Sterling File Gateway

# Integration Architect Guide

Version 1.1

Sterling Commerce
An IBM Company

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# Overview

## About Sterling File Gateway

Sterling File Gateway is an application for transferring files between partners using different protocols, file naming conventions, and file formats.

Sterling File Gateway utilizes the Sterling B2B foundation, which includes Gentran Integration Suite, Sterling Standards, and the Sterling platform, to deliver capabilities similar to those found in Sterling Advanced File Transfer and Connect:Enterprise for Unix, while adding new features and functionality.

Use Sterling File Gateway for movement of large and high-volume file transfers, with end-to-end visibility of file movement in a process-oriented and highly-scalable framework that alleviates file transfer challenges, such as protocol and file brokering, automation, and data security.

Sterling File Gateway supports integration with Gentran Integration Suite Mailbox, Sterling Control Center, Connect:Direct and Connect:Enterprise for Unix server products. Sterling File Gateway, which is delivered atop the Gentran Integration Suite platform with a unique application URL, provides single sign on access to the Gentran Integration Suite admin console through menu selection.

## Prerequisites

You must have the following in order to install Sterling File Gateway:

- A relational database, installed and configured for use
- Appropriate connection credentials for performing the installation
- Administrative access on the machine where the install will be performed
- Adequate disk space on the machine where the install will be performed
- Gentran Integration Suite 4.3.13 installation with at least a core license
- Sterling File Gateway license

## Features

Sterling File Gateway provides many features:

- File/File name Transformations – Flexible and powerful way to map input to output file names, leveraging regular expressions; support for system-wide and group policies as well as partner-specific definitions; pre-built support for common file processing tasks: compression/decompression, and PGP encryption/decryption, and signing.

- File Transfer Visibility – Events recorded for monitoring and reporting; detailed tracking for input-output file structure processing and dynamic route determination (run-time resolution decisions); ability to view all Sterling File Gateway data flows for all users and filter such views.
- Replay/Redeliver – One click replay/redeliver capability that allows users to reprocess a transmission from the beginning or to resend just the processed file to a specific delivery destination.
- Notifications – partners and operators can subscribe to events to be notified about them by email.
- Predefined business processes – define common behaviors in file-transfer scenarios, reducing the need for customization.
- Extensibility – custom features (for example, custom event codes) can be added to support unique scenarios.
- Broad Communications Protocol Support – FTP, FTP/S, SSH/SFTP, SSH/SCP, and Connect:Direct are supported upon installation, and additional protocols (such as AS2, AS3, or Odette FTP) may be configured through use of the extensibility feature.
- Partner Interface (myFileGateway) – Web browser-based interface that enables partners to upload/download files, subscribe to notifications of events, manage passwords, search and view file transfer activity, and generate reports about file transfer activity.
- Flexible Mailbox Structures – Ability to specify mailbox structures that leverage pattern matching policies and specify attributes that must be true of all partners or a subset of partners
- Dynamic Routing – Consumer derived at run-time, either through mailbox structure, business process-derived consumer name, or map-derived consumer name.
- Partner Onboarding – Easy-to-use graphical user interface to onboard partners and configure the various combinations of communication protocols to enable Sterling File Gateway operations.

# License Requirements

Sterling File Gateway can only be installed as part of a Gentran Integration Suite 4.3.13 installation. The Gentran Integration Suite installation must be completed before the Sterling File Gateway installation can begin. Therefore, a Gentran Integration Suite license is required.

In addition, a Sterling File Gateway license is required to perform the Sterling File Gateway installation. The Sterling File Gateway license includes components needed for complete functionality:

- Sterling File Gateway Core
- Sterling File Gateway Extensibility
- Configuration Deployment Tool (CDT)
- Mailbox
- PGP
- Connect:Direct Server adapter
- FTP Server adapter

- FTP Client adapter
- HTTP Server adapter
- HTTP Client adapter
- SFTP Server adapter
- SFTP Client adapter

# Terms and Concepts

The following terms pertain to Sterling File Gateway:

| Term | Definition |
|---|---|
| Arrived File | A message in a mailbox that Sterling File Gateway monitors, causing Sterling File Gateway to perform some activity on it. |
| Communication Sessions | Records of a complete set of steps involved in all protocol level interactions between the client and server, typically performed to facilitate a file transfer, from connection to disconnection. Contain the authentication, authorization, file transfer, or non-file transfer records, for all communication activities that adapters participate in, whether or not data actually gets transferred. |
| Consumer | Partner who receives files directly or in a mailbox. |
| Consumer File Structure (CFS) | Description of consumer requirements for file naming and format structure. |
| Dataflows | Dataflows aggregate all documents that are related to each other by parent-child relationships, and annotates them with correlation entries and file transfer events. |
| Delivery | A record of the activities Sterling File Gateway took to deliver a file to a specific consumer endpoint. |
| Delivery Channel | Consumer side of the routing channel which specifies a consumer file structure and a mailbox delivery destination. There can be more than one delivery channel for each routing channel. |
| Event | Description of a distinct routing activity occurrence. |
| Fact | A named fragment of information gleaned from a file as it is identified and matched against routing channels. Facts can be derived from:<br><br>Part of a file name<br>Time the message arrived from the producer<br>Name of the producer<br>Name of the consumer |
| File Layer | Description of format. A file may encapsulate one or many other files. An |

