failed
	RSST—The record ID of a step on the remote node
	RTED—Run Task command completed
	SBED—Submit complete
	SELP—Select Process command issued
	SELS—Select Statistics command issued
	SEND—Session end issued
	SERR—System error
	SFSZ—Size of the file submitted
	SHUD—Sterling Connect:Direct shutdown



Parameter	Description
	<p>SIGC—System error</p> <p>SMED—Session Manager ended</p> <p>SMST—Session Manager started</p> <p>SNMP—SNMP</p> <p>SSTR—Session start issued</p> <p>STOP—Stop Sterling Connect:Direct command issued</p> <p>SUBP—Submit command issued</p> <p>TCPI—TCP started</p> <p>TRAC—Trace command issued</p> <p>TZDI—Time zone of the local node represented as the difference in seconds between the time at the local node and the Coordinated Universal Time</p> <p>UNKN—Unknown command issued</p> <p>USEC—User Security check issued</p> <p>xxxx—Record types identified by the first four characters of the message ID</p>
snode=snode name   generic   (list)	Selects statistics file records by SNODE name, a generic node name, or a list of node names. The SNODE name can be 1 to 16 alphanumeric characters long.
sfile=filename   (list)	<p>Enables you to search all copy termination records (CAPR category, CTRC record ID) to find those with a destination file name matching the file name or list of the file names specified.</p> <p>This parameter is not supported by Sterling Connect:Direct for UNIX.</p>

Parameter	Description
startt=([date   day] [, time])	<p>Selects statistics starting with records logged since the specified date, day, or time. The date, day, and time are positional parameters. If you do not specify a date or day, type a comma before the time.</p> <p>date—Specifies the day (dd), month (mm), and year (yy), which you can code as mm/dd/yyyy or mm-dd-yyyy. If you only specify date, the time defaults to 00:00:00. The current date is the default.</p> <p>day—Specifies the day of the week. Values are today, yesterday, Monday, Tuesday, Wednesday, Thursday, Friday, Saturday, and Sunday. If you specify a day of the week, Sterling Connect:Direct uses the previous matching day.</p> <p>time—Specifies the time of day coded as hh:mm:ss[am   pm] where hh is hours, mm is minutes, and ss is seconds. You can specify the hour in either 12- or 24-hour format. If you use the 12-hour format, then you must specify am or pm. The default format is the 24-hour format. The default value is 00:00:00, which indicates midnight. If you specify only the day value, the time defaults to 00:00:00.</p>
stopt=([date   day] [, time])	<p>Retrieves statistics including records logged up to and including the specified date, day, or time. The date, day, and time are positional parameters. If you do not specify a date or a day, type a comma before the time.</p> <p>date—Specifies the day (dd), month (mm), and year (yy), that you can code as mm/dd/yyyy or mm-dd-yyyy. If you only specify date, the time defaults to 00:00:00. The current date is the default.</p> <p>day—Specifies the day of the week. Values are today, yesterday, Monday, Tuesday, Wednesday, Thursday, Friday, Saturday, and Sunday. If you specify a day of the week, Sterling Connect:Direct uses the previous matching day.</p> <p>time—Specifies the time of day coded as hh:mm:ss[am   pm] where hh is hours, mm is minutes, and ss is seconds. You can specify the hour in either 12- or 24-hour format. If you use the 12-hour format, then you must specify am or pm. The default is the 24-hour format. The default value is 00:00:00, which indicates midnight. If you specify only the day value, the time defaults to 00:00:00.</p>
submitter=(node name, userid)   generic   (list)	<p>Selects statistics by the node name and userid of the Process owner (submitter). You can also specify a generic name and userid or a list of names and userids. The maximum combined length, including the node name and userid, is 66 characters for this parameter.</p>

## Display Parameter

Provide this optional parameter if you want to generate a report of the statistics that are generated:

Parameter	Description
detail=yes   no	Specifies the type of report generated for the selected Processes. The default is no.  yes—Generates a detailed report.  no—Generates a short report.

