Connection Server Administration Guide
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Chapter

1

INTRODUCTION

The Connection Server system automates the distribution, transformation, and management of digital content over the Internet. This chapter introduces the Connection Server system in the following sections:

- Connection Server System Overview (page 1-1)
- System Requirements (page 1-6)
- About Connection Server Administration (page 1-6)
- About the ICE Protocol (page 1-8)
- Getting Help Online (page 1-8)
- Documentation (page 1-9)

CONNECTION SERVER SYSTEM OVERVIEW

The Connection Server system provides an efficient means for communications between the distributors of content, called *content providers*, and the consumers of content, called *subscribers*. Content providers and subscribers agree on the information to be distributed, and on its availability and distribution timing. Content providers then use Connection Server to distribute content that they control to their authorized subscribers, in the form of packages called *offers*.

Content distribution can take place between businesses, or within a single organization. For example, a news agency can distribute content for use by its affiliates; or a bank can distribute application-software upgrades to its branches. Because the Connection Server

system transmission is content-insensitive, any kind of digital information can be distributed.

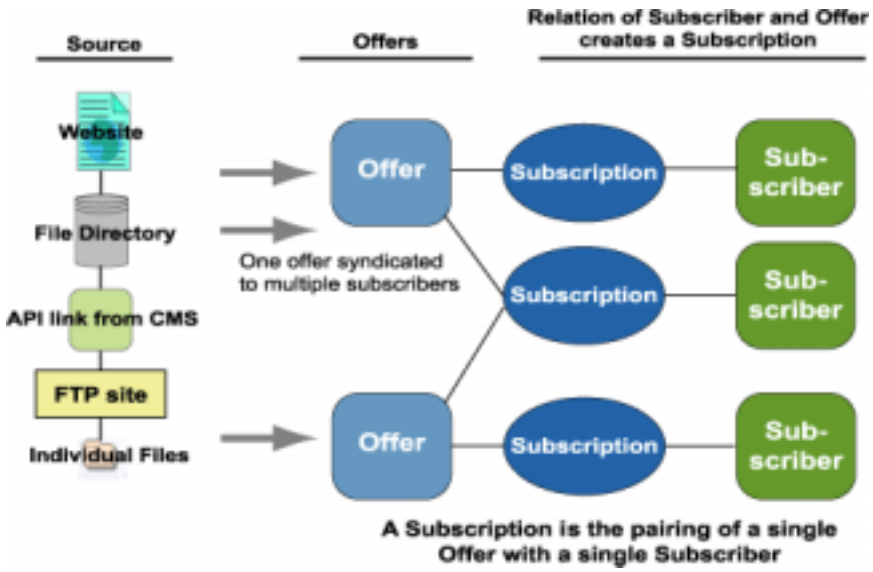
The Connection Server system uses standard industry protocols such as Information and Content Exchange (ICE), Extensible Markup Language (XML), and the Hypertext Transfer Protocol (HTTP). The Connection Server software is built using the Java programming language and is designed as a stand-alone server.

The Connection Server system also provides the following services:

- Automatically assigns users UUIDs (Universal Unique IDentifiers) and passwords to help ensure the secure distribution of content.
- Keeps track of distribution relationships between content providers and subscribers.

About Distributing Content

Offers can be made up of virtually any kind of digital asset—for example, text, graphics, or streaming media—and may be located on a networked computer, a web server, or an FTP server. Using Connection Server, the content provider makes these offers available to one or more authorized subscribers.



A *subscription* is the pairing of one offer and one subscriber. A Connection Server system subscription is similar to a newspaper or magazine subscription, where a client purchases a subscription to a publication. A client may have many subscriptions, but each is a pairing of the client and a single publication. Similarly, many clients may subscribe to a publication; again, each subscriber to a publication has a single subscription.

The diagram above illustrates the full process of providing offers (on the Connection Server side) and receiving subscriptions (on the Subscription Client side). Content providers compile offers from content sources—such as web or FTP servers, or file system directories—and create subscriptions that pair a single subscriber and a single offer. A subscription contains the files specified in a single offer.

This table shows the relationships among the system's principal components.

Component	Definition
Content Source	Location of content files: a directory, web server, or FTP server
Offer	Package of content files at a single Content Source
User	A person (or other principal) who interacts with the Connection Server system
Subscriber	A particular type of User—the named receiver of one or more Offers
Subscription	Offer active for one particular Subscriber

Subscribers who are authorized to obtain content from content providers may use the Subscription Client to retrieve them. They may also opt to have content delivered to an e-mail address or FTP server, or to use third-party, ICE-based client software. If subscribers decide to use the Subscription Client to receive content, they install and configure it for their system. After configuration, Subscription Client runs transparently. For each available subscription, Subscription Client checks at scheduled times for new content, and retrieves files to a specified directory on a computer at the local site.

About the Connection Server

The web-based Connection Server user interface provides tools for the management of subscriptions, and implements the processes and protocols necessary to distribute content to any number of subscribers. Content is delivered to the Subscription Client in one of two delivery modes:

- **Push mode:** The Connection Server sends content to Subscription Clients based on event and time criteria. For example, if a crucial piece of information changes, the Connection Server can send it immediately, without waiting for a request from a Subscription Client.

- **Pull mode:** Subscription Clients poll the Connection Server at defined intervals to pick up new or changed information.

Connection Server functions can be extended in two ways:

- By using advanced configuration-file options.
- By using the Connection Server Software Development Kit (SDK) to implement code based on the custom Content Source Monitor API extension.

A common extension of the Connection Server is to create custom interfaces to external applications and data stores. These interfaces allow the Connection Server to get content directly from other sources of content, such as content management systems and application databases. In Connection Server, these extensions appear as custom Content Sources, delivering content in much the same way as default Connection Server Content Sources.

Connection Server Operations

The following is the basic distribution process for content providers:

- **Define Offers**: Name each offer and provide its location. *This step is required to distribute content.* The offer's location can be a single directory, or files from several directories, or an Internet or FTP address (URL), or a custom Content Source Monitor API extension. You can also define user-group ownership.
- **Define Users**: Specify information about the subscribing company and technical details about its delivery method, such as the address of the receiving computer or FTP server. You can also provide other administrative information, such as group membership. *This step is required to distribute content.*
- **Define Roles and User Groups**: Define users' access privileges by assigning them predefined roles, which serve as templates for new users and set their security boundaries. As needed, you can assign users multiple roles, modify existing roles' permissions, and define new roles. To streamline administration and content distribution, you can also (optionally) employ user groups. These organize users, roles, and offers—simplifying the creation of many subscriptions at once.
- **Define Delivery Rules**: Check that the default delivery rules are appropriate for the content you want to deliver. Since a delivery rule must be assigned to every subscription, the Connection Server system assigns a default delivery rule according to the delivery method of the subscriber. However, you can also specify your own delivery rules. For example, to send closing NYSE stock figures, you might specify a

rule called `nyse-close` that delivers content in **push** mode every business day at 4:00 PM eastern time.

- **Define Subscriptions**: Specify named pairs of subscriber and offer, and assign a delivery rule to deliver content either in **pull** mode or **push** mode. *This step is required to distribute content.* You can define subscriptions one at a time, or in groups.
- **Define Content Directory [optional]**: If your company has purchased Content Directory, specify its location and connection information. Most Content Directory administration is done on the Content Directory itself, but setup requires that connection information also be set up in Connection Server.

When you have completed at least the required steps, you are ready to begin content distribution. Connection Server maintains records of offers, subscribers and subscriptions in its database and uses these records to control the availability and distribution of offers using the ICE, FTP, or SMTP (e-mail) protocols over the Internet.

User-configurable logging tracks management and transmission events at the specified level of detail. Logging automatically reports anomalies and problems.

About Subscription Client

The Subscription Client manages downloads of content and (optionally) performs customized transformations on received content. The browser-based Subscription Client user interface provides user control over the most commonly used Subscription Client capabilities.

Subscribers can apply customization and transformation to received content. For example, a company might apply its own branding and ads before posting information on its website. Transformations are done by applying filters written in Perl-like regular expressions, Java, KTL (Kinecta Transformation Language, a simple CSS-based transformation language), or XSLT transformations.

The following is the basic distribution process for subscribers using the Subscription Client:

- **Complete content-provider information**: Verify information about the network location of a content provider's Connection Server, and add default download information and update times.
- **Define download locations**: Specify the path to the location where downloaded content will be stored.

- **Define transformations [optional]**: Provide customized filters that reformat the received content.
- **Initiate transformations of received content [optional]**: Automatically apply the filters that customize received content.

SYSTEM REQUIREMENTS

It is important that your environment be equipped and configured to support the Connection Server system. Hardware and software requirements are described in the *Connection Server Installation Guide*. Be sure that your site meets the requirements listed.

ABOUT CONNECTION SERVER ADMINISTRATION

The Connection Server's Web browser–based user interface allows you to manage Connection Server functions:

Component	Definition	To Manage
Offers	Discrete packages of content that are identified by name and location, and are made available to one or more subscribers.	Choose **Offers** on the Connection Server's home page.
Subscriptions	Offer active for a particular subscriber.	Choose **Subscriptions** on the Connection Server's home page.
Delivery Rules	Specification of date, time, and frequency of delivery of content.	Choose **Delivery Rules** on the Connection Server's home page.
Users	Subscribers, and other individual users of the Connection Server system, who are assigned one or more roles.	Choose **Users** on the Connection Server's home page.

Component	Definition	To Manage
Roles	Sets of permissions, each granting access to particular resources and scope.	Choose **Roles** on the Connection Server's home page.
User Groups	Sets of offers, subscribers, or other resources, which are grouped to facilitate administrative tasks (such as creating subscriptions).	Choose **User Groups** on the Connection Server's home page.
Event Logs	Log-file settings.	Choose **Event Logs** on the Connection Server's home page.
General Settings	General running parameters for the Connection Server.	Choose **General Settings** on the Connection Server's home page.
Shut Down	Shut down the Connection Server.	Choose **Shut Down** on the Connection Server's home page.
Help	Open the Connection Server's online help.	Choose **Help** on the Connection Server's home page.
About	Display version information for the Connection Server.	Choose **About** on the Connection Server's home page.

Administrative settings for Connection Server include the following items:

- Name and UUID (Universal Unique IDentifier) for the Connection Server.
- Failover settings for alternative URLs in case of Connection Server failure.
- Purge dates and times for deleting stale offer information from the database.
- Time format settings determining how times are displayed, and how they must be typed, in the Connection Server.

ABOUT THE ICE PROTOCOL

The Information and Content Exchange (ICE) protocol enables the automated and controlled exchange and management of online information between partners—allowing you to reduce the cost of creating and operating online distribution networks.

This protocol defines XML syntax that expresses the business rules and processes needed to reliably distribute content between web servers, and to enable enterprise-level content distribution.

Unlike common XML “vocabularies,” ICE defines a complete server-to-server distribution protocol and processing model. ICE describes catalogs of content packages as subscriptions. It can also specify delivery scheduling information, update type (incremental or full), business rules, intellectual property rights, and other aspects of automated digital asset exchange.

Before the ICE protocol and the Connection Server system, sharing online information through affiliate networks was an expensive, ad hoc process. Every new partner required customized, time-consuming, and manual processes to update, share, and exchange data. Publishers struggled with each new partner over content format, validation, delivery options and frequency, notification, reporting, and monitoring—not to mention problems with disparate platforms, disparate databases, and incompatible media formats.