| Term | Definition |
|---|---|
| | example of this is a ZIP file that contains a JPEG file. In this example, the ZIP file is a container layer because it contains another file. The JPEG file is a non-container layer. |
| File Structure | Description of a file's basic content structure and naming conventions. There are two types:<br><br>• Consumer File Structure<br>• Producer File Structure |
| Integration Architect | Type of user who creates partner groups, communities, routing channel templates, producer file structures, and consumer file structures . |
| Mailbox | A repository for messages with a hierarchical structure similar to files and directories on Windows and Unix. |
| Notification | Email sent to a subscriber to tell an event has occurred. |
| Mailbox Virtual Root | A position in the mailbox hierarchy associated with a user account that acts as the user's root directory. |
| Operator | Type of user who monitors system status and file activity. Troubleshoots problems with Partner activity, using logs, reports, and notifications. |
| Partner User | Type of user who uploads and downloads files from myFileGateway portal and works on behalf of the Partner. Views their own activity, specifies notifications to receive, and generates reports. Partner users are producers and consumers. |
| Producer | Partner who creates and sends files. |
| Producer File Structure (PFS) | Description of producer requirements for file naming and structure. |
| Redeliver | The operation that an Operator performs on a delivery, to reattempt that delivery. This can only be performed if a delivery has been attempted. |
| Regular Expression | An industry standard pattern-matching language. Used in Sterling File Gateway for matching file names and gathering facts related to file names. |
| Replay | The operation that an Operator performs on a file, to cause the system to reprocess that file again, as if it were sent again by the Producer. |
| Route | A route is a record of all the activities performed on a Routable Payload, once it known who the consumer is. Each Routable Payload is associated with a route. A replay of a route results in a new route and new file. |
| Route Details | Route details contain the details about a route, including the consumer, producer, list of deliveries that were attempted to the consumer and the events generated while processing the Route, start and end times, any errors |

| Term | Definition |
|---|---|
| | that occurred, and other details. Hyperlinks are provided to data flows, communication sessions, and business processes related to the route. |
| Route Provisioner | Type of user who creates and manages partners, group membership, and routing channels. |
| Routing Channel | Matches incoming producer files to consumers according to the requirements in the routing channel template, then transforms and sends them to the correct consumer in the format and name specified in the consumer file structure. |
| Routing Channel Template | The routing channel template (RCT) defines the structure through which routing occurs. The RCT specifies producer and consumer mailbox structures and file structures. It functions as a policy that mandates which partners can participate in various file transfer scenarios and which file formats they must use. An RCT is required to create a routing channel, which establishes the producer-consumer relationship for file transfers. |
| Routable Payload | A file that is eligible to match a routing channel. The top-level file (exactly as sent by the producer) is always routable; if the top-level file is a ZIP file, then the files contained within that ZIP file are also routable. A single payload must not match multiple routing channels. However, because a ZIP file and its constituents are distinct routable payloads, each is independently routed and can match different routing channels. |
| System Administrator | Type of user who installs and maintains system software. Creates initial users. Configures services, adapters, perimeter servers, certificates and the database for sending and receiving files. |

# Types of Users

There are several types of users that use Sterling File Gateway.

The personas that use Sterling File Gateway are:

- System Administrator - installs and maintains system software. Handles functions accessed in Gentran Integration Suite. Creates initial administrative users. Configures services and adapters for sending and receiving files. Manages extensibility features. Moves resources and configurations between systems.
- Integration Architect - creates partner groups, communities, routing channel templates, producer file structures, and consumer file structures.
- Route Provisioner - creates and manages partners, group membership, and routing channels.
- Operator - monitors system status and file activity. Troubleshoots problems with Partner activity, generates reports, uses logs, and subscribes for their own notifications.

- Partner User - uploads and downloads files from myFileGateway. Views their activity, subscribes for their notifications about their activities, manages their password, and generates reports about their activities. Are producers and consumers.

# Comparison of AFT and Sterling File Gateway

Gentran Integration Suite Advanced File Transfer (AFT) represented a first generation solution to enable enterprise-level file transfer. It offered consolidated partner configuration and onboarding and enabled streamlined definition of file exchange relationships.

Sterling File Gateway represents the next generation for enterprise-level file transfer. It includes all the features of AFT, and adds the following new capabilities:

- A Partner still belongs to exactly one community but it can belong to more than one partner group.
- An Integration Architect can configure File Gateway's mailbox hierarchy to match that which Partners are already familiar with.
- The structure for mailboxes is flexibly defined.
- Sterling File Gateway can perform format unwrapping and wrapping for the ZIP, GZIP and PGP formats.
- Sterling File Gateway can extract facts from file names and use them for routing and delivery, and as input for generating the file name the consumer sees.
- Producer and consumer mailboxes are no longer tightly constrained as they were with AFT. Both producer and consumer mailbox patterns can be built from facts available when a routing channel is provisioned; consumer mailbox patterns can also include facts that are only available when a file is being routed.

# About AFT Migration to Sterling File Gateway

AFT customers who want to take advantage of the Sterling File Gateway application will find built-in capabilities to migrate them to the new system with minimal effort. After migration, all functionality from AFT is preserved in Sterling File Gateway.

Important considerations to keep in mind for migrating customers:

- The AFT interface will be substantially modified and the current interface will be unavailable when Sterling File Gateway is installed.
- The Advanced File Transfer tab in Gentran Integration Suite will be available, but limited to offer AFT Route Activity and Reporting links so that a legacy AFT user can still view old AFT data for as long as it exists in the system.

- Migration creates routing channels and standard AFT routing channel templates (prefixed with AFT) in Sterling File Gateway. Migration also creates custom AFT routing channel templates for all migrated partners according to the consumer identification policies selected in AFT.
- The evaluation mode of all AFT routing rules are changed to Evaluate Manually at migration, effectively disabling them. They are replaced with a single Sterling File Gateway routing rule with an evaluation mode of Evaluate Automatically.
- A Partner that has been migrated to Sterling File Gateway remains in the Community they were originally created in, but they are also associated with the partner group AllPartners, as well as the partner groups AFT_PRODUCER_GROUP and/or AFT_CONSUMER_GROUP based on their role as defined in AFT.
- The PGP configuration used in AFT remains unchanged after migration; the PGP Profile named "AFTPGPProfile" continues to be used in Sterling File Gateway as well as the command line adapter instance named "PGPCmdlineService".
- After migration, AFT producers are associated with routing channel templates that replicate those producers' prior consumer identification policies. This is also true of custom consumer identification policies in AFT.
- Custom customer identification is achieved differently in Sterling File Gateway than in AFT. For an AFT producer that has a custom consumer identification policy, create that producer in Sterling File Gateway.

# About the Web Application myFileGateway

Partners send and retrieve files from the Web application myFileGateway. Log on to myFileGateway requires a valid user account. This user account is created when a Route Provisioner onboards the Partner.

From within myFileGateway, Partners can:

- Upload or download files.
- Search for routes they participated in.
- View recent activity and status for file transfers they participated in.
- Generate reports for activity they participated in.
- Subscribe to notifications.

