

Sterling File Gateway



# EBICS Operator Help

*Version 2.1*



Sterling File Gateway



# EBICS Operator Help

*Version 2.1*

**Note**

Before using this information and the product it supports, read the information in "Notices" on page 29.

This edition applies to Version 2 Release 1 of IBM Sterling File Gateway and to all subsequent releases and modifications until otherwise indicated in new editions.

© **Copyright IBM Corporation 2008, 2011.**

US Government Users Restricted Rights – Use, duplication or disclosure restricted by GSA ADP Schedule Contract with IBM Corp.

---

# Contents

<b>Chapter 1. EBICS System Status . . . . .</b>	<b>1</b>
View File Activity . . . . .	1
Search for a File . . . . .	1
Search for EBICS Transactions . . . . .	6
View Detailed EBICS Transactions . . . . .	9
Mark Activity as Reviewed . . . . .	9
Activity History for Deleted Objects . . . . .	9
About Event Codes. . . . .	10
filegateway_eventcodes.properties . . . . .	15
Subscribe to Notifications for EBICS Events. . . . .	17
Unsubscribe to Notifications. . . . .	17
Generate Reports with EBICS Transactions . . . . .	17
Set Up and View Logs. . . . .	19
<b>Chapter 2. Replay EBICS Routes . . . . .</b>	<b>21</b>
Replay EBICS Transactions from the Beginning of a Transfer . . . . .	21
Redeliver a Processed EBICS File . . . . .	21

<b>Chapter 3. Troubleshoot and Resolve Problems. . . . .</b>	<b>23</b>
Resolve Problems . . . . .	23
Troubleshoot and Resolve Pending Transfers After a System or Node Failure . . . . .	23
Troubleshoot and Resolve Incomplete File Transfers	24
Confirm File Delivery . . . . .	24
Resolve a Transport Error. . . . .	27
Troubleshoot and Resolve Blank Arrived Files . . . . .	27
Failed Routes for Renamed Files . . . . .	28
<b>Notices . . . . .</b>	<b>29</b>
<b>Index . . . . .</b>	<b>33</b>



---

## Chapter 1. EBICS System Status

---

### View File Activity

You can view activity status information for the last hour, day, and week.

#### Procedure

1. From the main menu, select **Tools > Activity Snapshot**.
2. A new window opens. While this window is open, you cannot perform other actions in Sterling File Gateway . Clicking on any of the numbers on the screen opens the Arrived File search results page.

**Note:** The system will not time out while the Activity Snapshot is running. You should not leave it unattended.

Metrics for the following activities are displayed for the last day, hour, or week:

- **Total Arrived Files** - Arrived Files are the files that arrive from a producer. This is the total number of arrived files that completed in the specified time period. These are Producer files. For example, a Zip file containing 532 files only counts as one file. Click on this number to display a list of this set of arrived files. If new activity occurs between the snapshot display and the click, the list includes the new arrived files.
  - **Total Payloads** - Payloads are either the arrived files (if non-container type) or files found inside a container type. This is the number of payloads found within completed arrived files. Click on this number to display a list of this set of arrived files they originated from.
  - **Unidentified Files** - This is the number of arrived files that failed because no routing channel could be identified for any of their payloads.
  - **Successfully Routed** - This is the number of payloads that were successfully routed. Click on this number to display a list of arrived files they originated from.
  - **New Failures** - This is the number of payloads that failed to route for any reason other than total route identification failure. Excludes reviewed failures. Click on this number to display a list of arrived files they originated from.
  - **Reviewed Failures** - This is the number of payloads that failed to route for any reason other than total route identification failure. Includes only reviewed failures. Click on this number to display a list of arrived files they originated from.
3. Click on **Total in-flight** to see a list of files currently being processed. These are arrived producer files that have not yet moved to a completed state.
  4. Click on an item in the returned list to request the details about a route.
  5. To view details, close the **Activity Snapshot** window.

---

### Search for a File

The **Basic Search** page enables you to search for a file based on criteria you select. The **Advanced Search** page provides more options for criteria.

## About this task

You can specify more criteria to narrow your results, or fewer criteria to widen your results. For any field, leave blank to select all values.

## Procedure

1. On the **Search Criteria** tab, enter the basic search criteria. This page is useful for finding files in major categories. To search for more-specific files, select **Advanced Search**. All of the criteria on the Basic Search page are also available on the Advanced Search page, along with many more criteria.
2. For **Producer**, select from the list or type the producer name. Leave this field blank to search for files from all producers.
3. For **Consumer**, select from the list or type the consumer name. Leave this field blank to search for files from all consumers.
4. For **Status**, select from:
  - Started - includes Started, Determining Routes, and Routing
  - Succeeded - includes Routed (arrived files, routes and deliveries)
  - Failed - includes FailedLeave blank to search for files with any status.
5. For **Protocol**, select from:
  - FTP
  - SFTP
  - Connect:DirectLeave blank to search for files using any protocol.
6. For **Original File Name**, type the full or partial name of the file the producer sent. This field is case-insensitive. File names containing the string will be matched in the search. Leave this field blank to search for all file names.
7. Click **Find** to initiate the search. The Search Results tab opens and the Arrived File pane is displayed with results matching all of your criteria. A maximum of 1000 files (or another limit set by your System Administrator) is displayed. The following information is provided for each arrived file:
  - Reviewed
  - Status
  - Producer
  - File Name
  - Discovery Time
8. If more than 1000 files (or another limit set by your System Administrator) match your criteria, a message is displayed indicating that you have more than 1000 matches and need to narrow your search. The first 1000 files are displayed.
9. Sort the results by clicking on any column header. Click again to change from descending order to ascending order. The default sort is by **Discovery Time**, in descending order.
10. To search for a file with more specific criteria, click on **Advanced Search**.
11. Select criteria in the Arrived File section from the following fields:



Field	Description
Producer	The partner who creates and sends files. Select from the list. Type the producer name to obtain unpurged data for producers who have been deleted. Leave blank to search for files from all producers.
Producer Code	The code for the producer. Select from the list. Type the producer code to obtain unpurged data for producers who have been deleted. Leave blank to search for files from all producers.
Producer Group	The group the producer is a member of. Select from the list. Type the producer group to obtain unpurged data for groups that have been deleted. Leave blank to search for files from all groups.
IP Address	The host IP address of the producer.
User	User ID of the protocol authentication.
Protocol	Select from: <ul style="list-style-type: none"> <li>• FTP</li> <li>• SFTP</li> <li>• Connect:Direct</li> </ul>
Original File Name	Full or partial name of the file the producer sent. This field is case-insensitive.
File Size (Min) (kilobytes)	Smallest file size to search for.
File Size (Max) (kilobytes)	Largest file size to search for.
Status	Select from: <ul style="list-style-type: none"> <li>• Started - includes Started, Determining Routes, and Routing</li> <li>• Succeeded - includes Routed (arrived files, routes and deliveries)</li> <li>• Failed - includes Failed</li> </ul> <p>This is the status of the Arrived File.</p>
Reviewed	Select to: <ul style="list-style-type: none"> <li>• Show both reviewed and unreviewed arrived files.</li> <li>• Show only unreviewed arrived files.</li> <li>• Show only reviewed arrived files.</li> </ul> <p><b>Note:</b> Use these options to manage your review process of file transfers.</p>
Message ID	The numeric message ID of the arrived file.
Mailbox Path	Full or partial name for the mailbox directory path of the arrived file. This field is case-insensitive.
Dataflow ID	The numeric dataflow ID for the file.
Date (From)	Click on the calendar icon to select the date to begin the search.
Date (To)	Click on the calendar icon to select the date to end the search.

Field	Description
Time (From)	The arrival hour, in 24-hour format, to begin the search. If the date fields are left blank, the time fields are ignored. If 0 is entered, records for all times are returned.
Time (To)	The arrival hour, in 24-hour format, to end the search. If the date fields are left blank, the time fields are ignored. If 0 is entered, records for all times are returned.

12. Select criteria in the Route section from the following fields:

Field	Description
Consumer	The partner who receives files directly or in a mailbox. Select from the list. Type the consumer name to obtain unpurged data for consumers who have been deleted. Leave blank to search for files from all consumers.
Consumer Code	The code for the consumer. Select from the list. Type the consumer code to obtain unpurged data for consumers who have been deleted. Leave blank to search for files from all consumers.
Consumer Group	The group the consumer is a member of. Select from the list. Type the consumer group to obtain unpurged data for groups that have been deleted. Leave blank to search for files from all groups.
Template Name	Routing Channel Template applied to the file transfer. <b>Note:</b> Finds files that successfully routed based on the template.
Facts	Select from: <ul style="list-style-type: none"> <li>• ConsumerCode</li> <li>• ConsumerFilename</li> <li>• ConsumerName</li> <li>• ConsumerPgpExtension</li> <li>• ProducerCode</li> <li>• ProducerFilename</li> <li>• ProducerName</li> </ul> <b>Note:</b> The list will also include any custom facts defined by the Integration Architect, with a prefix of "my".
Fact Value	Value for the fact selected above. Required when Fact is selected. This field is case-insensitive.
Status	Select from: <ul style="list-style-type: none"> <li>• Started - includes Started, Determining Delivery, and Delivering</li> <li>• Succeeded - includes Complete</li> <li>• Failed - includes Failed</li> </ul> This is the status of the Route.

13. Select criteria in the Delivery section from the following fields:

Field	Description
IP Address	Host IP address for the delivered file. Do not use with In Mailbox specified as the protocol.
User	User ID of the protocol authentication. Do not use with In Mailbox specified as the protocol.
Protocol	Delivered file protocol. Select from: <ul style="list-style-type: none"> <li>• FTP</li> <li>• Inbound FTP</li> <li>• Outbound FTP</li> <li>• SFTP</li> <li>• Inbound SFTP</li> <li>• Outbound SFTP</li> <li>• Connect:Direct</li> <li>• Inbound Connect:Direct</li> <li>• Outbound Connect:Direct</li> <li>• In Mailbox (for files that have not been retrieved)</li> </ul>
Delivered File Status	Select from: <ul style="list-style-type: none"> <li>• Started - includes Transforming, Delivering, and Redelivery</li> <li>• Succeeded - includes Complete</li> <li>• Failed - includes Failed</li> </ul> <p>This is the status of the delivered file.</p>
Delivered File Name	Full or partial name of the delivered file. This field is case-insensitive.
File Size (Min) (kilobytes)	Smallest file size to search for.
File Size (Max) (kilobytes)	Largest file size to search for.
Message ID	The numeric message ID of the delivered file.
Mailbox Path	Full or partial name for the mailbox directory path of the delivered file. This field is case-insensitive.
Date (From)	Click on the calendar icon to select the date to begin the search.
Date (To)	Click on the calendar icon to select the date to end the search.
Time (From)	The delivery hour, in 24-hour format, to begin the search. If the date fields are left blank, the time fields are ignored. If 0 is entered, records for all times are returned.
Time (To)	The delivery hour, in 24-hour format, to end the search. If the date fields are left blank, the time fields are ignored. If 0 is entered, records for all times are returned.

**Note:** Searches using the characters `_` and `%` (underscore and percent) may produce more results than expected, because these characters are interpreted as wildcards. Specify more characters to narrow your search, or visually search for the matches within the returned results.

## Results

### Search results

In the search results for arrived files, the Producer Name is listed, if available. If Producer Name is not available, the Producer Code is listed in italics.

In the search results for routes, the Consumer Name is listed, if available. If Consumer Name is not available, the Consumer Code is listed in italics.

Where an arrived file is routed to multiple consumers, an individual route record will be created for each consumer. Search criteria that include a consumer specification will return arrived files that included the specified consumer in one of the resulting routes.

## Search for EBICS Transactions

### About this task

An EBICS license must be installed in order for EBICS transactions to be available for searching. To search for EBICS transactions:

### Procedure

1. On the Basic Search or the Advanced Search page, select **EBICS** as the protocol and click **Find**.
2. From the Basic Search page, click on **EBICS Search** in the upper right corner.
3. Specify any combination of the following search criteria, as appropriate. Leave any field blank to search for files that match all possible values of that field.

Field	Description	Action
Search Location	The location of the tables you wish to search.	Select from: <ul style="list-style-type: none"> <li>• Live Tables (default) - to view active data</li> <li>• Restore Tables - to view archived business process data that has been restored.</li> </ul> <p><b>Note:</b> EBICS activity, such as Transaction, Message, and associated EBICS events, is archived and can be searched from the restore tables or live tables. Sterling File Gateway activity is purged, not archived, and purged data cannot be searched.</p>
Bank ID (Host ID)	Identifier for the bank.	Type the Host ID or select from the list.