By making possible the controlled exchange and management of online information between partners, the ICE protocol allows you to reduce the cost of creating and operating online distribution networks, and facilitates the automated management of digital assets between networked partners. Because businesses can form partnerships with multiple affiliates at minimal incremental cost, the ICE protocol allows you to dramatically reduce the cost and difficulty of building value chains among suppliers, partners, distributors and customers.

GETTING HELP ONLINE

This section explains the online help system for the browser-based user interface. Each administration page has online help listing the procedures you may do on that page. This help includes links to step-by-step instructions for the listed procedures, and links to explanations of certain features. This help is available by clicking the large help icon () next to the page’s title.

Most administration pages are divided into discrete sections. Help that explains the fields in each section of a page is available by clicking the small help icon ( ) situated in the section heading.

- To display the help system's table of contents, click **Help** on the Connection Server's or Subscription Client's home page.
- To access technical product information, click **Support** on the Connection Server's or Subscription Client's home page.
- To check the version of your Connection Server, click **About** on the Connection Server's or Subscription Client's home page.

DOCUMENTATION

This documentation is provided with the Connection Server distribution:

- **installation-guide.pdf** — Detailed platform requirements, installation instructions, java compatibility, database configuration.
- **administration-guide.pdf** — Advanced configuration of Connection Server components, including configuration of operations, logging, resources, and multiple Connection Servers.
- **release-notes.pdf** — Platform requirements. support procedures, known defects, compatibility and third-party items, documentation errata.

Chapter

2

BASIC ADMINISTRATION

INTRODUCTION

This chapter discusses basic Connection Server administration tasks that you can specify using the web browser-based Connection Server user interface. It covers the following topics:

- Running Connection Server (page 2-1)
- General Settings (page 2-4)
- Event Logs (page 2-7)

RUNNING CONNECTION SERVER

This section discusses logging into the Connection Server, starting the Connection Server, using the Status Window, controlling the web browser-based Connection Server user interface, and stopping the Connection Server.

Initial Login and Password

The default login name and password to access your Connection Server is:

Login: **administrator**
Password: **administrator**

We suggest changing this login and password soon after your initial login.

Initial Connection Server Setup

The first time you run a newly installed copy of Connection Server, you must specify your valid Connection Server UUID (Universal Unique IDentifier) immediately upon startup. Your UUID is the license key number provided in your authorization e-mail, or on your installation media.

An administration message instructs you to specify your UUID in the **General Settings** page. You must also specify the Connection Server name. (See “General Settings” on page 2-4 for further information about Connection Server administrative settings.)

After you save these settings, Connection Server displays its home page, which is also known as its main menu or startup page. The startup page that you (or any user) views upon login depends on the role that the user has been assigned, and on the startup page that has been configured for that role.

- If a user has been assigned multiple roles, then upon login, they will see a preliminary **Select Role** page. Here, the user must select a role with which to log in for this session. The user’s selection will determine the startup page presented next.
- If a user has not been assigned any role, the user will be unable to log in until the administrator assigns them a role.

For further information about role-based startup pages, see “Creating a Role” on page 7-3.

Starting Connection Server

This section describes how to launch Connection Server on your operating system.

Important: Be sure that the Java runtime executable (**`java`** or **`java.exe`**) is set in your computer's PATH environment variable. Check this by typing the command **`java`** from any directory, and verifying whether it executes and displays usage and option information. For help installing the Java Virtual Machine (JVM), consult the *Connection Server Installation Guide* or the vendor documentation for your JVM.

Microsoft Windows

From the Windows Start menu, select the Connection Server with MS SQL Server or the Connection Server with Oracle shortcut, depending on the database you are using.

Alternatively, you can run the cns.sqlserver.bat or the cns.oracle.bat batch file from the command line. These batch file reside in the directory where Connection Server is installed (e.g, c:\Program Files\Connection Server).

The Windows Start menu also provides a shortcut to the Readme file, an HTML page that provides technical information for Connection Server's latest release. View this page in a web browser. (If you would prefer to bypass the Start menu, open the readme.html file in Connection Server's installed directory.)

UNIX-based Operating Systems

Run the appropriate database-specific shell script (.sh file). The shell scripts are found in the directory where Connection Server is installed. From your computer's command line, type:

`./syn_server-<database-type>.sh`

Supported database types are:

- Oracle
- Microsoft SQL Server

Important: Connection Server may be unable to detect the web browser on your UNIX-based system. Symptoms of this problem are:

- the browser fails to open,
- an error message appears, or
- clicking Launch Administrator in the Status Window does not start up the browser.

In these cases, you must edit Connection Server's startup configuration file to explicitly define your browser's location. The configuration file's name depends on your database, and is one of:

- cns.oracle.config
- cns.sqlserver.config.

Within this file, edit the **`options`** statement's **`browser-path`** entry to specify the full path to your web browser. For example:

```
<options browser-path="/usr/myhome/bin/netscape"
```

Command-Line Option

Connection Server takes an optional switch on the command line:

- **`-reset`** is used to completely clear out (reset) all content source monitors. Use it with caution.

The following example illustrates the use of this switch. Type the command from the Connection Server's installed home directory:
`./syn_server-<database-type>.sh -reset`

Controlling Browser Display

You can control whether the Status Window and the Connection Server user interface will display at startup by editing the Connection Server startup configuration file. The configuration file's name depends on your database, and is one of:

- cns.oracle.config
- cns.sqlserver.config

Within this file, you can customize the following options settings:

- To prevent the Status Window from displaying at startup, set the run-interactive option to false.
- To prevent Connection Server from displaying in a web browser at startup, set the start-browser option to false.

For example:
`<options run-interactive="false" start=browser="false">`

Stopping Connection Server

When you stop Connection Server, you can either shut it down completely, or shut down and restart in a single operation. If you are using the Connection Server user interface, always close Connection Server using the **Shut Down** option on the home page.

GENERAL SETTINGS

This section describes the general settings by which you can control the Connection Server's operation.

Connection Server Identity

These settings identify your Connection Server and determine its operational properties:

- **Connection Server Name**: Name of your Connection Server instaance. This is usually your company's name.

- **Connection Server UUID**: Identifies your Connection Server. As your UUID, enter the license key number that is provided as part of your license agreement.
- **Description**: Information about Connection Server. This is usually a description of your business or your content offers. This entry is written to Subscription Client's configuration file.
- **Connection Server URL**: The URL through which a user can log in to Connection Server. This field is pre-populated with a generated URL depending on the configuration with which Connection Server was first started. However, this generated URL is just meant to be a example for the administrator. The administrator should verify the URL and modify it as needed.
- **Connection Server Url for Subscriber**: The ICE URL through which a Subscription Client user can log in to this Connection Server to download content. This field is pre-populated with a generated URL, depending on the configuration with which Connection Server was first started. However, this generated URL is just meant to be a example for the administrator. The administrator should verify the URL and modify it as needed.
- **Primary Connection Server E-mail**: The Connection Server administrator's e-mail address. When Connection Server uses e-mail templates to send e-mail notifications to users, it will insert this value as the sender's e-mail address. When Connection Server uses its Client Download E-mail Template, it will send notifications to this address. (For details about e-mail templates, see Chapter 9, "Templates for E-Mail Notification.")
- **SMTP E-mail Server**: The SMTP server that Connection Server will use to send messages using e-mail templates.
- **SMTP E-mail Server Port**: The port that the SMTP server uses to send e-mails. This field's value defaults to **25**.

Failover

If you are running multiple Connection Server in a distributed environment, you can specify the order in which backup Connection Servers take over content distribution if the primary Connection Server fails.

Database Compaction

The purpose of the Database Compaction feature is to allow the server to shrink the tables in the database that are used to track package updates, so that only the minimum amount of information that is needed is kept. This is necessary because, over the lifetime of an offer all of the changes to every file in that offer is recorded in the database. This can quickly become a very large amount of information, much of which isn't useful once the subscribers have received those updates.

Database Compaction removes all of this older, redundant information from the database. That is, any information that isn't necessary to complete a successful delivery to an existing subscriber, and/or any information that isn't necessary to successfully deliver an offer to a newly created subscriber.

These settings determine when and how often information is purged from the database. Database Compaction does not delete the actual content files themselves. Purging offer information in the database is a two-phase process.

- The first phase is the marking of stale information—that is, information that have seen no activity in the number of hours you specify.
- The second phase is the actual deleting of stored information about the stale information; this occurs based on the frequency and time intervals you specify.

Purge items older than ... hours

If you leave this field empty, purges/compaction never occurs. If you fill it in, purges/compaction will occur on the days and times that you specify below—deleting items older than the number of hours that you specify in this field.

Purge Logs and Package Update History entries older than ... hours

Purges the database log as well as the update history (updates are shown on the main administration interface).

Purge Days

These settings determine the frequency of purges. They can be set to occur daily, on specific days of the week, or on specific dates of the month.

Purge Times

These settings determine the window for running purges and the time interval between checking for stale offers. By default, the Connection Server runs the purge process every 5 minutes for 24 hours (from 12:00 A.M. to 11:59 P.M.).

Time Format

These settings determine the format in which time displays in Connection Server. The default setting displays time in a twelve-hour format with AM and PM notation, according to the local time zone of the machine where Connection Server is installed. You can choose to display time using a 24-hour format. You may also set Connection Server to display time in GMT (Greenwich Mean Time) or in a configurable amount of time offset from GMT. The 24-hour format may be used in conjunction with Local Time, GMT and offset-GMT settings.

Note: You must type times into Connection Server in the same format in which you have chosen to display them.

EVENT LOGS

Connection Server saves event and transmission messages generated by the Connection Server components, so that you can review them in case of problems. This section provides an overview of these logging features.

For information about selecting specific logging features through the Connection Server administration user interface, see the online help links on Connection Server's **Event Logs** and **Create Event Log** pages.

The Primary Log

While Connection Server is running, it automatically generates a log file named **`syndicator.log`**. This is an ASCII text file written into Connection Server's installed home directory. In the Connection Server user interface, this log is referred to as the **Primary** log.

By default, Connection Server uses a rotation method to manage its log file. Additional log files are created when the current one reaches its maximum configured size. Connection Server continues to generate log files of a constant size until it has generated the number configured. When the specified number of files is reached, Connection Server

deletes the oldest log file when it creates the next new one. The rotating scheme provides control over exactly the amount of disk space used for storing log messages; and the most recent logging information is always retained.

The default file size for **`syndicator.log`** is 1024 kilobytes. The default number of files to rotate is 7; you can set this number as high as 100.

Default Database Log

The default database log is used by the main administration interface and by web-viewable log pages. All of the server's basic interactions with the database are logged (except for things like custom database content source monitors).

Important: Log files can become quite large and in some cases slow server performance. If you want to perform analysis of the log database, you must set the log purge frequency and age appropriately.

Creating Event Logs

Using the **Create Event Log** page, you can specify additional Connection Server logs. To reach this page, click the **Create Event Log** link either on Connection Server's home page or on its **Event Log**s page.

Note: You must configure database purging through the purge options, see "Database Purge" on page 2-8.

Logging Levels

This top section allows you to define the following settings:

Log name:	Choose a name for this log. (You can choose the name arbitrarily, but it should normally reflect the log's purpose.)
Description:	Enter a description of this log's purpose.
Default Logging Level:	Sets the default error level for logging facilities.
Facility/Error Levels:	Use these drop-down lists to override the default error logging level for particular logging facilities.