# Role of Operators

Operators monitor system status and file activity.

Operators perform the following functions:

- Search for files to drill down to view details about arrived files and routes
- Troubleshoot problems to resolve them and restore file transfers
- Replay or redeliver failed or successful file transfers

- View logs
- Generate reports
- Subscribe to notifications

# Configuration Checklist for Operators

Before using Sterling File Gateway, review this checklist to understand the overall process.

To use Sterling File Gateway, you must complete a series of steps:

| Stage | Description |
|---|---|
| 1 | Obtain product training. |
| 2 | Request a user ID from your system administrator. |
| 3 | Log into Sterling File Gateway . |
| 4 | Monitor the system status using the Activity Snapshot, reports, logs, and notifications. |
| 5 | Correct problems as they occur. |
| 6 | Request replay or redelivery of failed transfers after resolving the problems that caused the failure, and enter supporting comments. |
| 7 | Mark items as reviewed to reflect your ongoing or completed work to resolve issues. |

# Mailboxes

A key function of Sterling File Gateway is the routing of files from one mailbox to another, so mailboxes are fundamental to Sterling File Gateway operations.

Mailboxes used for Sterling File Gateway operations can be created automatically in the following circumstances:

- When a Partner is created in Sterling File Gateway
- When Partners are migrated from AFT
- When Partners are imported into Gentran Integration Suite
- When a routing channel is created
- On demand, at the time of file transfer

When a Partner is created, a mailbox with the same name is created. For example, if the partner is named "PartnerOne" a mailbox is created where the mailbox absolute path is "/PartnerOne". When the Partner user logs in, the absolute path is not displayed. The Partner only sees the virtual path, which in this example is "/".

When a routing channel is created, a producer mailbox is created in the structure specified in the governing routing channel template. Creation of a routing channel may or may not result in the creation of a consumer mailbox as well, depending on the governing routing channel template.

A consumer mailbox may optionally be created on demand (at run time), if configured to do so in the routing channel template.

Whether created at routing channel creation time or on demand at run time, the consumer mailbox will conform to the structure mandated by the routing channel template.

Sterling File Gateway can also use pre-existing mailboxes (for example, those from a Gentran Integration Suite instance), if their paths match those expected by a routing channel, which derives its mailbox path from the governing routing channel template. When creating routing channels, the Sterling File Gateway application first checks to see if a mailbox of the required structure exists. If the mailbox does not exist, Sterling File Gateway creates it, along with any needed permissions.

# Disable Duplicate Messages

An important consideration for mailboxes is related to system behavior regarding duplicate files. A global system setting allows or disallows duplicates (files of the same name) in mailboxes. For optimum system behavior, disallow duplicates in your customer_overrides.properties file. To edit the customer_overrides.properties file:

1. In the install_dir/properties directory, locate (or create, if necessary) the customer_overrides.properties file.
2. Open the customer_overrides.properties file in a text editor.
3. Add the following:

```
mailbox.disallowDuplicateMessages=true
```

This ensures that every message in a single mailbox has a unique name. It also ensures that a message and a mailbox do not have the same name. If you write a message to a mailbox and the name matches the name of a message in the mailbox, the service deletes the old message before adding the new message.

# Enable Routing Schedule

To enable the routing of files from one mailbox to another, you must also ensure that an appropriate mailbox routing schedule is enabled. Before attempting to operate the system, verify that one of the following schedules is enabled:

- MailboxEvaluateAllAutomaticRules (runs once per minute and can be edited for longer intervals)

- MailboxEvaluateAllAutomaticRulesSubMin (checks for the presence of routable messages once every ten seconds and can be edited for other intervals less than one minute by modifying the MailboxEvaluateAllAutomaticRulesSubMin business process)

To enable either of these schedules, from the Gentran Integration Suite Administration menu, select Deployment > Schedules.

## Purge Messages from Mailboxes

Messages in consumer mailboxes are not automatically purged, and over time could affect system performance. To avoid this, configure the Mailbox Scheduled Delete service to delete messages from one, many, or all mailboxes. See *Mailbox Scheduled Delete Service*.

# View Sterling File Gateway Help

Definitions of each field on a page are available when you hover over a field. A complete library of information about Sterling File Gateway is available from the Help menu.

To access Help:

1. Click on the Help menu in the upper right corner.
2. Select Sterling File Gateway Help.

# Change Your Password

You can change your password at any time, and you must change your password if prompted at login.

To change your password:

1. From the main menu, select Profile > Password.
2. Enter your current password.
3. Enter your new password in accordance with the policy set by your System Administrator.
4. Retype the new password to confirm it.
5. Click Save.

# Log In or Log Out of Sterling File Gateway

Log in to Sterling File Gateway using the User ID and password provided by your System Administrator. Change your password the first time you log in to keep it secure.

When you log out of Sterling File Gateway, clear your browser history and close your browser window. To log out:

1. From the main menu, select Sign Out.
2. Confirm that you want to sign out.
3. Close your browser.

# Tutorial

To learn how Sterling File Gateway works from end to end, perform the following procedure using sample files that you create to use with the tutorial.

Only the high-level tasks are listed here. For specific instructions for each step, see the topics in the appropriate persona library. Use the following log on information for users that are automatically installed with Sterling File Gateway:

| Role | User ID | Password |
|---|---|---|
| System Administrator | fg_sysadmin | password |
| Integration Architect | fg_architect | password |
| Route Provisioner | fg_provisioner | password |
| Operator | fg_operator | password |
| Partner | fg_partner | password |

1. Log in to Sterling File Gateway as fg_sysadmin.
2. Configure an FTP Server adapter. See *Prepare Communication Adapters*.
3. Log out.
4. Log in as fg_architect.
5. From the main menu, select Participants > Communities to create a community with the following values:

| Field | Value |
|---|---|
| Community Name | FirstComm |
| Partner Initiates Protocol Connection | X |
| Partner Listens for Protocol Connections | X |
| FTP or FTPS | X |
| Should Receive Notification | Yes |

   See *Create a Community*.

6. Select Participants > Groups to create a group named Group1. See *Create a Group*.
7. Log out of Sterling File Gateway.
8. Log in as fg_provisioner.