## Example

The following example shows the report information returned when specifying detail=yes.

```
=====
                        SELECT STATISTICS
=====
PROCESS RECORD  Record Id=>SUBP
Process Name    =>SAMPLE    Stat Log Time   =>09:54:33
Process Number  =>38        Stat Log Time   =>07/30/2003
Submitter Id    =>user1
Snode           =>CSGPUBS
Completion Code =>0
Message Id      =>
Short Text      =>
-----
PROCESS RECORD  Record Id=>SUBp
Process Name    =>SAMPLE    Stat Log Time   =>09:54:33
Process Number  =>39        Stat Log Time   =>07/30/2003
Submitter Id    =>user1
Snode           =>CSGPUBS
Completion Code =>0
Message Id      =>
Short Text      =>
-----
```

The following example shows the report information returned when specifying detail=no or omitting the detail parameter.

```

=====
SELECT STATISTICS
=====
P RECID LOG TIME          PNAME PNUMBER STEPNAME CCOD FDBK MSGID
P RECID LOG TIME          MESSAGE TEXT
-----
P  SUBP  07/30/2003 09:54:33  SAMPLE  38    0  0
P  SUBP  07/30/2003 09:54:35  SAMPLE  39    0  0

```

The following command generates statistics output for Process number 7. The output consists of all records for that Process starting with those generated on July 11, 2003.

```
select statistics pnumber=7 startt=(07/11/2003);
```

## Traceoff Command

The Sterling Connect:Direct server provides a comprehensive trace facility that assists in the diagnosis of problems relating to any facet of the operation of the server. Use the traceoff command to disable a trace started with the traceon command.

### Format

The format for the traceoff command follows.

Command	Parameter
traceoff	[file=filename]
	[type=cmgr   pmgr   smgr   comm   (list)]
	[dest=destination   (list)]
	[pnode   snode]
	[pname=process name   (list)]
	[pnum=process number   (list)]

**Note:** The dest, pnode, pname, and pnum parameters are valid for smgr and comm traces only.

Specify one or more of the following parameters to identify the trace to turn off including the output file of the trace, the type of trace, the destination, the node, and the Process name or number.

Parameter	Description
file=filename	The name of the trace output file. The default is CDTRACE.CDT.

Parameter	Description
type=cmgr   pmgr   smgr   comm   (list)	<p>Disables traces by type.</p> <p>cmgr—Traces events relating to the interaction of the server with connected workstations and with the server console.</p> <p>pmgr—Traces events relating to the manipulation of Sterling Connect:Direct Processes.</p> <p>smgr—Traces events relating to the execution of Sterling Connect:Direct Processes and the server's interaction with other Sterling Connect:Direct nodes.</p> <p>comm—Traces only interactions with external communications facilities invoked from Session Manager threads and used to communicate with other Sterling Connect:Direct nodes.</p>

## Additional Session Manager and Communications Trace Parameters

The following parameters are valid for SMGR and COMM trace types only. The dest, pnode, snode, pname, and pnum parameters are mutually exclusive.

Parameter	Description
dest=destination   (list)	The destination node name of the Process you want to stop tracing or a list of up to four node names.
pnode   snode	<p>The PNODE or SNODE session managers.</p> <p>pnode—Disables the trace of all PNODE session managers.</p> <p>snode—Disables the trace of all SNODE session managers.</p>
pname=process name   (list)	The name of the Process or up to four names you want to stop tracing.
pnum=process number   (list)	The Process number, up to four Processes, you want to stop tracing.

### Example

The following command turns off the full SMGR trace for the Process named payroll.

```
traceoff type=smgr pname=payroll;
```

---

## Traceon Command

Use the traceon command to enable the trace facility. The trace facility enables you to capture information to assist in the diagnosis of Sterling Connect:Direct problems.