Field	Description	Action
Transaction ID	Identifier for a specific transaction.	Type the Transaction ID.
Transaction Status	The status of the transactions.	Select from the following: <ul style="list-style-type: none"> <li>• Open</li> <li>• Received</li> <li>• Rejected</li> <li>• Pending</li> </ul>
User ID	Identifier for a specific user.	Type the User ID.
Partner ID	Identifier for a specific partner.	Type the Partner ID.
Order ID	Identifier for a specific order.	Type the Order ID.
Order Type	Type of order.	Select from the following: <ul style="list-style-type: none"> <li>• FDL</li> <li>• FUL</li> <li>• HCA</li> <li>• HCS</li> <li>• HEV</li> <li>• HIA</li> <li>• HPB</li> <li>• HPD</li> <li>• INI</li> <li>• PUB</li> <li>• SPR</li> </ul>
Order Status	Status of the order. (Applies only when Order Type = FUL)	Select from the following: <ul style="list-style-type: none"> <li>• RCVD</li> <li>• PDNG</li> <li>• RJCT</li> </ul>
File Format	Format of file.	Select from the list of available file formats that have been transferred.
Date (From)	Documents in progress or completed after the specified start date.	Click on the calendar icon to select the date to begin the search.
Time (From)	Documents in progress or completed after the specified start time.	Select the hour, in 24-hour format, and minutes to begin the search.
Date (To)	Documents in progress or completed before the specified end date.	Click on the calendar icon to select the date to end the search.
Time (To)	Documents in progress or completed before the specified end time.	Select the hour, in 24-hour format, and minutes to end the search.

4. Click **Find** to initiate the search. The Search Results tab opens and displays results matching all of your criteria. A maximum of 1000 files is displayed. The following default information is provided for each EBICS transaction:
- Order Status (only displayed for Order Type = FUL)
  - Transaction Status

- Transaction ID
- Partner ID
- User ID
- Order ID
- Order
- File Format
- Time of Last Activity
- Mailbox Messages (click to view list of mailbox messages and links to arrived files in a popup window.)

The following additional information is available:

- Bank ID (Host ID)
- Message ID (FUL only, link to Arrived File)
- Order Attribute
- Security Medium
- Direction
- Order Data Type
- Transaction Phase
- Total Segments
- Transaction Start
- Transaction End
- Original Transaction ID
- Process Status
- System ID
- Segment Received
- Recovery Counter
- Recovery Point

Right-click on a column heading to change the sort order, or to show or hide different columns.

5. Under the column for Mailbox Messages, a graphic icon is presented. When you click on the icon, a popup window is presented with the list of mailbox messages. If links to Arrived Files are present, click on those links to navigate to the Arrived File details.
6. The results display the list of Arrived Files where the Arrived File protocol was EBICS. Select a row to display a new pane with Arrived File Events and new tabs with Routes and Deliveries.

**Note:** Search displays information with respect to Arrived Files only. Therefore, if the search parameter is Protocol=EBICS, only files for which the Arrived File protocol is EBICS, such as files resulting from an FUL transaction, are displayed. For an FDL transaction, the Arrived File protocol is not EBICS and the transaction will not be displayed under the search results with search parameter Protocol=EBICS.

7. On the Event pane, click on the hyperlinks (underlined in blue font) to view the unpackaged output documents, dataflows, order parameters, routing channel templates, or workflows (business process details).
8. Event codes in a red font denote error conditions.

---

## View Detailed EBICS Transactions

### About this task

EBICS messages are a part of each transaction. It is analogous to one arrived file having one or more routes. One transaction can have one or more messages. Once you execute a typical transaction (FUL, FDL, for example), that has payload data, the Messages tab will pop up to the right of the Transaction tab.

### Procedure

1. On the Advanced Search page, under the Arrived File section, select **EBICS** as the protocol and click **Find**.
2. A list of files where the Arrived File protocol is EBICS is displayed. For example, files resulting from an EBICS FUL transaction.
3. Under the Delivery section, select the protocol and click **Find**. The protocols to select from are:
  - EBICS Inbound - refers to an external EBICS client contacting the EBICS server to download the file from the delivery mailbox. This mode is for an initiating consumer scenario.
  - EBICS Outbound - not currently supported
  - EBICS - includes both Inbound and Outbound
4. A list of files where the Delivery protocol is EBICS is displayed. For example, files resulting from an EBICS FDL transaction.
5. Click on any file in the results to view the Events, Routes, and Delivery details.

---

## Mark Activity as Reviewed

On the search results page, Operators can use the Reviewed checkbox to track when arrived files are reviewed.

### About this task

To mark activity as reviewed:

### Procedure

1. On the Search Results page for Arrived Files, right-click in the Reviewed checkbox on the row of the file you want to mark as reviewed and select Mark as reviewed. Shift-click to select multiple files to mark at once.
2. To remove the reviewed check mark, right-click again and select Mark as not reviewed.

---

## Activity History for Deleted Objects

After a partner, group, routing channel, or routing channel template is deleted, you can still access the history of the activities, if the activity has not been purged.

To view the history, type the value for the deleted object in the appropriate search field and click Find. Results displayed include activity for the deleted partner.

---

## About Event Codes

Each activity during the progress of a file transfer generates an event code. These codes are displayed in the activity details to enable Partners and Operators to see the progress and navigate to more details. System Administrators can create custom event codes and modify the permissions for standard event codes.

Some event codes trigger notifications to subscribers. System Administrators can change the permissions for an event code by using the `customer_overrides.properties` file to override values in the `filegateway_eventcodes.properties` file. The default subscription settings are provided in the table below:

Event Code	Name	Description	Default Subscription Settings
FG_0050	MailboxAuthorizationFailure	When a user fails to access a mailbox that is monitored	Operators
FG_0201	BusinessProcessStarting	When a business process is started, with the reason for starting it stored in context.	Only in activity details.
FG_0202	BusinessProcessSuccess	When a business process is successfully completed, with a link to the business process.	Only in activity details.
FG_0203	SendMessageBusinessProcessStarted	When a business process is successfully started, with a link to the business process.	Only in activity details.
FG_0250	BusinessProcessFailure	When a business process fails, with a link to the business process	Operators
FG_0401	FactDiscovery	When a fact is discovered by the route, for example, matching a pattern on the file name.	Only in activity details.
FG_0404	ProducerFound	When a producer and user are identified based on the arrived file.	Only in activity details.