9. Create two partners with the following values:

| Field | Value For First Partner | Value For Second Partner |
|---|---|---|
| Community | FirstComm | FirstComm |
| Partner Name | Partner1 | Partner2 |
| Phone | 333 | 444 |
| E-mail | y@x.com | x@y.com |
| User Name | partner1 | partner2 |
| Password | password | password |
| First Name | partner | partner |
| Last Name | 1 | 2 |
| Partner Role | Is a consumer of data<br>o Initiates a connection | Is a producer of data |
| Use SSH | No | No |
| PGP Settings | o No<br>o No | o No<br>o No |

See *Create Partner*.

10. Associate the partners with Group1. Select Particpants > Groups, then click Add Partner. Select the partners and the group, and click Execute. See *Add Partners to Groups*.
11. Log out.
12. Log in as fg_architect.
13. Select Routes > Templates > Create to create a routing channel template with the following values:

| Field | Value |
|---|---|
| Template Name | FirstStatic |
| **In the Type tab** | |
| Type | Static |
| **In the Special Characters tab** | |
| Special Characters | None |
| **In the Groups tab** | |
| Groups | Group1 for producers and |

| Field | Value |
|---|---|
| | consumers |
| **In the Producer tab** | |
| Producer File Structure | Click Add |
| Producer File Type | Unknown |
| File name pattern as regular expression | .+ |
| File name pattern group fact names, comma delimited | blank |
| **In the Consumer tab** | |
| Pattern for Consumer Mailbox Path | /${ConsumerName}/Inbox |
| Consumer File Structure | Click Add |
| Consumer File Type | Unknown |
| Consumer file name format | ${ProducerFilename} |

See *Create a Routing Channel Template*.

14. Log out.
15. Log in as fg_provisioner.
16. Create a routing channel with the following values:

| Field | Value |
|---|---|
| Routing Channel Template | FirstStatic |
| Producer | Partner2 |
| Consumer | Partner1 |

See *Create a Routing Channel*.

17. Log out.
18. Log in to myFileGateway as Partner2.
19. Upload a file to the / mailbox. See *Send a File from myFileGateway*.
20. Log out.
21. Log in to Sterling File Gateway as fg_operator.
22. Search for the file you uploaded. See *Search for a File*.
23. Click on the arrived file and observe the details about the events, the routing channel, and the routing channel template.
24. Log out.
25. Log in to myFileGateway as Partner1.

26. Download a file. See *Retrieve a File from myFileGateway*.
27. Log out.
28. Log in to Sterling File Gateway as fg_operator.
29. Search for the file you downloaded.
30. Click on the arrived file and observe the details about the events, the routing channel, and the routing channel template.
31. Replay the route. See *Replay From the Beginning of a Transfer*.

# Communities

## About Communities

A community is required to create a partner. The community must exist before the partner is created. Integration Architects manage communities.

A community represents a way to organize partners for purposes of onboarding. In Sterling File Gateway, communities are used to limit or widen the selection of protocols available when creating partners. They are also used to enable listening or initiating modes of connection. For example, you may have the following community categories:

- FTP only
- SFTP only
- HTTP only
- Connect:Direct only
- Listening only
- Initiating only

Partner groups are another way of organizing Partners.

## Create a Community

Integration Architects create, edit, and delete communities.

To create a community:

1. From the main menu, select **Participants** > **Communities**.
2. Click **add**.
3. Complete the information in the wizard for the new community.

| Field | Description |
|---|---|
| Community Name | A meaningful name to describe the community. Required. Cannot be a name previously used in Gentran Integration Suite. Do not use spaces, tabs, or the following special characters:<br><br>! @ # % ^ * ( ) + ? , < > [ ] { } / ' \ " \| ; |
| Secret key for PGP signing | Select from list of keys assigned to AFTPGPProfile. |

| Field | Description |
|---|---|
| | Required if any of the consuming partners belonging to this community require PGP signed data from the Router. See *Prepare to Use PGP*. |
| Secret key for PGP decryption | Select from list of keys assigned to AFTPGPProfile. Required if any of the producing partners belonging to this community send PGP encrypted data to the Router. This secret key may be the same or different from the one for PGP signing. See *Prepare to Use PGP*. |
| Partner Initiates Protocol Connections to Mailbox | Select to make this option available when creating Partners belonging to this community. A unique mailbox is created for Partners that initiate connections. Depending on other selections, submailboxes are created for Partners to enable them to drop files off for routing, or pick up files routed to them. |
| Partner Listens for Protocol Connections | Select to enable protocols available to listening Partners belonging to this community. When selected, the following choices are available when creating Partners belonging to this community:<br><br>o FTP or FTPS<br>o Connect:Direct<br>o SSH/SFTP<br><br>If the System Administrator adds other protocols to the AFTExtensionsCustomer.xml file, they are also provided as choices here. |
| Should member partners receive notifications that they are subscribed to? | This selection has no effect in Sterling File Gateway. |

4. Confirm the information and save.
5. Close the Community window to return to Sterling File Gateway.

Route Provisioners can now create partners using the community.

# Edit a Community

To edit a community:

1. From the main menu, select **Participants** > **Communities**.
2. Click **edit** next to the community in the list.
3. Modify the information as desired, click **Save**, and click **Return**.
4. Close the Community window to return to Sterling File Gateway.

# Delete a Community

To delete a community:

1. From the main menu, select **Participants** > **Communities**.
2. Click **Delete** next to the community in the list.

   Note: You cannot delete a community that has partner members. Delete the partners first.

3. Confirm the deletion.
4. Close the Community window to return to Sterling File Gateway.

# Groups

## About Partner Groups

Groups can contain multiple Partners and are used to constrain the use of routing channel templates to specific groups of Partners. To send or receive file transfers, a producer or consumer must belong to at least one partner group. Integration Architects create and delete Partner groups.

A group represents a way to organize partners for purposes of applying templates that govern file transfer policies. Templates are always limited to the producer and consumer groups configured to use them. Assigning partners to groups allows them to participate in any transfers using templates where their group is specified. For example, you may have the following types of group names:

- Western division
- Northern division
- Southern division
- Eastern division

Upon installation of Sterling File Gateway, a group named All Partners is created. Every Partner is automatically associated with the All Partners group when they are created in Sterling File Gateway. The All Partners group cannot be deleted.