## Format

The format for the traceon command follows:

Command	Parameters
traceon	[file=filename]
	[filesize=nnK   nnM   0]
	[level=basic   intermediate   full]
	[type=cmgr   pmgr   smgr   comm   (list)]
	[wrap=yes   no]
	[dest=destination   (list)]
	[pnode   snode]
	[pname=process name   (list)]
[pnum=process number   (list)]	

**Note:** The dest, pnode, pname, and pnum parameters are valid for smgr and comm traces only.

## Parameters

Specify one or more of the following parameters to define the traces:

Parameter	Description
file=filename	The name of the output file if you want to write the trace information to a file. The size of the name can range from 1 to 256 characters. The default is CDTRACE.CDT in the Sterling Connect:Direct directory.
filesize=nnnK   nnnM   0	The maximum file size as a number of kilobytes (K) or megabytes (M). A value of 0 indicates that the file can grow indefinitely.
level=basic   intermediate   full	The level of trace detail.  basic—Produces a trace of function entry and exit.  intermediate—Produces a trace of function entry and exit, plus arguments to functions.  full—Produces a trace with function entry/exit, function argument display, plus display of selected internal control blocks.

Parameter	Description
<p>type=cmgr   pmgr   smgr   comm   (list)</p>	<p>The type of event or a list of events to be traced.</p> <p>cmgr—Traces events relating to the interaction of the server with connected workstations and the server console.</p> <p>pmgr—Traces events relating to the manipulation of Sterling Connect:Direct Processes. This trace type provides information about the submission, update, deletion, selection for processing, and termination of Sterling Connect:Direct Processes.</p> <p>smgr—Traces events relating to the execution of Sterling Connect:Direct Processes and the server's interaction with other Sterling Connect:Direct nodes. Traces can be started for specific Process numbers or names, for specific destinations, or for all PNODE or SNODE Session Managers.</p> <p>comm—Traces only interactions with external communications facilities invoked from Session Manager threads and used to communicate with other Sterling Connect:Direct nodes. You can start traces for specific Process numbers or names, for specific destinations, or for all PNODE or SNODE Session Managers.</p>
<p>wrap=yes   no</p>	<p>Specifies whether you want your trace output to be a wraparound file.</p> <p>no—Requests a linear file that grows until either the user-specified space restriction is reached or you run out of disk space. Linear traces are useful when you can qualify the trace criteria sufficiently or when it is important to not miss any trace events.</p> <p>yes—Requests a wraparound file that, when the user-specified space restriction is reached, wraps back to the beginning and overwrites the oldest records. Wraparound traces are useful when the problem you are trying to trace occurs intermittently or is very difficult to reproduce.</p>

---

## Help Command

Use the help command to receive a list of the commands supported by the Sterling Connect:Direct CLI.

Any command with a `-?` or `/?` will display the syntax for the command's usage.

```
command /?;  
or  
command -?;
```

---

## Stop Sterling Connect:Direct

Use the stop command to initiate an orderly Sterling Connect:Direct server shutdown sequence or forcibly terminate the software. Sterling Connect:Direct will not run new Processes and will not establish new connections with remote systems. You can issue commands and users can sign on until the server terminates. You must identify the type of stop or an error message is generated.

### Format

The format for the stop command follows.

Command	Parameters
stop	[force   immediate   step   quiesce]

### Parameters

Choose one of the following options listed in order of severity:

Parameter	Description
force	Forcibly terminates the Sterling Connect:Direct server with no attempt to terminate executing Processes in an orderly fashion or write statistics to disk. Sterling Connect:Direct releases all server resources, including connections, LU 6.2 sessions, memory, and semaphores. It retains all active Processes in the TCQ and restarts them when you restart the Sterling Connect:Direct server.
immediate	Begins an immediate, but orderly, shutdown of all activity and terminates Sterling Connect:Direct. The software terminates connections, writes statistics records, closes files, and shuts down. It retains all active Processes in the TCQ and restarts them when you restart the Sterling Connect:Direct server.



Parameter	Description
step	Shuts down Sterling Connect:Direct after all currently executing Process steps complete. The software writes statistics records, closes files, and shuts down. To restart Processes at the next step the next time you start Sterling Connect:Direct, set the tcq.start initialization parameter to require a warm start.
quiesce	Runs all executing Processes to completion. Sterling Connect:Direct starts no new Processes.

### Example

The following command forcibly terminates Sterling Connect:Direct and returns control to the operating system.

```
stop force;
```



---

## Chapter 12. Modify Translation Tables

---

### Translation Tables

Sterling Connect:Direct translates data from one character set to a different character set, such as from ASCII to EBCDIC, using character translation tables. These translation tables provide greater flexibility in the translation of data when copying data to or from a Sterling Connect:Direct node.