Log Destinations

For each log, the destination can be one of the following:

File Logging:	ASCII text file, with user-specified file name and rotation.
Database Logging:	Connection Server database, with user-specified purge cycle.
Mail Logging:	E-mail notification to a specified administrator address.
Custom Logging:	Custom log using a specified Java class' API.

File Logging

Select the **File Logging** option if you want this log to send messages to a text file. This section of the page allows you to define the following settings:

File name:	Enter a file name for this log.
File handling:	Select one of the following options: **overwrite log file**: starts the log file fresh each time Connection Server is started; **append to existing log file**: appends new entries to the existing log; **rotate log files by size**: causes Connection Server to automatically generate additional log files when the current file reaches the threshold size specified. When the number of files reaches the threshold number specified, Connection Server will delete the oldest file as it creates the next new one.
Rotate files every...KB:	Set the threshold size (in kilobytes) of the log file at which file rotation will occur. The maximum setting allowed is **1024** KB.
Keep...old files:	Set the maximum number of files to retain in file rotation. The maximum setting allowed is **100**.

For further details about setting the **Rotate files every...** and **Keep...old files** options, see "The Primary Log" on page 2-7.

Important: Log files can become quite large. To generate smaller log files, use error levels that generate messages less frequently, such as **Critical** or **Error**. Also, using the **rotate log files by size** option for **File handling** ensures that the disk space used for logging remains constant.

Database Logging

This log destination automatically sends messages to a table in the Connection Server database. You can specify parameters for purging the database of stale log messages. For further information about database purging, see “Database Compaction” on page 2-6.

Important: If you want to perform analysis of the log database, you must set the log purge frequency and age appropriately. That is, you must allow enough time for your analysis to be run (or for log items to be extracted for later analysis).

Mail Logging

This log destination uses e-mail to automatically send log messages. When mail logging is enabled, you must fill in the following fields:

Use mail server:	This field’s value is pre-populated from the **General Settings** page. You can modify this value to substitute the valid address of a different host SMTP server.
From:	This field’s value is pre-populated from the **General Settings** page’s **Primary Connection Server E-mail** field. You can edit it to substitute any other valid, fully-qualified e-mail address. The value should represent this Connection Server, or its administrator, as a message sender.
To:	A valid, fully-qualified e-mail address that will receive the logging messages.
Subject:	Subject line of the e-mail messages.
Message:	Body (header) of the e-mail messages.

The **Subject** and **Message** fields support the following variables for customizing messages:

`$to`	Recipient's e-mail address, as specified in this page's **To** field.
`$from`	Sender's e-mail address, as specified in this page's **From** field.
`$messages`	Inserts the text of the log messages into this e-mail.

Custom Logging

This log destination directs log messages to a Java routine for processing. It is possible to write custom logging processors if needed.

Deleting Event Logs

To explicitly delete event logs:

1. On the **Event Logs** page, click the link for the log you want to delete.
2. On the resulting **Event Log** page, click **Delete**.

Note: You cannot delete the Primary log.

Chapter

3

SECURITY MODEL

INTRODUCTION

This chapter describes the Connection Server's security environment. It contains the following sections:

- Enterprise Security Overview (page 3-1)
- Authorization (Access Control) (page 3-3)
- Authentication (page 3-7)
- Accountability (Auditing) (page 3-8)
- Message Privacy and Data Integrity (page 3-8)

For details on implementing security through user roles, see Chapter 7, "Roles and User Groups."

ENTERPRISE SECURITY OVERVIEW

Distributed applications, because they rely upon communications over open networks, face an inherently insecure environment. To help ensure that it distributes information only to intended recipients, and distributes it intact, Connection Server uses a standard enterprise model of role- and permission-based security. In this model, authorized users of the Connection Server system are assigned to *roles*, each of which defines a set of *permissions* to view and modify information.

Connection Server's security model is designed to protect against the following common security risks:

- **Eavesdropping:** An intruder reads communications without attempting to change them—but thereby receives potentially valuable information that was intended to remain private.
- **Impersonation or Unauthorized Access:** An intruder pretends to be a legitimate user of your application. If successful, the intruder can not only eavesdrop on content, but also corrupt content, corrupt legitimate users' permissions, and corrupt other resources. A successful impersonator can disrupt your operations or directly seize valuable information.
- **Insufficient Authority:** A person who is authorized for basic access to your application attempts (either deliberately or inadvertently) to use features above the complexity that he or she was authorized to use.
- **Message Modification:** A person attempts to modify the content of an application's messages as they pass over the network.

Connection Server's security features provide the following security precautions and defenses that respond to the above threats:

- **Authentication:** Protects against impersonation by establishing the identity of either party to a secure communication. (Answers the basic question: With whom is this application communicating?)
- **Message Privacy (Encryption):** Protects against eavesdropping by encoding messages' contents, using an algorithm or protocol to which only authorized users have the decoding key.
- **Data Integrity:** Protects against message tampering by using automated processes to check that received messages' contents match the originals' contents.
- **Authorization (or Access Control):** Protects against impersonation and insufficient-authority abuses by granting authenticated users permission to access a controlled list of protected information or resources.
- **Accountability:** Records attempted or successful breaches of primary (authentication and authorization) defenses. If those primary defenses fail, audit trails provide a fallback defense by helping you identify who has done what.

AUTHORIZATION (ACCESS CONTROL)

Connection Server's approach to access control is built upon the following hierarchy of concepts and entities:

Resources

A resource is a specific entity upon which a Connection Server *user* (as defined below) is granted or denied access to perform an *action* (as defined below). This version of Connection Server defines the following types of resources:

- **Offer**
- **Subscription**
- **ContentPackage**
- **Role**
- **User**
- **UserGroup**
- **ContentDirectory**
- **Log**
- **DeliveryRule**
- **System**
- **ScheduledJob**.

Owned Resources

Some resources can be owned by users or user groups. Resource ownership enables you to implement fine-grained control over who can access which instances of a resource. In the current version of Connection Server, only the following types of resources can be owned:

- **Offer**
- **Role**.

Actions

An action is a specific operation that a user can perform on a resource. Every resource (except the **System** resource) supports the following actions:

- **View:** Access summary information about the resource.

- **Read:** Access fields on the resource.
- **Write:** Edit and save the resource.
- **Delete:** Delete resource.
- **Create:** create a new instance of the resource.

In addition, specific resources have additional actions particular to them. These other actions include:

- **ChangePassword:** Change user's password.
- **AssignRole:** Assign role to user.
- **RemoveRole:** Remove role from user.
- **DisableUser:** Disable user.
- **AssignGroup:** Assign object to group.
- **RemoveGroup:** Remove object from group.
- **Subscribe:** Subscribe user/offer.
- **GrantPermission:** Grant permission to role.
- **RevokePermission:** Remove permission from role.
- **Shutdown:** Shut down system.
- **Restart:** Restart system.

Permissions

A permission is a grants the right to perform an action on a resource. A permission consists of an action, the type of resource, and a *scope*—which determines the instances of the resource for which this permission is granted. There are three levels of scope:

- **System**: The permission applies to all instance of this resources. (The default scope.)
- **User Group**: The permission applies only to instances of the resource that are owned by a user group to which the user belongs.
- **User**: The permission applies only to instances of the resource that are owned by this user.

Special (Binary) Permissions

Some actions require two permissions in order to be performed. These are actions that entail creating a relationship between two resources, and they must be granted one permission for each resource.

For example, to be able to assign a role to a user, you need permissions with the **AssignRole** action on both the **Role** and **User** resources.

One operation to note in particular is subscribing to an offer. Because you are potentially doing this on behalf of another user—since, to create a subscription, you choose both an offer and a user—two permission checks are involved. Each action has a different meaning:

- First, the system checks: Does the user invoking this action have the right to create the subscription on behalf of the subscriber? It does this by checking for the user's "subscribe user" permission. Depending on this permission's scope, the user can create subscriptions just for herself, or just for subscribers in her user group, or for all subscribers.
- Next, the system checks if the subscriber itself has the right to create the subscription. It does this by checking for the subscriber's (not the user's) "create subscription" permission. Depending on this permission's scope, the subscriber can subscribe either to any offer, or only to offers that are owned by one of the user groups to which it belong.

Roles

Users are not granted permissions directly. Instead, permissions are added to *roles*, and each user is assigned one or more roles. A role typically defines a responsibility that users may have. Upon installation, Connection Server has two default roles:

- **System Administrator**: This role has complete access to the system (also often referred to as a *super-user*). The default user—**administrator**—is assigned this role.
- **Subscriber**: This role defines a set of permissions appropriate for a user that only receives content (either via the Subscription Client, or via e-mail or FTP delivery). This role only has access to its own subscriptions, and does not have access to the Connection Server administrative interface. (To enable such access, add the **System Read** permission to the role.)

You can modify the permissions granted to these roles, or create additional roles, through the Connection Server's administration interface. For details, see Chapter 7, "Roles and User Groups."

Users and Principals

Any interaction with Connection Server is shielded by its security subsystem, which requires credentials to be presented to it. These credentials (typically a login name and password) identify the entity on whose behalf the requests are being made. In enterprise security terms, that entity is commonly referred to as a *principal*.

These interactions can be made through Connection Server's administration user interface, or by the Subscription Client that the user is running, or though Connection Server's public APIs, which are exposed as a set of EJBs (Enterprise Java Beans).

Connection Server first *authenticates* the credentials presented. If authentication is successful, it then attempts to *authorize* the request by checking to see if the principal has permission to perform the action—using the permissions associated with the principal's roles.

Thus, there must be a user associated with every entity that interacts with Connection Server; however, these users (principals) might not be individuals, and they might never interact with or directly log in to Connection Server's user interface. For example, you might use Connection Server to deploy content to a farm of web servers, which each web server running Subscription Client. Each of instance of a Subscription Client would require a *user* to be created, even though they are not human "users" in the common sense of that term.

Upon installation, Connection Server has a single default user:

- **administrator**

which is assigned the **System Administrator** role. Its default login and password are both: **administrator**. (For further information about assigning roles to users, see Chapter 4, "Users.")

User Groups

User groups constitute an *optional* feature that allows you to control Connection Server resources—and access to those resources—in a fine-grained way.

A user group is a logical collection of zero or more users. (You can create a user group before assigning any resources to that group.) In addition, user groups can "own" resources. When a user group owns a particular instance of a resource, any user that is a member of that group can perform actions on that resource *if* the user has a permission to

do so at the **User Group** scope (or a at higher scope). In the current version of Connection Server, only offers and roles can be owned by user groups.

It is important to note that when a user group owns a role, this does not imply that all (or any) users in that user group are assigned that role. Rather, each user must still be assigned roles individually. Group ownership of roles is used only to enable the system to control which roles a particular type of administrator can assign to a user.

For example, you might want an business administrator to be able to create users and assign the **Subscriber** role to them, but not be able assign the **System Administrator** role to users. You would accomplish this by giving the business administrator an **Assign Role** permission set at the **User Group** scope, and then grant ownership of the **Subscriber** role to his user group.

AUTHENTICATION

Connection Server performs authentication using the following techniques:

Login IDs and UUIDs

Every Connection Server user (principal) has both:

- a unique login name that is chosen when the user is created, and
- a unique UUID (Universal Unique Identifier) that Connection Server automatically creates when the user is first added to the system.