<b>Event Code</b>	<b>Name</b>	<b>Description</b>	<b>Default Subscription Settings</b>
FG_0407	ConsumerFound	When a consumer is identified based on the route plan.	Only in activity details.
FG_0408	ArrivedFileStarted	When a file arrives to be routed	Operators, producers, and consumers
FG_0409	ArrivedFileDeterminingRoutes	When an arrived file starts determining routes.	Only in activity details.
FG_0410	ArrivedFileRouting	When an arrived file starts processing routes.	Only in activity details.
FG_0411	ArrivedFileRouted	When an arrived file completes all its routes	Operators, producers, and consumers
FG_0412	RouteStarted	When a route is started from an arrived file.	Only in activity details.
FG_0413	RouteDeterminingDeliveries	When a route starts determining deliveries.	Only in activity details.
FG_0414	RouteDelivering	When a route starts processing deliveries.	Only in activity details.
FG_0415	RouteComplete	When a route completes all its deliveries	Operators, producers, and consumers
FG_0416	DeliveryStarted	When a delivery is started from a route.	Only in activity details.
FG_0417	DeliveryTransforming	When a delivery starts to transform the consumer file.	Only in activity details.
FG_0418	DeliveryDelivering	When a delivery starts delivering the consumer file to the consumer.	Only in activity details.
FG_0419	DeliveryComplete	When a delivery is complete	Operators, producers, and consumers
FG_0420	ArrivedFileReplayed	When an arrived file is replayed, with a link to the replay	Operators, producers, and consumers

<b>Event Code</b>	<b>Name</b>	<b>Description</b>	<b>Default Subscription Settings</b>
FG_0421	ArrivedFileReplayOf	When an arrived file is a replay of an original arrived file, with a link to the original file.	Only in activity details.
FG_0422	Redeliver	When a redelivery is requested by a user	Operators, producers, and consumers
FG_0423	DeliverRedelivering	When a delivery starts redelivering the consumer file to the consumer.	Only in activity details.
FG_0424	ArrivedFileIgnored	When an arrived file is ignored due to a configured pattern for ignoring files	Operators, producers
FG_0425	ArrivedFileDescription	The description of the Arrived File	Operators, producers
FG_0450	ProducerMessageNotFound	When a producer message is invalid or cannot be found	Operators, producers
FG_0451	ProducerDocumentNotFound	When a producer document is invalid or cannot be found	Operators, producers
FG_0455	ArrivedFileFailed	When an arrived file fails	Operators, producers
FG_0456	RouteFailed	When a route file fails	Operators, producers, and consumers
FG_0457	DeliveryFailed	When a delivery fails	Operators, producers, and consumers
FG_0458	FileGatewayServiceVersionMismatch	When a newer version of a system business process is installed, but is not the default chosen version.	Operators

<b>Event Code</b>	<b>Name</b>	<b>Description</b>	<b>Default Subscription Settings</b>
FG_0501	ProducerMailboxRouteCandidatesFound	When route candidates are found for an arrived file based on the producer and the mailbox of the message.	Only in activity details.
FG_0502	RouteCandidatesFound	When route plan candidates are found for an arrived file.	Only in activity details.
FG_0503	RouteCandidate	A route plan candidate for an arrived file.	Only in activity details.
FG_0504	Route	When one or more routes are chosen from the candidates.	Only in activity details.
FG_0505	RoutesFound	The number of routes that will be executed.	Only in activity details.
FG_0506	Route Candidate Does Not Match	When a routing channel template contains no matching producer file structure for an arrived file.	Only in activity details.
FG_0550	ZeroRouteCandidatesFound	When no route candidates are found for an arrived file	Operators, producers
FG_0551	ZeroRouteChannelsFound	When no route channels are chosen from the list of candidates for an arrived file	Operators, producers
FG_0552	InvalidRoute	When a route is invalid	Operators, producers
FG_0601	TransformedMessage	When a message is transformed to the final format for the consumer.	Only in activity details.
FG_0602	ProducerPayloadExtracting	When the router begins to extract a producer payload file.	Only in activity details.

<b>Event Code</b>	<b>Name</b>	<b>Description</b>	<b>Default Subscription Settings</b>
FG_0603	ConsumerPayloadConstructing	When the router begins to construct a consumer payload file for delivery.	Only in activity details.
FG_0604	ConstructedLayer	When a single layer in the consumer payload file gets constructed.	Only in activity details.
FG_0605	ExtractedLayer	When a single layer in the producer payload file gets extracted.	Only in activity details.
FG_0606	LayerOptions	When options are passed to a business process to process a layer.	Only in activity details.
FG_0607	PGPConstructSkipped	When the PGP Construct layer is skipped because the consumer does not handle PGP and it is optional on the Routing Channel Template	Operators, consumers
FG_0650	ExtractLayerFailed	When extraction of a layer fails	Operators, producers
FG_0651	ConstructLayerFailed	When construction of a layer fails	Operators, consumers
FG_0701	DeliveredMailboxMessage	When a message is delivered to a mailbox (either a consumer mailbox or a mailbox for sending to a listening consumer).	Only in activity details.
FG_0702	DeliveredListeningPartnerMessage	When the file transfer is complete.	Only in activity details.

Event Code	Name	Description	Default Subscription Settings
FG_0703	ChangeDirectory	When the supported protocol changes directory on the listening consumer's server to transfer the file.	Only in activity details.
FG_0704	ConsumerDestinationMailboxFound	When the destination mailbox for the consumer is discovered.	Only in activity details.

## filegateway\_eventcodes.properties

The filegateway\_eventcodes.properties file contains properties that control the operation of event codes in Sterling File Gateway.

There are multiple properties in the filegateway\_eventcodes.properties file for each event, in the format:

```
FG_<EVENT_CATEGORY><EVENT_CODE>.<PROPERTY_NAME>=<REPLACEABLE_TEXT>
```

where:

- <PROPERTY\_NAME> is the parameter being defined for the particular event
- <REPLACEABLE\_TEXT> is the value of the parameter for the particular event
- and the values used by Sterling File Gateway for <EVENT\_CATEGORY> are:

Code	Category
00	Producer File Transfer
02	Routing Business Process
04	File Gateway General
05	Route Plan Determination
06	File Transformation
07	Consumer File Transfer

<EVENT\_CODE> is a unique code (within the category) to identify this event. Check the other properties (or the FileGatewayEvent enumeration) to ensure no duplication.

<REPLACEABLE\_TEXT> is text that displayed in the route details so users can monitor progress of the route.

The following information is provided for each event:

Property	Description	Example
Name	Name of the event. Displayed in the subscription UI ( <b>Profile &gt; Notifications</b> ). Required.	XX_0050.name=MyCustomEventFailure
Attributes	Comma delimited list of named attributes to the event. Used in the text field and must correspond to the order listed in the text field. For example, UserId attribute corresponds to {0} below. All attributes need not appear in the text field. Required, but can be empty.	XX_0050.attributes=UserId,ErrorMessage
Text	Event description displayed in the route activity UI for a specific occurrence of this event. Required.	XX_0050.text=User {0} encountered failure {1}
Description	A generic event description that does not use attributes. Displayed in the subscription UI ( <b>Profile &gt; Notifications</b> ). Required.	XX_0050.description=When a user encounters this custom event failure
Permissions	Comma delimited list that indicates who can be notified and who can view this event. Possible values are: <ul style="list-style-type: none"> <li>• subscription - available for subscription to notifications</li> <li>• producer - producers can see in route activity events list and receive notifications</li> <li>• consumer - consumers can see in route activity events list and receive notifications</li> </ul> Optional.	XX_0050.permissions=subscription

filegateway\_eventcodes.properties includes only standard events shipped with Sterling File Gateway. Custom events you create are entered and configured in customer\_overrides.properties.