Plan your groups based on the Partners that will exchange files, recognizing characteristics they have in common. For example, you may have groups based on using any or all of the same:

- Protocols
- Encryption requirements
- File formats

You can delete groups you create, unless they are currently being used in a routing channel template. First delete the routing channel template, and then delete the group.

## Create Groups

Create groups to constrain Partners to certain routing channel templates.

To create a group:

1. From the main menu, select **Participants** > **Groups**.
2. Click **Create**.
3. Type a Partner Group Name. Only alpha, numeric, and <space> characters are allowed in the group name.

4. Click **Save**.

   Note: Groups are displayed in lists in the order they were created during the same session. Log out and log back in to see groups listed in alphabetical order.

# Add Partners to Groups

Add Partners to groups to enable them to use the appropriate routing channel templates. Partners cannot participate in file transfers until they are associated with at least one group.

Partners created directly in Sterling File Gateway are automatically placed in the All Partners group.

To add a Partner to a group:

1. From the main menu, select **Participants** > **Groups**.
2. Click **Add Partners**.
3. Highlight one or more **Identities** in the left pane. Highlight one or more groups in the right pane. Click **Execute**.

The highlighted Identities are added as Partners to the highlighted groups.

Note: You cannot remove a Partner from a group without deleting the Partner.

# View Groups a Partner Belongs To

To view the groups a Partner belongs to:

1. From the main menu, select **Participants** > **Partners**.
2. Select a Partner in the left pane.

The groups the Partner is a member of are displayed in the right pane.

# View Partners in a Group

To view group membership:

1. From the main menu, select **Participants** > **Groups**.
2. Select the group in the left pane.

The Partners who are members of the selected group are displayed in the right pane.

# Delete a Partner from a Group

You cannot remove a Partner from a group without deleting the Partner.

# Delete a Group

Delete groups that are no longer needed.

To delete a group:

1. From the main menu, select **Participants** > **Groups**.
2. Select the group to delete in the list.
3. Click **Delete**.

   Note: You cannot delete a group that is currently being used in a routing channel template. First delete the routing channel template, then delete the group. You cannot delete the All Partners group.

# Routing Channel Templates

## About Routing Channel Templates

The routing channel template (RCT) is a fundamental concept in the Sterling File Gateway application.

The RCT defines the structure through which routing occurs. The RCT specifies producer and consumer mailbox structures and file structures. It functions as a policy that mandates which partners can participate in various file transfer scenarios and which file formats they must use. An RCT is required to create a routing channel, which establishes the producer-consumer relationship for file transfers. Integration architects create routing channel templates.

Routing channel templates are comprised of:

- Template type - static or dynamic, with a method if dynamic
- Rules for handling special characters in the producer file name
- One or more producer groups
- One or more consumer groups
- One producer mailbox name pattern
- One or more producer file structures
- One or more delivery channels, each of which specifies one consumer file structure and one consumer mailbox name pattern

Routing channel templates can be static or dynamic. A static routing channel template allows no variability in the consumer, who must be explicitly specified when the routing channel is created. Unlike a static template, a dynamic routing channel template does not require that the consumer be explicitly specified when the routing channel is created. Instead, a dynamic template can be used to determine the consumer at the time of file transfer. To enable this behavior, the dynamic template requires specification of a method to determine the consumer dynamically for each transfer.

You can use the following methods to determine the consumer for each transfer in a dynamic routing channel template:

- Specify the ConsumerName or ConsumerCode system facts in the producer file structure. For example, to dynamically identify the consumer based on file name, use parenthesis to group a portion of the file layer regular expression that represents the consumer and assign that grouping the ConsumerName or ConsumerCode system fact. This designates which partner the arrived file should be routed to. If the following is entered:
- `(.+)_(.+)[.](.+)`
- `ConsumerName,myFilenameBase,myFilenameExtension`

The leading bytes of the file name up to the first underscore represent the consumer partner that the file will route to.

- Specify a business process and ProcessData element name. With this method, you create and deploy a business process that returns a ProcessData xml element that holds the value of the consumer partner name.

# About Facts

Facts are name-value-pairs that contain information about active routes and the files being routed.

Some facts are intrinsic to the route, where others are determined during processing of the producer file structure. A fact is a named piece of known information about an executing routing channel, for example:

- A part of a file name
- The time a message arrived from the producer
- The name of the producer
- The name of the consumer

When a fact becomes known it is frozen. During a route, facts never lose their value or change values.

Sterling File Gateway provides system facts and supports the specification of custom facts during routing channel template creation. Most system facts can be used to build out the pattern for producer and consumer mailboxes and to define the producer and consumer file structures in the routing channel template. Use system facts as follows:

| Fact Name | Description | When Derived | Where Used |
|---|---|---|---|
| ConsumerName | The name of the consuming partner | Derived:<br>• During routing channel identification<br>• As the result of a consumer identification business process<br>• When associated to a file name regular expression parenthetic grouping | Producer Mailbox, Consumer Mailbox, Producer File Structure, Consumer File Structure |

| Fact Name | Description | When Derived | Where Used |
|---|---|---|---|
| ConsumerCode | The code of the consuming partner | Derived:<br>• During routing channel identification<br>• As the result of a consumer identification business process<br>• When associated to a file name regular expression parenthetic grouping | Producer Mailbox, Consumer Mailbox, Producer File Structure, Consumer File Structure |
| ProducerFilename | The name of the file that the producer sent | During early routing channel identification | Consumer Mailbox, Consumer File Structure |
| ProducerName | The name of the producing partner | During early routing channel identification | Producer Mailbox, Consumer Mailbox, Producer File Structure, Consumer File Structure |
| ProducerCode | The code of the producing partner | During early routing channel identification | Producer Mailbox, Consumer Mailbox, Producer File Structure, Consumer File Structure |
| RoutingTimestamp | When the routing began (when the route was identified) | Producer file arrival time | Consumer Mailbox, Consumer File Structure |
| ConsumerPgpExtension | The extension of a file based on the consumer's PGP preferences.<br><br>Value=<br><br>• .pgp - consumer is getting a PGP file | PGP layer packaging time | Consumer File Structure |

| Fact Name | Description | When Derived | Where Used |
|---|---|---|---|
| | • .asc - consumer is getting an ascii encoded pgp file<br>• (nothing) - consumer is not getting a PGP file<br><br>Only available for the PGP file layer type. | | |