Default translation tables are defined in the initialization parameters for the Sterling Connect:Direct node. You also have the ability to specify a different translation table in the sysopts parameter with each Copy statement. Sterling Connect:Direct provides two standard translation tables for use when sending or receiving data to or from a remote Sterling Connect:Direct node:

- XLATERCV translates data from EBCDIC to ASCII.
- XLATESND translates data from ASCII to EBCDIC.

Translation is only performed when the data type is text. No translation is done if the data type is binary.

---

### Modify a Translation Table Using Sterling Connect:Direct Requester

#### About this task

Translation is performed if a data type of text is specified in the sysopts parameter of a copy statement.

#### Procedure

1. Select Admin > Translation Table.
2. Type the name of the translation table file, or select one of the following default translation tables from the drop-down list:
  - XLATERCR.CDX
  - XLATESND.CDX
3. Click OK.

Each cell stores the character value for the target character set. The source character set is used as an index into the table. For example, an ASCII blank (Hex 0) would fetch the byte at offset Hex 0 in the translation table. If the byte at location Hex 0 contains Hex code 40, that would translate to an EBCDIC code indicating a blank character.

4. To view the shortcut menu, right-click in the Translation Table dialog box.
5. Select one of the following representations for the table element:
  - Hex
  - Dec
  - Oct
6. Select the elements in the table you want to modify and type in the new values.
7. Right-click to see the shortcut menu and click Apply to save your changes.
8. Click OK to save your changes to the selected Sterling Connect:Direct node.



---

## Chapter 13. Edit Connection Settings

---

### About the Client Connection Utility

Before you begin using the SDK to create your own programs or use Sterling Connect:Direct for Microsoft Windows to transfer files, you can use the Client Connection Utility to create connection settings for each user.

To use Sterling Connect:Direct Requester, refer to “Define and Manage the Sterling Connect:Direct Network” on page 13 for instructions.

The Sterling Connect:Direct for Microsoft Windows client software uses the Microsoft Windows Registry to store its configuration information. The Client Connection Utility allows you to update the connection settings within the Registry.

**CAUTION:** Use the Client Connection Utility to update any Registry settings rather than editing them directly.

You can view, edit, and update Sterling Connect:Direct for Microsoft Windows connection settings in the Microsoft Windows Registry with the Client Connection Utility. These settings enable communication between the user interfaces and the Sterling Connect:Direct server. You can set up and update connection settings in the following ways:

- Add and delete a node
- Add and delete a user
- Configure node and user properties
- Define a default node or user

To facilitate updating connection settings on multiple servers, you can import and export connection settings using the Client Connection Utility. After you configure the connection for a server, you can export the server's settings for use on other servers. You can then import the settings into the target server's Registry. You can also print connection settings.

---

### Start the Client Connection Utility

#### About this task

To start the Client Connection Utility:

#### Procedure

1. Click **Start > All Programs**.
2. Click **IBM Sterling Connect Direct > v4.6.00 > CD Client Connection Utility**.  
The Client Connection Utility main window is displayed.

---

## Add a Node

### About this task

The Client Connection Utility lets you add new Sterling Connect:Direct nodes and identify the properties of the nodes, such as node name, TCP/IP address, and port number. These properties establish a node so you can access it from Sterling Connect:Direct Requester or the Command Line Interface (CLI).

### Procedure

1. Select File > New Node.
2. To add a node registered in the Active Directory, follow these steps:
  - a. Select Windows in the **Operating System** field.
  - b. Select the node to add from Active Directory Nodes.

**Note:** Click Refresh to update the address and port stored on the local computer with the values from the Active Directory listing.

3. To add a node that is not registered in the Active Directory, follow these steps:
  - a. In the **Name** field, type the name of the Sterling Connect:Direct node you want to add.
  - b. If necessary, change the operating system value in the **Operating System** field.
  - c. In the **Address** field, type the TCP/IP address of the new node.
  - d. The **Port** field automatically defaults to 1363; if necessary, type in a different port number.
4. To specify the new node as the default node, click Set as the default node.
5. Click **OK** to save your settings and close Node Properties.
6. Select File > Save to save the new settings.