**Note:** Do not edit the filegateway\_eventcodes.properties file. Make all changes in the customer\_overrides.properties file. For example, to change the name property, enter the following line into customer\_overrides.properties:

```
filegatewayeventcodes.name=CUSTOM
```

substituting CUSTOM with the name of your event code. See *Add Custom Event Codes*.

---

## Subscribe to Notifications for EBICS Events

### About this task

You can subscribe to certain events, including EBICS transactions, in Sterling File Gateway. You can subscribe to certain events, including EBICS events, in Sterling File Gateway. These events are triggered when EBICS transactions invoking them occur. When subscribed, users receive an email notification when that event is triggered. The emails are sent to the email address specified for the user in Sterling File Gateway .

An EBICS license must be installed in order for EBICS events to display in the list of notifications that can be subscribed to. Event permissions are managed by the System Administrator. Your user account must be configured with a valid email address to receive notifications. To subscribe to events:

### Procedure

1. From the main menu, select **Profile**.
2. Select the **Notifications** tab.
3. Drag an event from the left pane to the right pane to enable notifications.

### Results

When an event that has been subscribed to occurs, an email notification is sent to the email address in your user account.

---

## Unsubscribe to Notifications

### About this task

If you no longer want to be notified of events in Sterling File Gateway, you can unsubscribe. To unsubscribe:

### Procedure

1. From the main menu, select **Profile**.
2. Select the **Notifications** tab.
3. Click **Delete** to disable notification for that event.

---

## Generate Reports with EBICS Transactions

### About this task

Several standard reports are defined in Sterling File Gateway.

**Note:** Reports will include file transfers for EBICS transactions, but will not have details about the EBICS transactions specifically.

To generate reports:

### Procedure

1. From the main menu, select **Tools > Reports**.
2. Select the information you would like the report to contain. Leave any field blank to select all possible values. Options are:

Field	Description
Producer	Select a producer for the arrived files to report on. Do not use if Producer Group is specified.
Producer Group	Select a producer group for the arrived files to report on. Do not use if Producer is specified.
Consumer	Select a consumer for the arrived files to report on. Do not use if Consumer Group is specified.
Consumer Group	Select a consumer group for the arrived files to report on. Do not use if Consumer is specified.
Status	Select from: <ul style="list-style-type: none"> <li>• Started - includes Determining Delivery and Delivering</li> <li>• Succeeded - includes Complete</li> <li>• Failed - includes Failed</li> </ul>
Date (From)	Click on the calendar icon to select a starting date.
Date (To)	Click on the calendar icon to select an ending date.
Time (From)	Specify a time in the format hh:mm:ss. <b>Note:</b> Query in server time. Report results will be in server time, regardless of the header label.
Time (To)	Specify a time in the format hh:mm:ss. <b>Note:</b> Query in server time. Report results will be in server time, regardless of the header label.
Group By	Select from: <ul style="list-style-type: none"> <li>• Producer</li> <li>• Consumer</li> </ul>
Format	Select from: <ul style="list-style-type: none"> <li>• HTML</li> <li>• PDF</li> <li>• XLS</li> </ul>
Report Type	Select from: <ul style="list-style-type: none"> <li>• Detailed - includes a Producer ID (assigned by the system), Consumer, Discovery Time, Completion Time, Status, Original File Name, and File Size</li> <li>• Summary - includes Total File Size and Total Count by Success, Error, In Progress, and Failure Reviewed</li> </ul> <p><b>Note:</b> Error count is the number in Failed status that have not been reviewed.</p>



Field	Description
Sort By	Click and drag the following fields into the desired order for sorting: <ul style="list-style-type: none"> <li>• Status</li> <li>• File Name</li> <li>• File Size</li> </ul>

3. Select Generate Report. Depending on your selections, the report has the following contents:

Field	Definition
Created On	Date and time report was requested
Created By	User ID that requested the report
Group By	How the data is grouped
Report Config	Selections made for report
Filters	How the data is ordered
Producer ID	ID assigned by the system for the producer that created and sent the file
Consumer	Partner that received the file. The Consumer Name is listed, if available. If Consumer Name is not available, the Consumer Code is listed, delineated by <>.
Discovery Time	Time file first entered system, in the server time zone, regardless of the header label
Completion Time	Time file transfer was completed, in the server time zone, regardless of the header label
Status	Status when report was generated
Original File Name	Name given to the file by the producer
File Size	Size of the transferred file
Summary <ul style="list-style-type: none"> <li>• Producer</li> <li>• Total File Size</li> <li>• Total Count</li> <li>• Success</li> <li>• Error</li> <li>• In Progress</li> <li>• Failure Reviewed</li> </ul>	For each producer, the total file size transferred in the report period, total count of files transferred in the report period, and a count for each status category. The Producer Name is listed, if available. If Producer Name is not available, the Producer Code is listed, delineated by <>. <b>Note:</b> Error count is the number in Failed status that have not been reviewed.

**Note:** By default, reports only include the first 1000 activity records that match the specified criteria. Your System Administrator may set another value for the number of records to be included in reports. (See System Administrator > Install and Set Up > filegateway\_ui.properties.)

---

## Set Up and View Logs

To troubleshoot problems with file transfers that cannot be analyzed using the Sterling File Gateway user interface, view the activity log. Only Operators and System Administrators can edit log settings and view logs.

## About this task

New log files are created at midnight each day. If the maximum log file size is exceeded during the same day, additional log files are created. Old logs are automatically deleted after the pre-determined maximum number of logs is reached. The default maximum number is ten, which can be changed in the `customer_overrides.properties` file (`logService.filegatewaylogger.maxnumlogs=10`)

To set up logging:

### Procedure

1. From the main menu, select **Tools > Logs**.
2. Scroll down to locate **File Gateway**.
3. Click on the **edit** icon next to **File Gateway**.
4. Select **Logging Level On**.

**Note:** Logging can affect performance, so should only be turned on while troubleshooting problems.

5. Click **Save**.
6. View the log at **Tools > Logs, File Gateway**.

---

## Chapter 2. Replay EBICS Routes

---

### Replay EBICS Transactions from the Beginning of a Transfer

Replay a successful or a failed route to have the file transferred again from the beginning.