When using system facts in the producer and consumer mailbox or in the consumer file structure, certain notations are required:

| Notation | Description |
|---|---|
| ${factname} | Replaced with the value of factname |
| ${fmt:factname} | Replaced with the value of factname, formatted according to fmt. The fmt string can be any format string supported by java.util.Formatter or a Timestamp value. |
| ${x:y:z} | Any use of more than one colon is an error and is rejected at RCT creation time. |
| ${factname | An unclosed reference is an error and is rejected. |
| $${ | Produces a literal ${ |
| {factname} | Is not an error, but produces a literal {factname} and is not replaced. |

Example formats and results are:

- No format - For most facts this will just result in their value. For RoutingTimestamp this will produce an 8 digit string like “20100821” for August 21, 2010.
- s - The value of the fact
- S - The value of the fact mapped to all upper case
- .5s - the value of the fact right truncated to 5 characters

Formats for RoutingTimestamp use the Java Formatter class formats with an enhancement that allows multiple formats to be specified for one value. Essentially, this is either a ‘t’ or ‘T’ followed by multiple time format specifiers. ‘T’ forces the results to upper case. In addition pieces of literal text may be included in ‘ characters.

Examples of RoutingTimestamp are:

- tYmd - An 8-digit string consisting of a 4-digit year, 2-digit month, and 2-digit day of the month. Like 20080201 (default).
- tHMS - A 6 digit Hour, Minute, Second value using a 24 hour clock. Like 053027.
- tlMSp - A 5 or 6-digit Hour, Minutes, Seconds value using a 12 hour clock. Like 53027am.
- TlMS' 'p - Like above, but in upper case with an embedded space. Like 53027 AM.
- Ta'-'b'-'d'-'Y - Textual date, in upper case. Like FRI-APR-21-2008.

In addition to using system facts, you can create your own facts in the producer file structure. User-created facts must be prefixed with the string "my" to clearly delineate between custom and system facts. Custom facts may be used in the consumer mailbox pattern (for mailboxes created on demand), and in the consumer file structure.

System facts and custom facts are searchable on the Advanced Search page. Facts can be used to enforce policy where the fact values must match when used in more than one layer.

# About Regular Expressions

Regular expressions are a standardized pattern matching language. Some suggested references for learning more about regular expressions are:

http://www.regular-expressions.info/

http://en.wikipedia.org/wiki/Regular_expression

http://java.sun.com/docs/books/tutorial/essential/regex/index.html

http://java.sun.com/j2se/1.5.0/docs/api/java/util/regex/Pattern.html

http://java.sun.com/j2se/1.5.0/docs/api/java/util/Formatter.html

# About Producer File Structures

A producer file structure contains a description of the basic content structure and naming conventions for files the producer sends.

The Integration Architect specifies a pattern for the producer mailbox and a producer file structure when creating a routing channel template.

The pattern for the producer mailbox path. The default is:

```
/${ProducerName}
```

You can change it using regular expressions and facts. Only the following facts are valid in the pattern for the producer mailbox path:

- ProducerName
- ProducerCode
- ConsumerName
- ConsumerCode

Note: If creating a dynamic routing channel template, do not specify ConsumerName or ConsumerCode in the producer mailbox path.

A producer file structure specifies the kind of file that producers are expected to send to Sterling File Gateway. A file structure is an ordered list of file layers, from outside to inside. A producer file structure may have one or more file layers. The layers are of a certain type, have a specific regular expression pattern, and may specify facts to be defined when a file matching the pattern is received.

There are two types of layers:

- Container - contain other container or non-container layers. For example, a PGP layer can contain a ZIP layer and a ZIP layer can contain a TEXT layer. A zip file can only contain multiple files if it is the outermost layer. All layers except the innermost layer must be one of:
    - ZIP
    - GZIP
    - PGP
- Non-container - or primitive, do not contain any nested layers. The innermost layer must be a primitive layer of type:
    - Text
    - Unknown

There is no limit to the number of layers for a file structure. Certain processing operations, such as the special character handling feature, only apply to the outermost layer. Also, route identification occurs at the outermost layer, except in the case of a ZIP file layer. With a ZIP layer, the second layer is also used to perform route identification.

If the layer type of the consumer file structure is text, the layer types of every producer file structure must be text and must not be unknown. If the layer type of the consumer file structure is unknown, the producer file structure can include either unknown or text.

By using regular expressions, a powerful standardized pattern matching language, the Sterling File Gateway application can match file names and gather facts related to file names. In defining facts for a particular regular expression, you have the flexibility to use the following system facts:

| Fact Name | Description | When Derived |
|---|---|---|
| ConsumerName | The name of the consuming partner | During routing channel identification or as the result of a consumer identification business process |
| ConsumerCode | The code of the consuming partner | During routing channel identification or as the result of a consumer identification business process |

Or, you can create your own facts. User-created facts must be prefixed with the string "my" to clearly delineate between custom and system facts.

Facts are useful for describing the meaning of the regular expression language. The regular expression carries in it the definition of the file expected from the producer. Because a file name may carry different categories of information, it is helpful to divide those categories of information into groups. In the regular expression, each group of information is contained within parentheses "( )". Each group within the regular expression must have a corresponding fact, either system or custom. Consider the following example:

File Format in Regular Expression

```
(\p{Alnum}+[-_]?(\d{4})_(\d{2})_(\d{2})\.zip)
```

where:

- the full expression, (\p{Alnum}+[-_]?(\d{4})_(\d{2})_(\d{2})\.zip), = capturing group 1 with fact = "mySanitizedFilename"
- (\d{4}) = capturing group 2 with fact = "myFileYear"
- (\d{2}) = capturing group 3 with fact = "myFileMonth"
- (\d{2}) = capturing group 4 with fact = "myFileDay"

The corresponding file name pattern group fact name entry for the above expression is:

```
mySanitizedFilename,myFileYear,myFileMonth,myFileDay
```

You may use the same fact in different layers of a producer file structure or in multiple file structures for the same routing channel template. During execution the value of this fact must not change. If it does change, Sterling File Gateway generates an error.