When a user accesses the Connection Server system—either through the administration user interface, or programmatically by public APIs or EJBs—the user can identify himself to the system using either his login name or his UUID.

When a user accesses the system via the ICE protocol—as in the case of Subscription Client—the user identifies using his UUID, per the ICE 1.1 protocol specification.

Login Authentication and Security Realms

Connection Server performs authentication either against Connection Server's own user database or, when Connection Server is configured to work with an LDAP server, by the LDAP server. For information on working with an LDAP server, see Chapter 5, "Managing Users with LDAP."

You can customize Connection Server to use other security realms that support additional authentication sources, such Windows Networking domains or UNIX users.

ACCOUNTABILITY (AUDITING)

Connection Server relies on its logging facility to provide configurable audit trails of events like:

- login success and failures;
- who accessed which resources;
- all modifications to the system (change log).

You can choose to write this audit trail to log files, or to write it to a database for generating custom reports, or to integrate it into third-party monitoring systems.

Connection Server logs security-related events as follows:

- Authentication attempts are logged to the **login** facility. Successful logins are logged at the **info** severity level, and unsuccessful attempts at the **warning** level.
- Resource-access and change logs are logged to the **audit** facility, allowing the administrator to track who did what to the system.
- When access to a resource is denied, a **Permission_Denied** message is logged at the **warning** level.
- Granting access to a resource is logged at the **verbose** level.
- Actions that modify a resource (such as **commit** or **delete**) are logged at the **info** level.
- When a change to a resource is committed to the database, a message logging the old and new value for each changed field will be logged at the **verbose** level.

For an overview of logging, see “Event Logs” on page 2-7 of this guide.

MESSAGE PRIVACY AND DATA INTEGRITY

This section describes the Connection Server system’s approach to ensuring that your distributed content remains private and intact while in transit over open networks.

About Secure Sockets Layer (SSL)

The Connection Server system uses the Secure Sockets Layer (SSL) protocol to provide both encryption and integrity checking. SSL supports the ability to transmit sensitive content securely to its intended recipient.

SSL uses both public and private key cryptography. As part of the initial SSL "handshake," the Connection Server sends the authorized requestor (a Subscription Client) a digital certificate with which to authenticate itself. The certificate includes the public key, which is then used in the authentication process. SSL uses public key cryptography extensively for its authentication mechanisms.

The sender encrypts subsequent messages to the requestor, using a private key. (A private key is one whose contents are not known to the requestor.) As the message travels over an intranet, the Internet, or any other open network, its encryption ensures that intruders can neither view nor modify its contents. The requestor uses the previously exchanged public key to decrypt the message.

Using SSL with the Connection Server System

In the Connection Server system, a common security certificate is already supplied for both the Connection Server and the Subscription Client. Connection Server identifies a particular Subscription Client using the UUID/password pair.

Once authenticated, all communication between Connection Server and Subscription Client is encrypted using the generated private session key. You do not need to do anything with the supplied certificates. If your content warrants unique server authentication, then you must purchase and install a certificate for your site, one that is linked to its domain/host name. This requires knowing how to install site certificates into a Java keystore .

Note: Some SSL options are configurable. If you are using multiple Connection Servers, or are using proxy servers, or need to change port settings.

Chapter

4

USERS

INTRODUCTION

This chapter describes how to create, manage, and monitor Connection Server users. It covers the following topics:

- About Users (page 4-1)
- About Subscribers (page 4-2)
- Adding Subscribers and Other Users (page 4-2)
- Users List (page 4-3)
- User Details (page 4-5)
- Delivery Setup (page 4-8)

ABOUT USERS

A user is any individual who interacts with the Connection Server software. Examples include:

- An administrator, who manages Connection Server operations.
- A subscriber, who receives content from Connection Server.

Users are assigned to *roles*, from which they inherit *permissions* to receive or modify information. Upon installation, Connection Server has two default roles: **System Administrator** and **Subscriber**. (For details about roles, see Chapter 7, “Roles and User Groups.”)

You can perform the following operations on users:

- Display a list of users. You can search for a specific user by name, by ID, by custom string 1 (**Field 1**) or by custom number 1 (**Field 4**). You can delete any user in the list.
- Define all the information about a new user.
- View or change the properties of an existing user.

Default User: Administrator

Upon installation, Connection Server has a single default user, named **administrator**. This user is assigned the **System Administrator** role. That role has complete access to the system (also often referred to as a *super-user*).

About Subscribers

You will typically assign the **Subscriber** role to at least one user. Subscribers are typically the recipients of content offers. By default, the **Subscriber** role includes permissions for a user to:

- View all offers;
- Maintain his/her own subscriptions;
- Maintain his/her own user data.

Adding Subscribers and Other Users

A content provider or administrator can add a new user into the Connection Server database through the Connection Server's user interface. On the home page, click the **Create User** link.

Adding Users without LDAP

If you have installed Connection Server without its optional LDAP (Lightweight Directory Access Protocol) features, the **Create User** page provides controls for you to enter details about the new user. Connection Server automatically generates a Universal Unique IDentifier (UUID) for the new user.

Links allow you to assign the new user to one or more roles and (optionally) to one or more user groups. When you click **Save**, Connection Server stores the new user's information in its database.

Adding Users Automatically under LDAP

If you have installed Connection Server in LDAP mode, clicking **Create User** on the Connection Server home page displays a page labeled **LDAP Synchronization** (rather than the default **Create User** page).

You use the **LDAP Synchronization** page to specify a query that automatically imports specified users from your LDAP database into Connection Server. (For details about the **LDAP Synchronization** page, see Chapter 5, "Managing Users with LDAP.")

Connection Server automatically generates a Universal Unique IDentifier (UUID) for each newly imported user. To set an imported user's details—and to assign them additional roles and (optionally) assign them to additional user groups—click that user's link on the **Users** page.

USERS LIST

Connection Server displays a list of existing users that allows you to:

- Search for a specific user by name, by User ID, or by the contents of custom fields;
- Sort the list by User name, by User ID, by status (whether disabled or not), or by the contents of custom fields;
- Display a list of users who are members of a specific user group;
- Delete one or more users;
- View details for a user;
- Send an e-mail message to one or more users.

If the list of users is long, its display may extend over more than one page. Navigational aids allow you to move through the pages, and to adjust the number of users that display on each page.

Delete Selected

You can select individual users to delete. You can select and deselect all users on the current page, or individually select one or more users. Once you have selected multiple users on the current page, you can delete them all in a single operation.

Send E-Mail

Use the **Send E-mail** button to send an "ad-hoc" e-mail message to one or more users. This feature is useful for when you want to send a notification about a one-time event that would not be covered by an e-mail template (for example, "Your account will soon expire"), or if you want to re-send a template message after the associated event has occurred.

Before clicking this button, check the boxes beside the users whom you want to include in the mailing. (You can filter users before selecting them, by using the **Search** controls at the top of the page.)

Clicking the the **Send E-mail** button displays the **Send Mail** page.

Send Mail

This page allows you to compose an e-mail to the users you have selected. In the **Subject** and **Message** fields, you can use Velocity template-language variables to personalize messages for each recipient. For details about using these variables, see "Velocity Template Language/Variables Reference" on page 9-4.

Note: Connection Server will send a separate e-mail sent to each user. So the user will not see the other users' identities or e-mail addresses in the **CC:** field, or anywhere else in the message.

This page provides the following fields:

Sender [From]: Shows the Connection Server administrator's e-mail address, as set on the **General Settings** page. (You cannot edit this e-mail address on this page.)

Recipient [To]: Shows the selected recipients and their e-mail addresses. You cannot edit this information here. To select a different set of users, cancel the e-mail and select a different set of users on the **Users** page. To edit a user's e-mail address, go to that user's **User Details** page.

Select a template: From this drop-down list, you can (optionally) select a predefined e-mail template from which to populate the **Subject** and **Message** text boxes. You can

then edit those fields before sending the message. (For details about using e-mail templates, see Chapter 9, “Templates for E-Mail Notification.”)

Subject: Defines the e-mail message’s subject line. (Supports Velocity template variables.)

Message: Defines the e-mail message’s body. (Supports Velocity template variables.)

When you have composed the message, click the **Send E-mail** link at the bottom of the page to send the message to the users indicated in the **Recipient** field.

Re-Sending a Template Message

In addition to sending ad-hoc e-mail messages, you can use the **Send Mail** page to re-send template messages. For example, you might want to re-send the User Creation E-Mail Template message if the user did not receive their original e-mail, or if you have made changes in the user’s profile.

In this case, you would set the **Select a Template** drop-down list to **User Creation E-mail Template**. This would populate the **Subject** and **Message** fields with the existing template. You could then customize the message before clicking the **Send E-mail** link to re-send the message.

USER DETAILS

Clicking a user’s link on the **Users** page displays the **User Details** page. This page contains the following information:

User Information

This section includes these fields:

- **User Name:** Name by which the user is known in the Connection Server database.
- **User ID:** Internal subscriber ID that you can assign to the user. This information displays in lists, and can be used for searching and sorting.
- **UUID:** Universal Unique IDentifier that identifies this user to Connection Server. Automatically generated by Connection Server.
- **Connection Server Password:** Password that the user must present in order to obtain offer content.

- **Description:** Text description of the user, along with its delivery method or any other details the content provider wants to record here. This description appears in Connection Server pages that list user names.

Delivery Methods

When defining a user, you specify one or more **Delivery Methods** for content delivery to that user. (You can specify other delivery details, such as start and stop dates and delivery times, on an offer-by-offer basis.)

The **Delivery Methods** are:

- **Subscription Client**: For users who receive content using Subscription Client. Uses ICE as the default delivery method, and allows content providers and subscribers to take advantage of all of the functionality available with the Connection Server platform. Also specify this delivery method for third-party clients using ICE technology.
- **FTP**: Specifies that the user wants content delivered directly to a FTP (File Transfer Protocol) site. Offers are delivered as zip files.

  Select this option to configure ther FTP Server delivery method and click **Next**. On the FTP Delivery Setup page, you must provide FTP Server Location, FTP Server Port Number, FTP Account Username, FTP Account Password, and User Subdirectory for Content Fields.
- **E-mail**: Specifies that the user wants content delivered directly to an e-mail address. Offers are typically delivered as attached zip files. (Alternatively, you can omit the attachments and send only e-mail notifications that content is ready for the user to retrieve it.)

Custom Fields

The custom fields allow you to attach information for your own purposes. Fields 1 through 3 are text fields. Fields 4 through 6 are numeric. Custom fields 1 and 4 appear in other Connection Server listings; they are used to search for, or sort, users.

Assigning Users to User Groups, Roles, and Subscriptions

You can assign each user to one or more roles, subscriptions, and (optionally) user groups. These assignments appear on pages that display user information.

Assigning Users to User Groups (Optional)

Any user groups to which this user belongs are listed in this section, along with the following details:

- Name of the group;
- Description of the group;
- Custom fields 1 and 4 for the group.

To assign this user to additional groups, click **Assign User Groups**. For details on the resulting page, see Chapter 7, “Roles and User Groups.”

Assigning Users to Roles

Each user must be assigned at least one role in order to log in to Connection Server. Each role defines a set of permissions to access or modify Connection Server resources. The **User Details** page’s **Roles** section displays the following information about those roles:

- Role Name;
- Description.

To display details for a role, click that role’s link. To assign this user to additional roles, click **Assign More Roles**.

To remove this user from one or more roles, select the check boxes beside those roles, then click **Remove Selected Roles**.