#### About this task

To replay a route:

#### Procedure

1. From the Search page, enter criteria for the file to replay.
2. Click **Find** to initiate the search.

**Note:** Once activity is purged, it is no longer available in the system and will not be found in a search that matches the criteria for it. You cannot replay messages that have been purged.

3. On the Search Results page, right-click next to the file you want to replay.
4. You can enter a new name to rename the file for the replay. Do not use the following characters: !%\*?<>"/\|:.
5. You can add a comment about the replay. Up to 255 characters are allowed for the comment. The selected file is replayed and added to the list of arrived files, with a special icon to indicate it is a replay. You can replay a route any number of times.
6. When you replay a route, the reviewed box is automatically checked. Right-click and select **Mark as Not Reviewed** to remove the check.

**Note:** Once an EBICS transaction is replayed, the replayed activity will not be noted as being an EBICS transaction, because the EBICS translation activity does not take place in the replay.

---

### Redeliver a Processed EBICS File

#### About this task

Redeliver a successful or a failed route to have the processed file delivered again. Only files that have had a previous delivery attempt, successful or failed, can be redelivered.

#### Procedure

1. From the Search page, enter criteria for the file to redeliver.
2. Click **Find** to initiate the search.

**Note:** Once activity is purged, it is no longer available in the system and will not be found in a search that matches the criteria for it. You cannot redeliver messages that have been purged.

3. In the resulting list, select the file.
4. On the **Delivery** tab, right-click on the delivery and select **Redeliver this Arrived File**.

5. You can add a comment about the redelivery. Up to 255 characters are allowed for the comment. The selected file is redelivered. Information about the redelivery is added to the delivery details of the original delivery. You can redeliver a route any number of times.

**Note:** The redeliveries create additional events for the original delivery, and do not display as separate routes in the search results page.

**Note:** Once an EBICS transaction is replayed, the replayed activity will not be noted as being an EBICS transaction, because the EBICS translation activity does not take place in the replay.

---

## Chapter 3. Troubleshoot and Resolve Problems

---

### Resolve Problems

Monitor the file activity routinely to check for failed transfers.

#### About this task

To resolve problems with file transfers:

#### Procedure

1. From the main menu, select **Tools > Activity Snapshot**, and check for **New Failures**.
2. Click on the number in the **New Failures** column to see a list for the most recent hour, day, or week displayed in the main window. Close the **Activity Snapshot** window to view the list.
3. Click on an item in the returned list to see the details.
4. Verify that all business processes involved in processing and transferring the files completed successfully.
5. Correct the conditions that caused the failure. For example, if there was an FTP failure due to an incorrect password, update the Partner's FTP configuration with the correct password.
6. To replay the failed transfer, right-click in the row of the arrived file and select **Replay this Arrived File**.
7. Mark the activity as **Reviewed** to move it to the **Reviewed Failures** list. Right-click and select **Mark as Reviewed**, or click in the checkbox in the Reviewed column. You can remove the check mark by clicking again, or by right-clicking and selecting **Mark as Not Reviewed**. This field is useful for Operators to track their monitoring of file activity and resolving problems.
8. Check for files in Routing State for extended periods of time, in cases that do not show in **New Failures** or in **Successfully Routed**. Below the **Activity Snapshot**, click the **Total in-flight** link.
9. Close the **Activity Snapshot**.
10. Review the list for any files that may have stalled. Click in a row to view the related events.
11. If there is a halted or failed business process, manually restart the business process to resume the transfer.

---

### Troubleshoot and Resolve Pending Transfers After a System or Node Failure

#### About this task

In a failover scenario, some producer messages may not get deleted from the Producer Mailbox. To resolve this situation:

#### Procedure

1. Determine whether the message got routed. Select **Tools > B2B Console > Deployment > Mailboxes > Messages** to search for files in the mailbox and locate the message Id.

2. Use **Advanced Search** in Sterling File Gateway to find the message Id.
3. If you find a result, it should be failed. Replay the arrived file. This resolves the issue without producer partner involvement.
4. If you did not find a result, contact the producer partner and have them rename the file.
  - a. The Producer logs in to their producer mailbox and notes the name of the message. It must be the same user that added the file for Sterling File Gateway to detect the route.
  - b. The Producer navigates to the mailbox directory that contains the message using the protocol originally used, such as FTP or SFTP.
  - c. The Producer renames the message using the exact same name. The rename command may have different names for different protocols and clients. For example, in FTP and SFTP command line it is “rename filename filename”.
  - d. If Allow Duplicates=false, then the producer partner can re-put the file which will overwrite the one that did not get routed.

---

## Troubleshoot and Resolve Incomplete File Transfers

If the business process responsible for a route fails or pauses due to a system failure, arrived files may not transfer completely.

If the consumer can receive the same file again without causing problems, replay the arrived file. Mark the arrived file as reviewed and enter comments with the reason for the replay.

If the consumer cannot manage receiving a duplicate file, determine whether an arrived file was already delivered before performing the replay. See *Confirm File Delivery*.

---

## Confirm File Delivery

### About this task

To confirm delivery of a file that may have been affected by a system failure, you can call the consumer to verify that they received it.

Or, you can perform the following procedure:

### Procedure

1. On the Activity page, click on the Arrived File. The Route and Delivery tabs should display.
  - a. If no Delivery tab or there are no deliveries under the Delivery tab, deliveries were not attempted. Replay the Arrived File.
  - b. If there is a Delivery tab, there may have been delivery attempts. Continue with Step 2.
2. For each delivery, look for the following event codes:

Code	Name	Event Description
FG_0201	BusinessProcessStarting	<p>The Business Process was started. The event contains a link to the workflow ID. In the case of FileGatewaySendMessage, this workflow ID is not the one that was started and instead you should look at FG_0203.</p> <p>For FileGatewaySendMessage, look for the FG/Protocol attribute. If there is one, it provides the protocol. If there is no Protocol attribute, the transfer is a mailbox-only delivery. Use this value to look for mailbox or protocol deliveries in the instructions below.</p>
FG_0202	BusinessProcessCompleted	Successful completion of the Business Process. This means the delivery was also successful, because the process completed without failures.
FG_0203	SendMessageBusinessProcessStarted	The Send Message process was started. This is unique because it is asynchronous to the route. The workflow ID link in this event is the correct process.
FG_0250	BusinessProcessFailed	The Business Process failed. You will not see FG_0250 on a successful process. Click through to the workflow ID on this event to view details about what happened.
FG_0701	DeliveryMailboxMessage	The Mailbox Message was delivered successfully.