The simplest pattern that matches any name, and defines no facts, is:

```
.+
```

The File name pattern as regular expression field is case insensitive when matching file names.

After you specify a file layer type and click **Next**, you cannot change the file layer type. You can click **Edit** to change the fact names or regular expressions. To change the file layer type, click **Delete**, then click **Add** to create a new file layer.

# About Delivery Channels

The delivery channel defines what will be delivered to a consumer.

A routing channel template contains one or many delivery channels. Each delivery channel consists of:

- One consumer mailbox name pattern
- One consumer file structure

The Integration Architect creates a delivery channel as part of the process of creating or updating a routing channel template.

# About Consumer File Structures

A consumer file structure contains a description of a file's basic content structure and naming conventions.

A consumer file structure specifies the kind of file that consumers expect from Sterling File Gateway. A file structure is an ordered list of file layers, from outside to inside. The layers are of a certain type and they may have a specific format pattern and may include unique parameters.

The Integration Architect must create a consumer file structure when creating a delivery channel.

To create a file structure with multiple file layers, the outside layer must be a container layer of type:

- ZIP
- GZIP
- PGP

The innermost layer of a producer file structure must be a non-container layer of type:

- TEXT
- Unknown

If the layer type of the consumer file structure is text, the layer types of every producer file structure must be text and must not be unknown. If the layer type of the consumer file structure is unknown, the producer file structure can include either unknown or text.

For each layer, the file name format pattern is used to generate the new file name. The file name format pattern uses system and custom facts to define how the consumer file should be named. The following system facts may be used in building the file name format pattern:

| Fact Name | Description | When Derived |
|---|---|---|
| ConsumerName | The name of the consuming partner | During routing channel identification or as the result of a consumer identification business process |
| ConsumerCode | The code of the consuming partner | During routing channel identification or as the result of a consumer identification business process |
| ProducerFilename | The name of the file that the producer sent | During early routing channel identification |
| ProducerName | The name of the producing partner | During early routing channel identification |
| ProducerCode | The code of the producing partner | During early routing channel identification |
| RoutingTimestamp | When the routing began (when the route was identified)<br><br>Note: The RoutingTimestamp format for both CFS file names and mailboxes is restricted so that the generated file name is legal. Characters from literal text, text fact values, and formatted timestamp fact values have to all be valid.<br><br>For example, the format string: ${tH':'M:RoutingTimestamp} is a legal format, but it will produce an invalid name, because it produces a name that looks like 05:23. Colons are not allowed. | Producer file arrival time |

| Fact Name | Description | When Derived |
|---|---|---|
| ConsumerPgpExtension | The extension of a file based on the consumer's PGP preferences.<br><br>Value=<br><br>• .pgp - consumer is getting a PGP file<br>• .asc - consumer is getting an ascii encoded pgp file<br>• (nothing) - consumer is not getting a PGP file | PGP layer packaging time |

If custom facts are used, they must exactly match the custom facts specified in the producer file structure.

Regardless of the type of fact used, certain notations must be made for Sterling File Gateway to appropriately interpret the facts. Use the following special format notations to build your file name format pattern:

| Notation | Description |
|---|---|
| ${factName} | Replaced with the value of factName |
| ${fmt:factName} | Replaced with the value of factName, formatted according to fmt. The fmt string can be any format string supported by java.util.Formatter or a Timestamp value. |
| ${x:y:z} (any use of :) | Is not replaced |
| $${ | Produces a literal ${ |

Consider the following example. The file name format pattern uses both system and custom facts:

```
${mySanitizedFilename}_${RoutingTimestamp}.zip
```

In the above example, "mySanitizedFilename" was defined as a custom fact in the producer file structure, and "RoutingTimestamp" is a system fact. When Sterling File Gateway receives the producer's file, it will derive the facts and then use the facts to determine the values to place in the consumer file name.

# Create a Routing Channel Template

To create a routing channel template:

1. From the main menu, select **Routes** > **Templates**.
2. Click **Create**.
3. On the **Type** tab, enter a descriptive name for the template.

   The following are system-designated prefixes and must not be used for user-created templates:

   - AFT
   - FileGateway
   - FG
4. Select **Static** or **Dynamic**. If Dynamic, select how the consumer is determined, whether by facts or by business process. If by facts, specify the ConsumerName or ConsumerCode facts in the producer file structure. If by business process, specify the business process name and the element name in ProcessData that identifies the consumer.
5. On the **Special Characters** tab, select how special characters in producer file names should be handled. Use this when the file name the producer gives a file is incompatible with the naming convention the consumer uses. Select from the following:

| Selection | Other Input and Results |
|---|---|
| None | Do not change any special characters. |
| Substitute characters individually | Enter which characters to substitute with what new characters. The number of characters specified in the search for and replace fields must match. The characters are case-sensitive.<br><br>For example, Search for character sequence ABC, Replace with 123 would translate a producer file name of:<br><br>o Abbot.txt to a consumer file name of 1bbot.txt<br>o ABBOT.TXT to a consumer file name of 122OT.TXT<br><br>Search for abcdef, Replace with ABCDEF would translate producer a file name of:<br><br>o abbot.txt to a consumer file name of ABBot.txt |
| Replace characters, then omit consecutive replacements | Enter which sequence to substitute with what new sequence.<br><br>For example, Search for [*%$] Replace with -, would |

| Selection | Other Input and Results |
|---|---|
| | translate all of the following producer file names:<br><br>o A*B.txt<br>o A***B.txt<br>o A%%%%B.txt<br>o A*%B.txt<br>o A$$**%%B.txt<br>o A*$%$%*$*%B.txt<br><br>to a consumer file name of A-B.txt |
| Remove characters | Enter the characters to remove from the producer file name to create the consumer file name. |
| Remove Windows invalid characters /\:*?"<>\|;% | Characters that are invalid or cause problems in the Windows operating system are removed from producer file names prior to delivering to consumers. |
| Remove Unix invalid characters /;\'!#$&*\|'"?<>) | Characters that are invalid or cause problems in the Unix operating system are removed from producer file names prior to delivering to consumers . |
| Remove all characters, except alphanumeric, dash, and period | All special characters are removed from producer file names prior to delivering to consumers . |

6. On the **Groups** tab, click **Add** beneath each group box. Select from the drop down lists the producer groups and consumer groups that can use the template. You can select one or more producer groups and consumer groups by clicking **Add** and selecting additional groups from the lists.