Viewing Permissions for a User

A user’s permissions are inherited from the role(s) to which they are assigned. To view details about those permissions, click the **View Permissions** link in this page’s Roles section.

The resulting report shows the details of each of the user’s permissions:

- Resources
- Actions
- Scope.

For more information about permissions and roles, see Chapter 3, “Security Model,” and Chapter 7, “Roles and User Groups.”

Subscriptions for This User

Once you have assigned the user to one or more subscriptions, the following subscription information displays:

- Subscription number, automatically assigned by Connection Server;
- Name of offer paired with this user;
- Description of the offer;
- Custom fields 1 and 4 for the subscription.

To display subscription details, click **View Subscriptions**. To assign this user to additional subscriptions, click **Assign More Subscriptions**.

Options are available that allow you to delete a subscription. Deleting a subscription deletes neither the offer nor the user. For details about subscriptions, see Chapter 8, “Subscriptions.”

Click **Next** to display the **Delivery Setup** page.

DELIVERY SETUP

This page contains detailed content-delivery settings. The fields displayed will depend on the **Delivery Methods** that you selected for this user on the **User Details** page.

Chapter

5

MANAGING USERS WITH LDAP

INTRODUCTION

This chapter describes how to import and manage users if you have configured Connection Server to integrate with an LDAP directory service. It covers the following topics:

- About LDAP (page 5-1)
- LDAP and Authentication (page 5-2)
- Users Page: LDAP Version (page 5-3)
- Create User (LDAP Synchronization) (page 5-4)
- Remove Orphan (Deleting Users Unmatched in LDAP Database) (page 5-6)
- Remove Orphan (Deleting Users Unmatched in LDAP Database) (page 5-6)
- Edit LDAP Schedules (Setting Up Periodic Validation) (page 5-7)

ABOUT LDAP

LDAP (Lightweight Directory Access Protocol) is an enterprise standard for passing authentication and user information among applications. The protocol enables corporate directory entries to be arranged in a hierarchical structure that reflects business processes or geographic boundaries.

An LDAP directory server thereby enables a corporate user to find information distributed across an enterprise network. LDAP can also enhance security and user convenience, by facilitating a single sign-in.

LDAP and Connection Server

Connection Server, when configured in LDAP mode, can import and update user information by querying the LDAP server. This allows the Connection Server administrator to automatically:

- authenticate users against the enterprise directory,
- import users meeting specified criteria, and
- remove users who are unmatched in the enterprise directory.

Furthermore, the Connection Server administrator can schedule these processes to run periodically. In all, LDAP integration offers significant time savings compared to the manual entry and verification of users.

This chapter describes the interface pages by which you use LDAP features, once Connection Server is launched in LDAP mode.

LDAP Structure

The LDAP directory-service model is based on *entries*. An entry is a collection of *attributes* that has a *distinguished name (DN)*. The DN is used to refer to the entry unambiguously. Each of the entry's attributes has a *type* and one or more *values*.

LDAP AND AUTHENTICATION

When the Connection Server is configured to work with an LDAP server, it will always perform login authentication against the LDAP server. Since the authentication itself is performed by the LDAP server, a user's Connection Server login privileges will depend on their LDAP status. This will be true whether or not the LDAP user has been imported into, or removed from, the Connection Server.

For example, as soon as a user has been removed or disabled in the LDAP directory, she will be unable to log in to Connection Server—even if no "Remove Orphan" operation has explicitly removed her yet from the Connection Server database.

However, if the user is authenticated by the LDAP directory but has not yet been imported in the Connection Server database, she will not have permission to do anything with the Connection Server system.

Another consequence of using LDAP authentication is that the login password might not match the user's password stored in Connection Server's database. This is because the LDAP security model does not expose a user's password outside the LDAP directory server, but Connection Server requires its own password for the Subscription Client to use when it is interacting with the Connection Server via the ICE protocol.

The Connection Server administrator can set this Connection Server password manually, or can choose to have it automatically generated when importing the user from the LDAP directory. When Connection Server is configured in LDAP mode, the user cannot employ this password to log in to the Connection Server—except if one of two conditions apply:

- The user is logging in via ICE;
- The user's Connection Server password matches the password stored in the LDAP directory.

Under either of these conditions, the LDAP user *can* use his or her Connection Server password to log in to Connection Server.

USERS PAGE: LDAP VERSION

If Connection Server is running in LDAP mode, the **Users** page displays the following options:

- **Create User** (this link opens the **LDAP Synchronization** page)
- **Remove Orphan**
- **Edit LDAP Schedules**

The remainder of this chapter describes the interface pages corresponding to each of these options.

Note: You can also display the **User Details** page for any named user, by clicking their link. The resulting **User Details** page is the same regardless of whether Connection Server is running in LDAP mode.

CREATE USER (LDAP SYNCHRONIZATION)

If Connection Server is running in LDAP mode, clicking the **Create User** link displays the **LDAP Synchronization** page. This page allows you to import authenticated users to Connection Server by specifying a query against the LDAP database. You specify the query using the following controls:

Assigning a Role and Group

1. In the **Select Role for Users** drop-down list, choose a role to assign to the users you will import.
2. In the **Select Group for Users** drop-down list, choose a user-group assignment for the users you will import.
3. By selecting or clearing the **Disable Users upon Import** check box, you determine the status of the new users once they are imported.

LDAP Query Settings

1. In the **Root dn** field, specify a Distinguished Name corresponding to the domain hosting the LDAP server you will be querying. For example, to query a domain of the form:

   `machine_name.company_name.com`

   `the Root dn` entry would be:

   `dc=machine_name,dc=company_name,dc=com`

2. In the **Filter** field, define a filter to define the LDAP entries you want to retrieve. For example, to retrieve the owner of the user ID:

   `bashful`

   you would enter:

   `uid=bashful`

Mapping Properties and Attributes

1. Click the button: **Map Properties and Attributes**.
2. In the resulting page (**Map User Properties and Return Attributes from LDAP Server**), you can map Connection Server user properties to LDAP attributes. (Each attribute is a field or column in the LDAP database.)

   By default, the three required mappings are defined as follows:

User Property (Connection Server)	Return Attributes (LDAP)
Login	**uid**
Name	**cn**
Email	**mail**

3. Make any desired changes to the mappings, then click **OK**.

   You will be returned to the the **LDAP Synchronization** page, where the **Return Attributes** scroll box will now be populated.

   You now select either a one-time query or a scheduled periodic query.

Running a One-Time Query

If you choose to run a one-time query, click the **Run Query Now** button.

You will see a table of users retrieved from the LDAP database, according to the properties/attributes mappings—and any optional filter—that you specified.

Importing Selected Users

In the table of returned users, you can use the check boxes to:

- Select all users
- Deselect all users
- Select individual users.

Then click the **Import Selected Users** button.

If the import is successful, you will see a page with the confirmation message: **Selected Users have been added.** If the import fails, you will see a message about what went wrong.

Scheduling Periodic Queries

If you choose to schedule periodic queries, select a schedule in the **Use Schedule** drop-down list. For example, you might choose one of the following options:

- **Default Delivery Rule**
- **Default Push Delivery Rule**
- **Purge Schedule.**

Then click the **Schedule Import** button.

You will see a page with the confirmation message: **ADD Job has been scheduled.**

REMOVE ORPHAN (DELETING USERS UNMATCHED IN LDAP DATABASE)

The **Remove Orphan** option is basically the opposite of the **Create User** option: Both options validate against the LDAP database. But whereas the **Create User** option imports users from the LDAP database into Connection Server, the **Remove Orphan option** deletes Connection Server users that have no match in the LDAP database.

To remove such “orphaned” users:

1. On the **Users** page, click **Remove Orphan**.
2. On the resulting page, click the **List Connection Server Users** button to populate the table below that button.
3. In that table, check boxes to select some or all users.
4. Do one of the following:
   - To remove users immediately, Click **Delete Users Now.**

   Or:

   - To schedule periodic removals, make a selection in the **Use Schedule** drop-down list, then click **Schedule Job**. (These controls work like the controls described under “Scheduling Periodic Queries” on page 5-6.)

EDIT LDAP SCHEDULES (SETTING UP PERIODIC VALIDATION)

The **Edit LDAP Schedules** option displays a list of any periodic imports or removals that are scheduled to validate against your LDAP database. It also allows you to delete these scheduled operations or modify their query settings.

To use this option:

1. On the **Users** page, click the **Edit LDAP Schedules** link.
2. On the resulting **Scheduled Jobs** page, click any schedule's link to view (and optionally edit) that schedule's details.

   The displayed details include:

   - **Root dn**
   - **Filter** (optional)
   - User Properties/Return Attributes Mappings

   These controls work like the controls described under "Create User (LDAP Synchronization)" on page 5-4.
3. If you want to define a new delivery rule (which will appear in the **Use Schedule** drop-down lists described elsewhere in this chapter), click **Create Delivery Rule**.

Chapter

6

OFFERS

INTRODUCTION

This chapter describes how to create and manage offers. It covers the following topics:

- About Offers (page 6-1)
- Offers List (page 6-2)
- Create or Edit Offer (Offer Details) (page 6-3)
- Content Source Specification (page 6-7)

ABOUT OFFERS

Offers are discrete packages of content, identified by name and storage location. You can perform the following operations for offers:

- Display a list of offers. You can search for a specific offer by name, by one of the custom description fields, or by group. You can delete any offer in the list.
- Define all the information about a new offer.
- Change properties of an existing offer.

OFFERS LIST

Connection Server displays a list of existing offers that allows you to:

- View or edit the details of a specific offer.
- Search for a specific offer by name, or by the contents of one of two custom fields.
- Sort the list of offers by name, or by the contents of one of two custom fields.
- Display a list of offers that are members of a specific group.
- View the list of the files in an offer, and view the contents of the files themselves.
- Delete one or more offers.

If the list of offers is long, its display may extend over more than one page. Navigational aids allow you to move through these pages. Also, you can customize the number of offers shown per page.

Viewing Offer Details

To view or edit the settings for a specific offer, click that offer's link in the **Offer Name** column. This displays the **Offer Details** page for that offer. The controls on that page are described under "Create or Edit Offer (Offer Details)" on page 6-3.

Viewing Offer and File Contents

To view the list of the files in a particular offer, click the appropriate link in the **Location** column. This displays the **Current Offer Contents** page for that offer.

To view details about an individual file, click the appropriate link in the **Name** column. This displays an Item Details page for that file. To view the file's actual contents, click the **View Content** link at the top.

Note: To view a file's contents, you might be required to provide your user name and password.

Viewing Package Updates and Item Details

To view a list of content updates that have been delivered for a particular offer, click the appropriate **View Updates** link in the Offers List page. Doing so displays the **Package Updates for [offer-name]** page.

To view the contents of a particular update, click the appropriate link in the **Update Label** column. This displays a **Package Update Contents** page.

To view details about an individual file, click the appropriate link in the **File** column. This displays an Item Details page for that file. To view the file's actual contents, click the **View Content** link at the top.

Note: To view a file's contents, you might be required to provide your user name and password.

Deleting Offers

You can select individual offers to delete. You can select and deselect all offers on the current page, or individually select one or more offers. You can delete all selected offers on the current page in a single operation.

CREATE OR EDIT OFFER (OFFER DETAILS)

The following information defines an offer:

Offer Description

This section contains the following fields:

Offer Name

Name by which the offer is known to Connection Server and Subscription Client.