3. If all events exist, the delivery to protocol and mailbox succeeded. If some events are missing, the transfer may not have succeeded. Continue with step 4.
4. Verify mailbox delivery by checking the results of the MailboxAddService in the FileGatewaySendMessage business process. A link to the FileGatewaySendMessage business process is in the event text for FG\_0202 and FG\_0203 under the Delivery tab. Click on the workflow ID link to go to the business process. Based on the events listed, perform the following actions:

<b>Problem</b>	<b>Solution</b>
Only FG_0201 event exists	<p>Click the workflow ID link for FG_0201 to go to the parent business process. Find the correct subprocess under the FileGatewayDeliveryService. If you only have one delivery there will only be one there.</p> <p>If that service did not run, no mailbox or protocol delivery occurred for that route.</p> <p>If you find some subprocesses, click each one to determine if it is the one you are interested in. Compare the DestinationMessageName in Process Data to the delivery that failed to find the matching process.</p>
There are no FG_02xx events	<p>It is possible the SendMessage process was not started, or there was data loss on the events. To verify, click the workflow ID link for FG_0425 under the Arrived File to go to the parent business process. Find the correct subprocess, if it exists. Use the table in Step 2 to find the correct subprocess. If no subprocesses were started, the delivery did not occur Continue to Step 5.</p>

- When you are viewing the correct FileGatewaySendMessage subprocess, look for the MailboxAddService. If there is no MailboxAddService, the mailbox delivery did not occur. If there is a MailboxAddService, check if it failed or succeeded. Perform the following actions:

<b>Mailbox Delivery</b>	<b>Action</b>
Succeeded for all deliveries	Mark items as Reviewed.
Succeeded for no deliveries	Replay Arrived Files, and mark as Reviewed.
Succeeded for some deliveries	Redeliver only the Failed deliveries, and mark as Reviewed.

- Check for protocol delivery. Find the link to the FileGatewaySendMessage business process. A link to the FileGatewaySendMessage business process is in the event text for FG\_0202 and FG\_0203 under the Delivery tab. Click on the workflow ID link to go to the business process. Protocol delivery is performed by a business process inside the FileGatewaySendMessage business process. There is no specific service that you can check. With custom protocols, there could be several services responsible for protocol delivery. In general, look for the Invoke Subprocess Service and the next services will be protocol specific. For FTP and SFTP protocols, look for services like FTTPut or SFTTPut. Follow the flow and determine if the protocol delivery reached and completed the service responsible for the actual delivery.
- Check all the deliveries for the Arrived File against the following table. If they all have Yes for "Replay/Redeliver" then Replay the Arrived File. If some are Yes and some are No, then only redeliver the ones that have Yes and do not Replay the Arrived File (or risk duplicate deliveries.)



Protocol	Mailbox	Replay/Redeliver	Action
Succeeded	Succeeded	No	Delivery succeeded. Do not replay or redeliver.
Failed	Succeeded	Yes	Although the file succeeded to the mailbox, replay or redeliver so that it also succeeds to the protocol.
Succeeded	Failed	No	Because the protocol succeeded, do not replay or redeliver because it will cause a duplicate delivery. Ignore that the mailbox failed.
Failed	Failed	Yes	Replay or Redeliver

---

## Resolve a Transport Error

### About this task

To resolve an error message of  
 Transport Error-HTTP Code:12029 for URL:./smartclientRPC.do

or similar:

### Procedure

1. Close the current browser session and relaunch Sterling File Gateway in a new browser session.
2. Log in to Sterling File Gateway.
3. If the problem recurs, restart Sterling File Gateway at the server.

---

## Troubleshoot and Resolve Blank Arrived Files

If an arrived file is blank, with no original file name or producer name, a system failure may have caused the Sterling File Gateway router to be unable to process the incoming message. There are several known situations that cause this:

- When a protocol client that uploads files to Sterling File Gateway performs renaming of files upon transfer.
  - **Why this happens** - the original file is deleted and renamed to a file with a new name. If Sterling File Gateway tries to route the file with the original name that was deleted, a failed blank arrived file is created. This happens because the file got deleted before information like producer, original file name and so forth are retrieved.
  - **What to do** - click on the blank arrived file. In the details, locate the message Id. Go to **Tools > B2B Console > Correlation Search** and enter the message Id and click **Find**. In the results, locate the file name and mailbox path to determine the producer. Contact the producer to confirm that their client that uploads files is set to rename files upon transfer. Ensure that the file with the new name is routed correctly.

- When a file is sent and immediately sent again, overwriting the first.
  - **Why this happens** - **Allow duplicates=false** in the Mailbox configuration. The second file overwrites and deletes the first file. If this happens before Sterling File Gateway reads the data about this file, then you have a blank route.
  - **What to do** - this is harmless if both files contain the same data because the second file is routed correctly. If multiple files with the same name and different data are to be sent to the system, configure the system so these files go to different mailboxes, or set **Allow duplicates=true**.
- When a system configured with a redundant Oracle RAC has a node failure.
  - **Why this happens** - the arrived file temporarily cannot see the message because of the failure and creates a blank arrived file to show that something was supposed to happen, and then immediately fails the arrived file.
  - **What to do** - replay the arrived file to get it to reroute. If this does not work, the message was deleted before the replay. Investigate the database, the logs, and the Activity list to find which message did not get added or got deleted prematurely. Determine the producer and ask them to re-send the file.
- Both AFT and Sterling File Gateway are enabled at the same time.
  - **Why this happens** - no AFT Routing Rules should be active after Sterling File Gateway is installed.
  - **What to do** - when Sterling File Gateway is installed, AFT is disabled. Do not re-enable AFT Routing Rules.

---

## Failed Routes for Renamed Files

If Sterling File Gateway tries to route a file that has been deleted from the mailbox, it results in a failed route. In the Arrived File list, click on the Failed route to view the Arrived File Event details. The following event message is listed:

```
FG-0450 ERROR: Producer Mailbox Message Does Not Exist.
```

Click on the Dataflow link in the details.

This can happen when a protocol client that uploads files to Sterling File Gateway performs renaming of files upon transfer.

System Administrators can specify the temporary file name pattern in the `ignoreFilenameex` parameter as a regex expression in `filegateway.properties`. This causes the specified patterns to be listed in the Arrived File list as Ignored. Multiple file name patterns can be specified.

---

## Notices

This information was developed for products and services offered in the U.S.A.

IBM® may not offer the products, services, or features discussed in this document in other countries. Consult your local IBM representative for information on the products and services currently available in your area. Any reference to an IBM product, program, or service is not intended to state or imply that only that IBM product, program, or service may be used. Any functionally equivalent product, program, or service that does not infringe any IBM intellectual property right may be used instead. However, it is the user's responsibility to evaluate and verify the operation of any non-IBM product, program, or service.