**Attention:** Changes made to the node settings are not written to the Registry until you select Save.

---

## Deleting a Node

### About this task

To delete a node:

### Procedure

1. In the Client Connection Utility main window, select the node you want to delete.
2. Select Edit > Delete.
3. Select File > Save to delete the node.

**Attention:** Changes made to the node settings are not written to the Registry until you select Save.

---

## Adding a User with Client Connection Utility

### About this task

To add a new Sterling Connect:Direct user from the Client Connection Utility:

## Procedure

1. In the Client Connection Utility main window, select the node where you want to add a new user.
2. From the File menu, select New User. The User Properties dialog box is displayed.
3. Type information in the following fields:
  - Name—Type the name of the new user. Either type the user name as defined in the Windows setup, such as lmore or type a fully qualified user name in the UPN format, such as lmore@adtree.domain.com
  - Password—Type the password defined for the user.
  - Verify Password—Retype the password defined for the user.
4. Click the **Remember password** check box to automatically reload the password when you attach as this user.
5. Click the **Set as the default user** check box if you want the new user to be the default user for the node.
6. Click **OK**.
7. If the verification password you typed does not match the initial password, you receive a message indicating the passwords do not match when you click **OK**. Retype the verification password and click **OK**.
8. From the File menu, select Save to save the settings.

**Note:** Changes made to the node settings are not written to the Registry until you select Save.

---

## Deleting a User with the Client Connection Utility

### About this task

To delete a user from the node using the Client Connection Utility:

### Procedure

1. Click the plus (+) sign next to the node containing the user you want to delete.
2. Select the user you want to delete.
3. From the Edit menu, select Delete.
4. From the File menu, select Save to delete the user.

**Note:** Changes made to the node settings are not written to the Registry until you select Save.

---

## Updating a Node or User

### About this task

To update node or user properties:

### Procedure

1. Do one of the following:
  - To update a node, highlight the node you want to configure.
  - To update a user, highlight the user you want to configure.
2. Select **File > Properties**.

3. Select the fields you want to edit and make the appropriate changes.
4. Click **OK** to save your settings and return to Node Properties.
5. Select **File > Save** to save the settings.  
**Attention:** Changes made to the node and user settings are not written to the Registry until you select **Save**.

---

## Defining a Default Node or User

### About this task

The Client Connection Utility allows you to define a default node or default user. The default node and user will be used by the Sterling Connect:Direct Requester and the CLI.

### Procedure

1. Do one of the following:
  - To define a default node, highlight the node you want to designate as the default.
  - To define a default user, highlight the user you want to designate as the default.
2. Select **File > Save** to save the settings.  
**Attention:** Changes made to the node and user settings are not written to the Registry until you select **Save**.

---

## Importing Registry Settings

### About this task

The Sterling Connect:Direct Client Connection Utility allows you to import and export connection settings to a file. These settings can be saved and used on another computer or node.

### Procedure

1. Select the node to which to import the Registry settings.
2. Select **File > Import**.  
**CAUTION:**  
**Importing a Registry settings file causes all current changes to the selected node to be lost if they have not been saved.**
3. Select the Registry settings file you want to import (.REX extension) and click **OK**.
4. Select **File > Save** to save the settings.  
**Attention:** Changes made to the node settings are not written to the Registry until you select **Save**.

---

## Exporting Registry Settings

### About this task

To export Registry settings:



### Procedure

1. From the Client Connection Utility main window, select the node containing the Registry settings you want to export.
2. Select File > Export.
3. Name the exported Registry file with a REX extension and click **OK**. The Registry settings in the file can now be imported to another computer or node.

---

## Printing Registry Settings

### About this task

To print a report of Registry settings:

### Procedure

1. Select File > Print.
2. Configure the print settings and click **OK**. A report of all Registry settings is generated.
3. Select File > Print Preview to preview the Registry settings report.
4. Click **Zoom In** to enlarge the text and read the report.
5. Click **Print** to print the report, or click **Close** to close without printing the report.