Description

Description of the offer.

Content Source Type

The type of location where content resides:

- A file-system directory.
- A web server or FTP server.
- You may also specify a Content Source using a custom Java module.

Advanced Delivery Options

Here, you can specify whether Connection Server must check that all content has been delivered. The options are:

- **Incremental**: Content will be delivered incrementally: that is, if delivery of a package of content items is interrupted, the content items successfully delivered and retrieved so far will *not* be discarded. Delivery of the remaining items will resume at the next delivery attempt, as dictated by the subscription's delivery rule.
- **Atomic**: For each user, Connection Server must successfully deliver all the items sent in each delivery; otherwise, no items will be delivered. (No incremental delivery.)
- **Synchronized**: Connection Server must successfully deliver all the items sent in each delivery to *all* users; otherwise, no items will be delivered to *any* users.

The **Synchronized** delivery option is useful when you need to reliably distribute identical copies of content, in parallel, to multiple servers. (For example, to an array of mirrored web servers that support load-balancing or failover.)

Important: This delivery behavior is determined by the option that you select here in the offer. It is not set in the subscription. Therefore, if you want to deliver the same content to different subscribers with *different* delivery modes, you will need to create a second offer in which you select a different **Advanced Delivery Option**.

Start date and time

Date and time at which the offer is first available to Subscription Clients.

Stop date and time

Date and time after which the offer is no longer available.

Note: The start date/time and stop date/time not only define when the offer is available to the subscriber, but also define *which content in the offer* is available to the subscriber. Content generated before the start date, or after the stop date, is not included in the offer—even if the subscriber has access to the offer itself.

- Check box allowing the offer to be marked for delivery to a Content Directory.

Usage and Rights

You can specify the following ICE-protocol message properties for offers. They are not enforced by the Connection Server system, but are passed to Subscription Client:

Rights Holder

Description of the original source of the distribution rights.

Usage Requirements

You can specify one or more of the following usage requirements:

- **Atomic Use**: Indicates that all content in the offer must be used together, or not used at all. (Selecting the check box here is only informational; the **Atomic** radio button under **Advanced Delivery Options** enforces actual atomic delivery.)
- **Not Editable**: The subscriber can not edit or alter the content before using it.
- **Show Credit**: The subscriber is explicitly expected to acknowledge the source of the data.
- **Usage Required**: The subscriber is expected to return usage data regarding the ultimate viewers of the content.

Intellectual Property Status

Select one of the following options:

- **Unspecified**: Default setting for this option.
- **Public Domain**: Content has no licensing restrictions whatsoever.
- **Free with Acknowledgement**: Content has no licensing restrictions beyond a requirement to display an acknowledgement of the content provider.
- **See License**: Content has licensing restrictions as already agreed to in an existing licensing agreement.
- **Severe Restrictions**: A “red flag” that the content has licensing restrictions worthy of special attention.
- **Confidential**: Content is confidential through an existing licensing or confidentiality agreement.

User-Defined Fields

The user defined fields allow you to attach information for your own purposes. Fields 1 through 3 are text fields; 4 through 6 are numeric. User defined fields 1 and 4 appear in other Connection Server listings and can be used to search for or sort offers.

Informational Lists

Offers can be assigned to groups and be paired with subscribers to create subscriptions. On pages that display offer information, the groups to which the offer is assigned and the subscriptions associated with the offer are listed.

Group Assignment/Offer is Assigned to These Groups

A new offer is automatically assigned to the **Default Group**. You may change this as you create the offer or at a later time.

All groups to which this offer has been assigned are listed in this section. Group information includes:

- Group number, automatically assigned by Connection Server.
- Name of the group.
- Description of the group.
- Custom fields 1 and 4 for the group.

Options are available that allow you to remove group assignment for an offer.

Current Subscriptions for This Offer

Once you have assigned the offer to one or more subscriptions, subscription information displays. Subscription information includes:

- Subscription number, automatically assigned by Connection Server.
- Name of the Subscription Client paired with this offer.
- Description of the subscription.
- Custom fields 1 and 4 for the subscription.

Options are available that allow you to delete a subscription. Deleting a subscription affects neither the offer nor the Subscription Client.

When you have defined the options on this page, click **Next** to save your selections and proceed to the next page, where you specify Content Source details.

CONTENT SOURCE SPECIFICATION

The Content Source describes the location of the actual content that you will distribute. Depending on the content location you selected in this offer's **Content Source Type** drop-down list, Connection Server displays different **Content Source Type** specification pages that require different information. These different page versions are covered under separate sections below.

Content Source: Web or FTP Server

For web or FTP offers, you specify the fully-qualified URL where the content files are hosted. A fully-qualified URL begins with http:// (web server) or ftp:// (FTP server).

When making content files available from a URL, Connection Server provides two option; Subscription Client can:

- Retrieve directly from the URL;
- Retrieve from another location to which Connection Server has already copied the files.

For a web Content Source, this choice is optional. For an FTP Content Source, it is required that files be copied to another location and re-served to a Subscription Client.

Another feature of Subscription Client automatically changes absolute URLs at the Content Source to URLs that are relative to the offer's home page. This allows links within the content to work properly in the Subscription Client's environment.

FTP Options

For an FTP offer, you must specify how symbolic links should be handled as Connection Server traverses the site to determine the contents of the offer. You can specify one of the following:

- Ignore all symbolic links when traversing the FTP site.
- Include symbolic links to all files and directories when traversing the FTP site; all files and the contents of all directories with symbolic links are included in the offer.
- Include symbolic links to files only and ignore symbolic links to directories.

Site Replication

Two properties, related to web and FTP offers, control how the Connection Server searches the link tree at the Content Source. You may specify the maximum number of levels to traverse in the link tree beneath the root URL as well as the maximum number of pages to retrieve for any offer.

For a web offer, you must identify the browser that the Connection Server mimics when traversing the website. By default, the Connection Server emulates Mozilla/4.*x* (Win95), the most common user agent, used by Netscape Navigator running on Microsoft Windows 95.

A Send Removals option, when activated, sends Subscription Client a list of files that have been removed from the offer, triggering Subscription Client to delete these files from its local storage.

Update Days

These options specify when and how often Connection Server should check the web or FTP site for updated or new content. The results of this check determine what, if any, content to make available for the next Subscription Client request. After the initial download of all content, only updated or new content is delivered.

The frequency for checking content files may be every day, certain days of the week, or certain dates of the month. For the days selected, you specify a start time and a stop time. In conjunction with these settings, you can also specify the length of time between checks.

Content Source: File System—Directory

When creating a new offer, you specify the file system directory where the content files are stored.

When specifying a directory name, provide a complete path, including the machine on which the Content Source resides. That machine must always be available to Connection Server and Subscription Client to check and access the content files. For example,

`Example: /usr/local/my_content/dir_name`

For an NFS file system:

`Example: /mnt_point/dir_name`

Connection Server allows you to browse the file system to locate the directory containing the content files.

Update Days

You may specify when Connection Server should check the Content Source directory for updated or new content. The results of this check determine what, if any, content to make available for the next Subscription Client request. After the initial download of all content, only updated or new content is delivered.

The frequency for checking content files may be every day, certain days of the week, or certain dates of the month. The time interval during which content files are checked is specified by a start time, a stop time, and the time in between checks.

A Send Removals option, when activated, sends Subscription Client a list of files that have been removed from the offer, triggering Subscription Client to delete these files from its local storage.

Chapter

7

ROLES AND USER GROUPS

INTRODUCTION

This chapter describes how to implement role-based security in Connection Server, and how to assign resources to user groups (an optional feature). It covers the following topics:

- Roles (page 7-1)
- User Groups (Optional) (page 7-5).

ROLES

A role defines a set of permissions to interact with Connection Server. As described in Chapter 3, “Security Model,” each permission defines an action, along with a resource and scope within which that action can be taken.

Roles have obvious security implications, and they are the means of implementing Connection Server’s security features. You can also think of roles as templates for creating users—each of whom is assigned at least one role.

Default Roles

Upon installation, Connection Server has two default roles that serve as such templates for users:

- **System Administrator:** This role has complete access to the system (also often referred to as a *super-user*). The default user—**administrator**—is assigned this role.

- **Subscriber**: This role defines a set of permissions appropriate for a user that only receives content (either via the Subscription Client, or via e-mail or FTP delivery). This role only has access to its own subscriptions, and does not have access to the Connection Server administrative interface. (To enable such access, add the **System Read** permission to the role.)

Note: "Subscriber" is a role with defined security characteristics—not just a generic content subscriber/recipient.

You can create additional roles as needed. A role typically defines a responsibility (for example: Content Directory Administrator).

Managing Roles

The Connection Server's **Roles** page provides the following options to manage roles:

Create Role

Clicking this link allows you to create a new role. For details on the resulting page, see "Creating a Role" on page 7-3.

Permissions Report

Allows you to specify a particular permission (that is, a particular combination of resource, action, and scope); and to then generate a list of roles and users that own that permission.

Role Links

Clicking a named role's link displays its **Role Details** page. For details, see "Editing a Role (Role Details)" on page 7-4.

Startup Page Links

These links identify any user startup page defined for the role at left. For details about startup pages, see "User Startup Page" on page 7-3.

Delete Selected [Role]

Clicking this button deletes those roles whose check boxes you have selected above.

Note: If you delete a role that is the *only* role assigned to some users, those users will remain in the Connection Server database. However, they will not be able to productively receive content—or otherwise interact with Connection Server—until you assign them at least one role.

Creating a Role

The **Create New Role** page provides the following controls in which you can define basic role characteristics. To fully define a role, you must use additional controls on the **Role Details** page; see "Editing a Role (Role Details)" on page 7-4.

Role Description

This top section includes the following fields:

Name

You must assign a name to the role.

Description

This is an optional text description that will appear on the Roles page near the role's name, to help users identify this role's purpose.

User Startup Page

This field allows you to to specify the Connection Server startup page for users assigned this role. Connection Server includes predefined startup pages for its two default roles:

System Administrator:	sysadminindex.jsp
Subscriber:	subscriberindex.jsp

To specify a different startup page for any role, enter any valid JSP page name or URL in this field. You can design your own startup page, or else copy the provided **`sysadminindex.jsp`** or **`subscriberindex.jsp`** file and modify it to meet your needs. An unqualified JSP page name should correspond to a file residing in Connection Server's **`/webpages/syndicator`** subdirectory.

For information about how the **User Startup Page** setting affects users' login options, see "Initial Connection Server Setup" on page 2-2.

Comments

This optional field provides a scroll box for longer free-text comments.

User-Defined Fields

These custom fields allow you to attach information to a role specification for your own purposes. Fields 1 and 2 are text fields. Fields 3 and 4 are numeric. Custom fields 1 and 4 appear in other Connection Server lists and can be used for searching and sorting.

Group Assignment

This area shows selected details about any user groups to which this role has been assigned. It also provides an **Assign to User Groups** link that you can click to make additional assignments.

Editing a Role (Role Details)

Clicking a role in the **Roles** page displays the **Role Details** page, where you can view and set detailed role characteristics:

Role Description

Identical to the same section of the **Create New Role** page. (See “Role Description” on page 7-3.)

User-Defined Fields

Identical to the same section of the **Create New Role** page. (See “User-Defined Fields” on page 7-4.)

Users who have this Role

Clicking this link displays a list of users who have been assigned this role.

Assign Users

Clicking this link allows you to assign this role to additional users.