   Note: Groups are displayed in lists in the order they were created during the same session. Log out and log back in to see groups listed in alphabetical order.

7. On the **Producer** tab, specify the producer mailbox name pattern and producer file structure. Mailbox paths are case insensitive and should therefore be unique without regard to case.
8. On the **Consumer** tab, specify the consumer mailbox pattern. To have a mailbox created for the partner when the file is routed, check the box. For a dynamic template, mailbox creation at run time is required.
9. Specify the delivery channel, including the consumer file structure. The innermost layer of the consumer file structure must match the innermost layer of the producer file structure, or be Unknown. The consumer file structure defines the file name format delivered to the consumer. To pass the file name through unchanged, enter:`${ProducerFilename}`

Note: There can only be one consumer file structure for each delivery channel. If you click Add and specify another file structure, it will overwrite the previously defined file structure.

10. Click **Save** to complete the routing channel template. Sterling File Gateway validates the routing channel template and displays errors for invalid criteria. You will get a confirmation when the template is successfully validated and saved.

# List Routing Channel Templates

To list the routing channel template:

From the main menu, select **Routes** > **Templates**.

A list of routing channel templates is displayed in the left pane. To view RCT details, select one from the list.

# Edit a Routing Channel Template

There is a new version of this topic. If you have installed Build 4315 or later, see Build 4315 Updates.

After you save a routing channel template, you cannot edit it. You must create a new routing channel template with different characteristics.

# Copy and Modify an Existing Routing Channel Template

To create new routing channel templates with similar characteristics, you can copy an existing template.

To copy a routing channel template:

1. From the main menu, select **Routes** > **Templates**.
2. Select from the list of templates the one you want to copy.
3. Click **Copy**.
4. Enter a new name for the new template.
5. Modify the items you want to change.
6. Click **Save** to complete the routing channel template. Sterling File Gateway validates the routing channel template and displays errors for invalid criteria. You will get a confirmation when the template is successfully validated and saved. After you save the template, you cannot edit it.

# Delete a Routing Channel Template

Delete routing channel templates that are no longer needed. If you need to change a routing channel template, delete it and create a new one with the new parameters.

To delete a routing channel template:

1. From the main menu, select **Routes** > **Templates**.
2. Select the routing channel template to delete, and click **Delete**.

   Note: You cannot delete a routing channel template that is currently being used in a routing channel.

3. Confirm that the correct routing channel template will be deleted.

The routing channel template is deleted, but information about the operations that used it remain until purged.

# Ignore Routing of Temporary Files

Some organizations configure their FTP environment to place a file in a mailbox with a temporary name, then rename the file, with the intention of routing only the renamed file. Sterling File Gateway provides the capability to assign a special status, Ignored, to these temporary files so they are not listed as Failed.

To configure Sterling File Gateway to ignore routing of temporary files:

1. Open the following file:<install_dir>\properties\customer_overrides.properties
2. Add the following parameter to the file:`filegateway.ignoreFilename=TEMP(.*)[.]txt` where TEMP(.*)[.]txt is the regular expression pattern that should be ignored. This pattern is checked before any patterns in a routing channel template. The value for ignoreFilename is limited to 255 characters.
3. Restart Sterling File Gateway.

# Route Determination

To perform day-to-day operations, it is not required that you understand how Sterling File Gateway handles file transfer activities. The following information is provided as background only.

When a producer sends or uploads a file, that file always lands in a producer mailbox. In preset intervals, Sterling File Gateway checks all the producer mailboxes that it monitors and initiates

routing on any newly arrived files. Sterling File Gateway will use the producer partner name and producer mailbox to determine all routing channels that match. For each routing channel match, the producer file structure is compared to the outer layer file name (for ZIP files, comparisons are also made on inner (one layer down) file names). If there is a mismatch between the file the producer sent and the file that was expected by the template, the file is not routed.

At times, multiple routing channels may seem appropriate for a transfer because the particular producer and producer mailbox may be used more than once in Sterling File Gateway routing channels. All routing channels that match are considered as candidates. The routing channel candidates are then grouped for each file. For each file, the winning routing channel is the candidate with the highest precedence. The precedence is determined based on the format layering and filename pattern in the template.

The following steps are involved in determining which routing channel wins:

1. Determine routing channel candidates. For example, if Producer Mailbox is /Producer1, identify the routing channels that use /Producer1.
2. Match the producer file structure. For example, if the producer file structure is ZIP/Unknown, identify the routing channel candidates that use a template with the ZIP/Unknown producer file structure.
3. Determine precedence. Of the routing channel finalists from step 2, find the one with the longest regular expression for producer file name. For example, a regular expression of (\p{Alnum}+[-_]?(\d{4})_{\d{2})_(\d{2})\zip) is longer than a regular expression of (.+).
4. Select the winner. In the previous example, the regular expression of (\p{Alnum}+[-_]?(\d{4})_{\d{2})_(\d{2})\zip) is the winner.
5. Route to the consumer. As configured in the winning routing channel, according to format specified in the consumer file structure.

After this process, Sterling File Gateway knows the consumer to send the file to and the required file name and layering format for that consumer. It uses this information to transform the file and deliver it to the consumer. It is possible that more than one delivery can be made to a consumer, depending on template configuration. If the template specifies more than one delivery channel, Sterling File Gateway delivers files according to the requirements of each.

At each stage of processing, Sterling File Gateway generates events that provide detail about the arrival of the file, the partners involved in the transfer, including pickup and drop off mailboxes, the template that governs the transfer, and the file format and name transformations. These event details also link to lower level objects – for example, business processes, data flows, and communication sessions – that allow in-depth analysis and troubleshooting if necessary.

Several factors can impact expected Sterling File Gateway operations, including configuration changes, missing configurations resulting from out-of-band partner setup, template design, and discrepancies in expected and received files. With detailed error tracking and customizable notifications, these processing errors can be manually checked, and rerouted after required corrections.

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