**Note:** Additional node detail is provided if the node has been used at least once by the client software.



---

## Chapter 14. Use Sterling Connect:Direct for Microsoft Windows in a Test Mode

---

### Use Sterling Connect:Direct in Test Mode

While testing is being conducted, only Processes, particularly file transfers, involved with the testing activity are executed. No production data is transferred to applications being tested while at the same time no test data is transferred to production applications.

You can enable test mode for production instances of Sterling Connect:Direct for Microsoft Windows to perform the following functions:

- Test new applications and customer connections
- Prevent future production work from executing until testing is complete after you have terminated all active production work using the Flush Process command
- Resume regular production work after testing
- Control individual file transfers by application
- Enable and disable individual nodes and applications

#### Processing Flow of the Test Mode

You enable the testing mode using the quiesce.resume initialization parameter and specify which Sterling Connect:Direct Processes to run and not run by storing your preferences as text records in a parameter table named NDMPXTBL. A sample parameters file, NDMPXTBL.sample, is located in the /Server/samples directory.

**Note:** You can modify the quiesce.resume initialization parameter while the server is active.

You can specify the following criteria that are used to find matches for one or more Processes to include (using the "I" command code) or exclude ("X" command code) from execution:

- A partial or full Process name
- A partial or full remote node name
- A partial or full Sterling Connect:Direct submitter ID and submitter node combination

In addition to telling Sterling Connect:Direct which Processes to run, you tell the system what to do with the Processes which do not get executed. You can specify the following dispositions for Processes not permitted to run:

- Place the Process in the Hold queue
- Place the Process in the Timer queue for session retry
- Flush the Process from the queue

For more information on how the testing mode can be used, see "Sample Test Scenarios" on page 158 in this section.

When the testing mode is enabled, Sterling Connect:Direct for Microsoft Windows performs a syntax check on the parameter table and fails initialization if the table is invalid. If the table is valid, Sterling Connect:Direct for Microsoft Windows scans it looking for a pattern that matches the Process that is about to execute. If a match is found, the Process is permitted to execute if the "I" (Include) command code is in effect. If command code "X" (Exclude) is in effect, the process is not permitted to execute. If a match is not found in the table, the opposite processing occurs from the case where a match is found, that is, if no match is found and command code "I" is in effect, the Process is not permitted to execute, whereas if command code "X" is in effect, the Process is permitted to execute.

If a Process is not permitted to execute, the disposition specified in the NDMPXTBL parameter table to either hold, retry, or flush the Process is implemented and a non-zero return code is returned. When a Process is prevented from executing in testing mode, appropriate messages are issued and can be viewed in the statistics log.

**Note:** For Processes initiated on remote nodes, the testing mode functions in the same manner as it does for Processes submitted on the local Sterling Connect:Direct node except that the remote node is the PNODE (Process owner) for that Process, and the local node is the SNODE (secondary node). The NDMPXTBL Parameter Table is searched for a matching entry, and the remotely-initiated Process is either permitted to execute or is excluded from execution. Because the local node is the SNODE for this type of transfer, it cannot enforce the Process disposition setting in the NDMPXTBL parameter table. The remote PNODE determines how the Process is handled. Typically, the remote node places the Process in the Hold queue with a status of "HE" (Held in Error).

---

## Preparing the NDMPXTBL Parameter Table

### About this task

You can create or update the parameter table file while the server is active. Any changes made to the file take effect for sessions that begin after the changes are made.

### Procedure

1. To modify the sample NDMPXTBL parameter table supplied with Sterling Connect:Direct for Microsoft Windows, open any text editor.
2. Change the table using the following commands.

**Note:** Each table entry or record consists of a single-character command code in column one. Most command codes have a parameter which begins in column two and varies according to the command code function.

Command Code	Description	Subparameters/Examples
*	Comment Line	* Only run the following Processes.