Permissions

This table (which may extend over several pages) allows you to see or modify the role's permissions.

Delete Selected [Permissions]

To delete permissions from this role: Select their check boxes, then click this button. (You can select or clear all permissions at once by using the **all/none** check box.)

Add Permission

To add a new permission to this role: Use the adjacent **Resource**, **Action**, and **Scope** drop-down lists to define the permission's characteristics, then click this button.

Note: You must make selections on these three drop-down lists from left to right (**Resource**, then **Action**, then **Scope**). Granting a **Scope** other than **System** is optional, for fine-grained access control.

User Groups that own this Role

Shows selected details about user groups to which this role has been assigned.

Assign to User Groups

Allows you to assign this role to additional user groups.

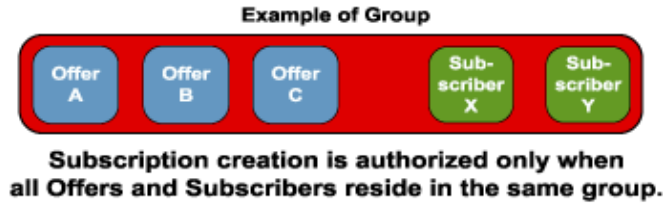
USER GROUPS (OPTIONAL)

Connection Server's user groups (an optional feature) help you manage large numbers of users, roles, and offers by assigning them to logical groups. Grouping streamlines and facilitates the creation of subscriptions for large numbers of offers and users.

This section describes the Connection Server user interface for managing user groups.

About User Groups

The user groups feature offers you fine-grained control over which resources users can access. You can also employ user groups to help organize users, and to create many subscriptions at once.



As illustrated in the diagram above, by using the grouping feature, you can readily create subscriptions for all combinations of offer and users in a group.

Managing User Groups (User Groups List)

The list of user groups allows you to:

- View the details of a specific user group;
- Search for a specific user group by name, or by the contents of one of two custom fields;
- Sort the list of user groups by name, or by the contents of one of two custom fields;
- Delete one or more user groups.

If the list of user groups is long, its display may extend over more than one page. Navigational aids allow you to move through the pages, and to set the number of user groups listed per page.

You can select individual user groups to delete. You can select and deselect all user groups on the current page, or can individually select one or more user groups. You can delete all selected user groups on the current page in a single operation. Deleting a user group does not delete its member users or its owned roles or offers.

User Group Page

The following information on the **User Group** page describes a user group:

Basic Fields

- Name of the user group. This will appear in other list pages in Connection Server, and can be used to sort and search the lists.
- Description of the user group.

User-Defined Fields

The custom fields allow you to attach information to a user group specification for your own purposes. Fields 1 and 2 are text fields. Fields 3 and 4 are numeric. Custom fields 1 and 4 appear in other Connection Server lists, and can be used for searching and sorting.

Viewing, Adding, and Removing Users

The **User Group** page provides the following options for assigning users to the group, and for managing those users:

User Group Members

Once you have assigned users to a group, the following information displays:

- Name of the user.
- User ID. This information displays in lists and can be used for searching and sorting.
- Disabled status (yes/no); if set to yes, prevents the user from accessing content.
- Custom fields 1 and 3 for the user.

Options are available that allow you to add more users to the user group, and to remove users from the user group. Removing a user from a user group does not delete the user from Connection Server.

Note: You can click on any user to display user details for that user.

Note: A User's membership in a user group does not imply inherited ownership of all that user group's roles or permissions.

Viewing, Assigning, and Removing Offers

The **User Group** page provides the following options for assigning offers to the group, and for managing those offers:

View Offers owned by this Group

Once you have assigned an offer to the user group, the following offer-related information displays:

- Name of the offer.

- Source type of the content in the offer. (For instance, a web server, an FTP server, a file system directory, or a set of files from various directories.)
- Location of the files in the offer. (For instance, the URL or the path to the directory. If the source type is a set of selected files, the location of the first file in the list is displayed.)
- Custom fields 1 and 4 for the offer.

From this list, you can view the list of content files for the offer and view the actual contents of any file.

Options are available that allow you to add more offers to the user group, and to remove offers from the user group. Removing an offer from a user group has no effect on the offer itself.

Viewing, Assigning, and Removing Roles

The **User Group** page provides the following options for assigning roles to the group, and for managing those roles:

View Roles owned by this Group

Allows you to view the names and descriptions of roles that have been assigned to this user group.

Assign Roles to Group

To assign one or more additional roles to the user group, click the roles' check boxes, then click **OK**.

Note: If you want to review a role's details before assigning it, click the named role's link.

Chapter

8

SUBSCRIPTIONS

INTRODUCTION

This chapter contains the following topics:

- About Subscriptions (page 8-1)
- Choosing Push or Pull Delivery (page 8-2)
- Grouping Offers and Subscribers (page 8-3)
- About Delivery Rules (page 8-3)
- Subscriptions List (page 8-3)
- Create Subscription (page 8-4)
- Subscription Properties (page 8-5)
- Delivery Rules (page 8-6)
- Delivery Rules List (page 8-8)
- Delivery Rule Specification (page 8-8)

ABOUT SUBSCRIPTIONS

A subscription is the unique pairing of a single offer and a single subscriber. You can define one or more subscriptions by using a set of wizard-like subscription pages provided in Connection Server.

You can perform the following operations for subscriptions:

- Display a list of subscriptions. You can search for a specific subscription by offer name, Subscription Client name, or by one of the custom description fields, and view multiple subscription names by group. You can delete any subscription in the list.
- Create one or more subscriptions. A wizard-like set of pages that steps you through the process of specifying one or multiple subscriptions. Before using these pages, you should already have defined:
  - The offers and Subscription Clients for the subscriptions.
  - Optionally, the user group or groups containing the offers and Subscription Clients for the subscriptions.
  - Optionally, the appropriate delivery rules for subscriptions. (You may also create the delivery rule as you specify a subscription.)
- Change the properties of an existing subscription.

CHOOSING PUSH OR PULL DELIVERY

The Connection Server system supports two modes of content delivery. When specifying a subscription and its method of delivery, you must specify either **push** or **pull** mode.

- **Pull mode:** Subscription Client initiates delivery of content by polling Connection Server to download new or updated content. This is the usual method of delivery, and its advantages are:
  - Subscription Client polls Connection Server at regular intervals, and content delivery occurs at pre-scheduled times.
  - When content changes at regular intervals, it is an efficient retrieval method.
- **Push mode:** Connection Server initiates delivery of content to the receiving Subscription Client according to a specified delivery rule. **Push** mode is most useful for distributing content that is time-sensitive in one of the following ways:
  - Content is of immediate importance, and should not wait for polling.
  - Content is valid and useful for a limited time, and should not wait for polling.
  - Content changes sporadically. For instance, depending on circumstances content may be static for a week, then suddenly change three or four times in an hour. In this case, regular polling is not efficient—occurring either too often or not often enough.

Push mode may also be more resource-efficient if there are a large number of Subscription Clients to an offer. By having the Connection Server control when an offer is downloaded, you can avoid the overhead of having many sites polling for changes.

Note: Whether content is delivered via **push** or **pull** is based on the delivery rule, not on some attribute of the subscription. One makes a **push** subscription by associating a **push** delivery rule with the subscription.

GROUPING OFFERS AND SUBSCRIBERS

Connection Server's user groups feature provides a convenient way to specify and maintain large numbers of subscriptions. Definition and maintenance of subscriptions is not an explicit function of grouping; however; grouping provides a mechanism for handling sets of offers and subscribers. For more information about grouping, see Chapter 7, "Roles and User Groups."

Using the grouping feature, subscriptions are created for all combinations of offer and Subscription Client in a group or groups. For example, if the group "tennis" includes three offers and 20 Subscription Clients, 60 individual subscriptions are created.

ABOUT DELIVERY RULES

All subscriptions require a delivery rule, which specifies the mode of delivery as well as the dates and times of delivery. You may explicitly assign a delivery rule to one or many subscriptions. If you do not assign a delivery rule, Connection Server automatically assigns the **Default Delivery Rule** to a subscription.

Important: You should review the properties of the **Default Delivery Rule** to be sure the rule is appropriate for your subscriptions.

SUBSCRIPTIONS LIST

Connection Server displays a list of existing subscriptions that allows you to:

- View the details of a specific subscription.
- Search for a specific subscription by offer name, by subscriber name, or using the contents of one of two custom fields.

- Sort the list of subscriptions by offer name, by subscriber name, or by the contents of one of two custom fields.
- Display a list of subscriptions that are members of a specific user group.
- Delete one or more subscriptions.
- Activate an immediate delivery of subscriptions.

If the list of subscriptions is long, it may display in more than one page. Navigational aids allow you to move through the pages and to set the number of subscriptions to display on each page.

You may select individual subscriptions to delete. You can select and deselect all subscriptions on the current page or individually select one or more subscriptions. All selected subscriptions on the current page can be deleted in a single operation. Deleting a subscription deletes neither the Subscription Client nor the offer.

CREATE SUBSCRIPTION

The Connection Server provides three wizard-like pages to assist you in creating a subscription.

Create Subscription: Choose Offers

The first page (**Choose Offers**) displays a list of all offers defined in Connection Server. Here, you select the offer(s) to be used for the subscription. You can select any number of offers at once.

To view the contents of a specific offer, click the appropriate **View Current Items** link in the **Offer Contents** column. This displays the **Current Offer Contents** page for that offer.

To view details about an individual file, click the appropriate file link in the **Name** column. This displays an Item Details page for that file. To view the file's actual contents, click the **View Content** link at the top.

Note: To view a file's contents, you might be required to provide your user name and password.

Create Subscription: Choose Subscription Clients

The second page (**Choose Subscription Clients**) displays a list of all Subscription Clients defined in Connection Server. In this page, you select the user(s) that will receive this subscription. You can select any number of users at once.

Create Subscription: Delivery Options

The final page (**Delivery Options**) displays the offer names and user/subscriber names for which subscriptions will be created. To view details about an offer or user/subscriber, click its link.

This page also contains the following sections. (For details using the options in these lower sections, see the remainder of this chapter.)

Subscription Start/Stop

The controls here allow you to either use or override the offer's delivery dates and times; and to select or create a delivery rule.

User Defined Fields

The custom fields allow you to assign the subscription text or numeric information for your own purposes, including facilitating searching and sorting.

SUBSCRIPTION PROPERTIES

The following information describes a subscription:

Start/Stop Dates

These dates and times determine when the subscription actually becomes available to Subscription Clients and when it is no longer available. If the offer or offers have start and stop dates and times, you may use these for the subscriptions. Or, you can specify other start and stop dates and times.

Delivery Rule

You must specify a delivery rule for all subscriptions. You may select an existing rule, or create a new one as you create the subscription. If you do not specify any delivery rule, Connection Server automatically assigns the **Default Delivery Rule**. (For more information about delivery rules, see the section “Delivery Rules” on page 8-6.)

User Defined Fields

These custom fields allow you to attach to the subscription information for your own purposes. Fields 1 through 3 are text fields. Fields 4 through 6 are numeric. Custom field 1 and Custom field 4 appear in listings of subscriptions and can be used for searching and sorting.

Subscription Delivery

The **Subscription Delivery** section lists details about the last content update delivered for this subscription. To view details about that update’s contents, click the link beside **Last Package Update Delivered**.