IBM may have patents or pending patent applications covering subject matter described in this document. The furnishing of this document does not grant you any license to these patents. You can send license inquiries, in writing, to:

*IBM Director of Licensing*

*IBM Corporation*

*North Castle Drive*

*Armonk, NY 10504-1785*

*U.S.A.*

For license inquiries regarding double-byte character set (DBCS) information, contact the IBM Intellectual Property Department in your country or send inquiries, in writing, to:

*Intellectual Property Licensing*

*Legal and Intellectual Property Law*

*IBM Japan Ltd.*

*19-21, Nihonbashi-Hakozakicho, Chuo-ku*

*Tokyo 103-8510, Japan*

**The following paragraph does not apply to the United Kingdom or any other country where such provisions are inconsistent with local law:**

INTERNATIONAL BUSINESS MACHINES CORPORATION PROVIDES THIS PUBLICATION "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF NON-INFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. Some states do not allow disclaimer of express or implied warranties in certain transactions, therefore, this statement may not apply to you.

This information could include technical inaccuracies or typographical errors. Changes are periodically made to the information herein; these changes will be

incorporated in new editions of the publication. IBM may make improvements and/or changes in the product(s) and/or the program(s) described in this publication at any time without notice.

Any references in this information to non-IBM Web sites are provided for convenience only and do not in any manner serve as an endorsement of those Web sites. The materials at those Web sites are not part of the materials for this IBM product and use of those Web sites is at your own risk.

IBM may use or distribute any of the information you supply in any way it believes appropriate without incurring any obligation to you.

Licensees of this program who wish to have information about it for the purpose of enabling: (i) the exchange of information between independently created programs and other programs (including this one) and (ii) the mutual use of the information which has been exchanged, should contact:

*IBM Corporation*

*J46A/G4*

*555 Bailey Avenue*

*San Jose, CA 95141-1003*

*U.S.A.*

Such information may be available, subject to appropriate terms and conditions, including in some cases, payment of a fee.

The licensed program described in this document and all licensed material available for it are provided by IBM under terms of the IBM Customer Agreement, IBM International Program License Agreement or any equivalent agreement between us.

Any performance data contained herein was determined in a controlled environment. Therefore, the results obtained in other operating environments may vary significantly. Some measurements may have been made on development-level systems and there is no guarantee that these measurements will be the same on generally available systems. Furthermore, some measurements may have been estimated through extrapolation. Actual results may vary. Users of this document should verify the applicable data for their specific environment.

Information concerning non-IBM products was obtained from the suppliers of those products, their published announcements or other publicly available sources. IBM has not tested those products and cannot confirm the accuracy of performance, compatibility or any other claims related to non-IBM products. Questions on the capabilities of non-IBM products should be addressed to the suppliers of those products.

All statements regarding IBM's future direction or intent are subject to change or withdrawal without notice, and represent goals and objectives only.

All IBM prices shown are IBM's suggested retail prices, are current and are subject to change without notice. Dealer prices may vary.

This information is for planning purposes only. The information herein is subject to change before the products described become available.

This information contains examples of data and reports used in daily business operations. To illustrate them as completely as possible, the examples include the names of individuals, companies, brands, and products. All of these names are fictitious and any similarity to the names and addresses used by an actual business enterprise is entirely coincidental.

#### COPYRIGHT LICENSE:

This information contains sample application programs in source language, which illustrate programming techniques on various operating platforms. You may copy, modify, and distribute these sample programs in any form without payment to IBM, for the purposes of developing, using, marketing or distributing application programs conforming to the application programming interface for the operating platform for which the sample programs are written. These examples have not been thoroughly tested under all conditions. IBM, therefore, cannot guarantee or imply reliability, serviceability, or function of these programs. The sample programs are provided "AS IS", without warranty of any kind. IBM shall not be liable for any damages arising out of your use of the sample programs.

Each copy or any portion of these sample programs or any derivative work, must include a copyright notice as follows:

© IBM 2015. Portions of this code are derived from IBM Corp. Sample Programs. © Copyright IBM Corp. 2015.

If you are viewing this information softcopy, the photographs and color illustrations may not appear.

#### **Trademarks**

IBM, the IBM logo, and [ibm.com](http://www.ibm.com)<sup>®</sup> are trademarks or registered trademarks of International Business Machines Corp., registered in many jurisdictions worldwide. Other product and service names might be trademarks of IBM or other companies. A current list of IBM trademarks is available on the Web at "Copyright and trademark information" at <http://www.ibm.com/legal/copytrade.shtml>.

Adobe, the Adobe logo, PostScript, and the PostScript logo are either registered trademarks or trademarks of Adobe Systems Incorporated in the United States, and/or other countries.

IT Infrastructure Library is a registered trademark of the Central Computer and Telecommunications Agency which is now part of the Office of Government Commerce.

Intel, Intel logo, Intel Inside, Intel Inside logo, Intel Centrino, Intel Centrino logo, Celeron, Intel Xeon, Intel SpeedStep, Itanium, and Pentium are trademarks or registered trademarks of Intel Corporation or its subsidiaries in the United States and other countries.

Linux is a registered trademark of Linus Torvalds in the United States, other countries, or both.

Microsoft, Windows, Windows NT, and the Windows logo are trademarks of Microsoft Corporation in the United States, other countries, or both.

ITIL is a registered trademark, and a registered community trademark of the Office of Government Commerce, and is registered in the U.S. Patent and Trademark Office.

UNIX is a registered trademark of The Open Group in the United States and other countries.

Java™ and all Java-based trademarks and logos are trademarks or registered trademarks of Oracle and/or its affiliates.

Cell Broadband Engine is a trademark of Sony Computer Entertainment, Inc. in the United States, other countries, or both and is used under license therefrom.

Linear Tape-Open, LTO, the LTO Logo, Ultrium and the Ultrium Logo are trademarks of HP, IBM Corp. and Quantum in the U.S. and other countries.

Connect Control Center®, Connect:Direct®, Connect:Enterprise®, Gentran®, Gentran®:Basic®, Gentran:Control®, Gentran:Director®, Gentran:Plus®, Gentran:Realtime®, Gentran:Server®, Gentran:Viewpoint®, Sterling Commerce™, Sterling Information Broker®, and Sterling Integrator® are trademarks or registered trademarks of Sterling Commerce®, Inc., an IBM Company.

Other company, product, and service names may be trademarks or service marks of others.

---

# Index









Product Number: 5100

Printed in USA