Command Code	Description	Subparameters/Examples
E	Enables execution of Processes based on table entries. Either "E" or "D" must be the first non-comment entry in the table.	The second column in this entry must contain one of the following values which indicates the disposition of a PNODE Process if it is not allowed to run.  H—Places the Process in the Hold queue  R—Places the Process in the Timer queue in session retry  F—Flushes the Process from the queue
D	Disables the execution of all Processes regardless of the contents of the parameter table and fails Process execution with a non-zero (error) return code and message LPRX003E. Either "E" or "D" must be the first non-comment entry in the table	The parameter for command code "E" can also be specified in column two. This is a convenience to make it easier to change from "E" to "D" and vice versa without having to change column two to a blank for command code "D."
P	Matches Processes based on a full or partial Process name. Supports the wild card trailing asterisk (*). Can be used to enable or disable Process execution for a particular application by using naming conventions to match an application.	PCOPY—Matches a single Process  PACH*—Matches all Processes beginning with "ACH"  P*—Matches all Processes
N	Matches Processes based on a full or partial remote node name. Supports the wild card trailing asterisk (*).	NCD.NODE1—Matches a single remote node name  NCD.NODEA*—Matches all remote node names beginning with "CD.NODEA" N*—Matches all remote node names
S	Matches Processes based on a full or wild card Sterling Connect:Direct submitter ID and submitter node combination. The format is <id>@<node>.	SACTQ0ACD@TPM002—Matches a specific ID and node combination.  S*@TPM002—Matches all IDs from node TPM002  SACTQ0ACD@*—Matches ID ACTQ0ACD from all nodes  S*@*—Matches all IDs from any node. This is another way to match all Processes.

Command Code	Description	Subparameters/Examples
I	Includes Processes for execution that match the patterns in the table which follow this command code. Either "I" or "X" must be the second non-comment entry in the table. Processes which do not match a pattern in the table are not executed. <b>Note:</b> To choose which command code to use to select Processes, determine which group is smaller and use the corresponding command Code. For example, if the number of Processes to be executed is smaller than the number of Processes to exclude from execution, specify "I" as the command code and add patterns to match that group of Processes.	ER  I  NCD.BOSTON  Includes Processes for execution on the CD.BOSTON node only. Processes destined for all other remote nodes are placed in the Timer queue in session retry.
X	Excludes from execution those Processes that match the patterns in the table which follow this command code. Either "X" or "I" must be the second non-comment entry in the table. Processes which do not match a pattern in the table are executed.	EH  X  DALLASOPS@*  Excludes Processes for execution submitted by the ID SDALLASOPS from any node.
L	Last entry in table.	

- When you update the parameter table, name it NDMPXTBL and save it to the Server directory of the installation.

---

## Sample Test Scenarios

The following examples show different applications of the test mode using the NDMPXTBL parameter table to define which Sterling Connect:Direct Processes to run and not run.

### Specify Which Processes Run

In this example, Sterling Connect:Direct executes all Processes that start with ACH or are named DITEST01 or DITEST02. All other Processes are placed in the Hold queue.

```
* Enable processing. Only permit processes matching one of the patterns
* to execute. Hold processes that don't execute.
EH
I
PACH*
PDITEST01
PDITEST02
L
```

### Specify Which Processes to Exclude

In this example, Sterling Connect:Direct does not execute any Process that starts with ACH or is named DITEST01 or DITEST02. All other Processes are executed.

```
* Exclude matching processes. Permit all others to execute.  
EH  
X  
PACH*  
PDITEST01  
PDITEST02  
L
```

## Permit Process Execution by Secondary Node and Submitter User ID/Node

In this example, Sterling Connect:Direct executes all Processes that match one of the following criteria:

- The specific secondary node (SNODE) name is DI.NODE1
- An SNODE whose name starts with DI0017
- Any Sterling Connect:Direct submitter ID from node DI0049
- The specific Sterling Connect:Direct submitter ID SACHAPP from any node

All Processes not matching one of the above criteria are flushed from the queue.

```
* Only permit matching processes to execute. Flush those that do not.  
EF  
I  
NDI.NODE1  
NDI0017*  
S*@DI0049  
SACHAPP@*  
L
```

## Stop the Test Mode

In this example, no Processes will not be executed, and a non-zero return code will be displayed, which signifies an error along with message ID LPRX003E. The remainder of the table is ignored (including the “F” code to flush Processes from the queue), and all Processes are placed in the Hold queue.

To resume testing, change the “D” command code to an “E.”

```
* Execute no processes at all. Put them in the hold queue and return.  
DF  
I  
PACH*  
PDITEST01  
PDITEST02  
L
```





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