In the resulting page, to view details about a file in the subscription, click on the file’s name in the **Name** column. To view the file’s actual contents, click the link beside **View Content** at the top of the **Item Details** page.

Note: To view a file’s contents, you might be required to provide your user name and password.

Send Content Now

The **Send Content Now for Subscription** button allows you to temporarily override a subscription's delivery rule and push content on demand. The subscription reverts to its set delivery rule after you use **Send Content Now for Subscription**.

DELIVERY RULES

A delivery rule, required for every subscription, specifies the parameters for the delivery of the offer’s content files. Each named delivery rule can contain a different set of parameters for delivery.

Upon installation, Connection Server provides two preset delivery rules:

- **Default Delivery Rule**: When you create a subscription, Connection Server automatically assigns the **Default Delivery Rule** to that subscription unless you specifically choose another rule. This rule is set up for **pull** delivery. (For details about **pull** versus **push** delivery modes, see “Choosing Push or Pull Delivery” on page 8-2.)
- **Default Push Delivery Rule**: This rule is set up for **push** delivery.

The following information describes a delivery rule:

- Name of the delivery rule.
- Delivery mode, either **pull** or **push**.
- Days or dates to begin and end delivery of subscription content.
- Times to begin and end delivery of content on each day/date.

When you specify delivery times—start time, end time, and interval between deliveries—you can limit the time of day that content for a particular subscription will be available. For example, if you specify delivery to begin at 8:00 AM and to end at 5:00 PM, with delivery every 60 minutes, content cannot be retrieved after 5:00 PM or before 8:00 AM. Also, content can be retrieved only once an hour.

Note: The start date/time and stop date/time not only define when the subscription is available to the subscriber, but also define *which content in the subscription* is available to the subscriber. Content generated before the start date, or after the stop date, is not included in the subscription—even if the subscriber has access to the subscription itself.

Deliver Immediately

If you do not specify start and stop information, subscriptions are available to Subscription Clients immediately and they remain available until you delete the subscription. In **pull** mode, Subscription Clients are able to obtain content as soon as it has been created or changed, according to the delivery days/dates. In **push** mode, Connection Server notifies Subscription Client of the availability of content as soon as it is created or changed, according to the delivery days/dates.

DELIVERY RULES LIST

Connection Server displays a list of existing delivery rules that allows you to:

- View the details of a specific delivery rule.
- Search by name for a specific delivery rule.
- Delete one or more delivery rules.

If the list of delivery rules is long, its display may extend over more than one page. Navigational aids allow you to move through the pages.

You may select individual delivery rules to delete. Options at the bottom of the page allow you to select and deselect all delivery rules on the current page. With the **Delete Selected Items** option, all selected delivery rules on the current page are deleted.

DELIVERY RULE SPECIFICATION

The following information describes a delivery rule:

- Delivery rule name.
- Delivery mode, either **pull** or **push** (see “Choosing Push or Pull Delivery” on page 8-2).
- Start date and time on which content files are available to be retrieved.
- Time interval between deliveries.
- Stop date and time after which content is not accessible for delivery.

Subscriptions Using This Delivery Rule

After you have assigned delivery rules to subscriptions, those subscription names are listed here. Subscription information includes:

- Number (automatically assigned by Connection Server) that identifies a subscription.
- Name of the offer part of the subscription.
- Name of the Subscription Client part of the subscription.
- Location of the content files for the subscription; for instance, the URL for a web or FTP server, or the pathname to a file-system directory.
- Custom fields 1 and 4 of the subscription.

Chapter

9

TEMPLATES FOR E-MAIL NOTIFICATION

INTRODUCTION

This chapter describes Connection Server's predefined e-mail templates, under the following sections:

- Overview of E-Mail Templates (page 9-1)
- Templates List (page 9-2)
- Editing Templates (Template Details) (page 9-3)
- Velocity Template Language/Variables Reference (page 9-4)
- Related E-Mail Features (page 9-7).

OVERVIEW OF E-MAIL TEMPLATES

Connection Server's e-mail templates work like a word processor's "mail-merge" feature: They allow a Connection Server administrator to send personalized e-mail messages to a defined set of users when the following events occur:

- Creation of a subscriber or other user.
- Deletion of a subscriber or other user.
- Download of the Subscription Client software by a user.
- Delivery of content to users via FTP or e-mail.

Connection Server provides a predefined template message (whose text you can edit) for each of these events, and a set of variables for further personalizing the resulting messages. The variables are based on the the Apache Software Foundation's Velocity template language. Connection Server sends the e-mail messages using an SMTP (Simple Mail Transfer Protocol) mail server.

The remaining sections of this chapter provide, or link to, information on:

- Managing e-mail templates as a group.
- Editing individual e-mail templates.
- Variables that you can use in e-mail templates, and sources of further information on the Velocity template language.
- Related Connection Server e-mail features: defining SMTP server settings, sending ad-hoc e-mails to users, re-sending the user creation message, and mail logging.

TEMPLATES LIST

To view a list of existing templates, click the **Templates** link on Connection Server's home page. The resulting list shows whether each template is **Enabled**, meaning that Connection Server will send e-mail messages when the corresponding event occurs. By default, each template is enabled**.**

To edit a template, click its link in the **Templates** list. (For details on the resulting **Template Details** page, see "Editing Templates (Template Details)" on page 9-3.) Connection Server provides the following templates:

User Creation E-Mail Template

This template is used to send a personalized e-mail message to each user when the user is first created.

User Deletion E-Mail Template

This template is used to send a personalized e-mail message to a user when you have deleted that user's profile from Connection Server. This e-mail cannot be re-sent through the Connection Server interface after the user has been deleted from the server.

Client Download E-Mail Template

This template is used to notify the administrator when a user tries to download the Subscription Client software. Connection Server sends the resulting e-mail each time the user accesses the software download page.

Default E-Mail Delivery Template

This template defines the e-mail messages associated with sending content updates to ZFS (zero-footprint subscriber) users. These are users who receive content via FTP or e-mail, not via the Subscription Client application.

EDITING TEMPLATES (TEMPLATE DETAILS)

The **Template Details** page provides an interface through which you can edit the contents of each template, as well as enable/disable the template. The page displays the following set of fields for all templates:

Template Name

This shows the “hard-coded” name of the Template. You cannot modify this name through the Connection Server user interface.

Subject

Defines the subject line of e-mail messages that are based on this template.

Message

Defines the body of e-mail messages that are based on this template. To adapt the template to your own purposes, edit this field’s contents. (We recommend first selecting all the default text, copying it and pasting it into a text editor, and saving it to a file in case you wish to restore it.)

For details on combining plain text with Velocity template-language variables in this field and the **Subject** field, see “Velocity Template Language/Variables Reference,” below.

Enabled

This check box allows you to enable or disable the template. (If the template is disabled, e-mails are not send to the user when the corresponding event occurs.)

VELOCITY TEMPLATE LANGUAGE/VARIABLES REFERENCE

To personalize each e-mail message with user-specific information, Connection Server's templates provide a set of variables based on the Apache Software Foundation's Velocity template language. When Connection Server composes and sends the e-mails, it resolves these variables against the values for each corresponding User object stored in its database.

Velocity is a simplified, Java-based "template engine" language that allows plaintext messages to reference objects defined in Java code. Connection Server variables are based on Velocity version 1.3.1. For details beyond the scope of this section, please see Apache Velocity home page:

http://jakarta.apache.org/velocity/index.html

or the Apache Velocity online user manual:

http://jakarta.apache.org/velocity/user-guide.html

Connection Server templates provide some global variables (which can be used in all templates) and some template-specific variables. The following sections list the variables in each category, with some usage information. For further examples of how to use these variables in the **Subject** and **Message** fields, please use the **Templates** and **Template Details** pages to view the provided template messages.

Global E-Mail Variables

You can use the following variables in all Connection Server e-mail templates. They represent the URLs for your installed copy of Connection Server, and the Connection Server administrator's e-mail address:

```
$syndicator-email
$syndicator-url
$syndicator-download-url
$syndicator-ice-url
```

The **$syndicator-url** and **$syndicator-download-url** variables' values depend on the contents of the **General Settings** page's **Connection Server URL** field. The **$syndicator-ice-url** variable's value depends on the contents of the **General Settings** page's **Connection Server Url for Subscriber** field. (For details about these fields, see "General Settings" on page 2-4.)

E-Mail Variables for User Creation, User Deletion, and Subscription Client Download

You can use the following variables in three of the templates (User Creation E-Mail Template, User Deletion E-Mail Template, and Client Download E-Mail Template):

```
name
login
description
account
password
url
uuid
string1
string2
string3
pushurl
disabled
number1
number2
number3
clickthru
clickthruurl
iscatalog
deliverymethod
dn
email
```

You will typically personalize these variables for the current user, by appending each variable to either the **$user** or **$subscriber** variable (either of which represents the current user). You concatenate variables in the format: **$user.variable** or **$subscriber.variable**. (Formally: **system object.attribute**.) For example, each of the following is a legal variable expression in these templates:

`$user.name` (or `$subscriber.name`)

`$user.login` (or `$subscriber.login`)

`$syndicator-download-url`

E-Mail Variables for the Default E-Mail Delivery Template (ZFS Users)

You can use the following variables in the Default E-Mail Delivery Template, which defines e-mail messages sent to users who receive content updates via FTP or e-mail.

Note: For users whose delivery method is e-mail, content deliveries will use this template even if the template is disabled.

The variables for this template include concatenated user-specific, offer-specific, and subscription-specific combinations. The user-specific variables are:

```
$user.name
$user.login
$user.description
$user.account
$user.password
$user.url
$user.uuid
$user.string1
$user.string2
$user.string3
$user.pushurl
$user.disabled
$user.number1
$user.number2
$user.number3
$user.clickthru
$user.clickthruurl
$user.iscatalog
$user.deliverymethod
```

[The values for the `$user.deliverymethod` variable are: 1=ICE, 2=FTP, 4=e-mail, 3=ICE+FTP, 5=ICE+e-mail, 6=FTP+e-mail, 7=ICE+FTP+e-mail.]

```
$user.dn
$user.email
```

The offer-specific variables are:

```
$offer.name
$offer.description
$offer.starttime
$offer.stoptime
$offer.atomicuse
$offer.editable
$offer.ipstatus
```

```
$offer.rightsholder
$offer.showcredit
$offer.string1
$offer.string2
$offer.string3
$offer.number1
$offer.number2
$offer.number3
```

The subscription-specific variables are:

```
$subscription.packetstate
$subscription.lastpackagestate
$subscription.lastconfirmedpackagestate
$subscription.starttime
$subscription.stoptime
$subscription.string1
$subscription.string2
$subscription.string3
$subscription.number1
$subscription.number2
$subscription.number3
$subscription.needsconfirmation
$subscription.localdir
```

The Default E-Mail Delivery Template also provides the following variable, which receives a value of **true** or **false** depending on whether the associated e-mail message contains a file attachment:

```
$hasAttachment
```

For an example of testing the $hasAttachment variable's value in an **`if/then`** structure, see the text of the provided Default E-Mail Delivery Template.

RELATED E-MAIL FEATURES

The following features are related to the e-mail templates, but appear elsewhere in the Connection Server interface:

General E-Mail Settings

Connection Server's **General Settings** page includes three fields whose values you must set in order to successfully send messages using the the e-mail templates:

Primary Connection Server E-mail, **SMTP E-mail Server**, and **SMTP E-mail Server Port**. For details, see “General Settings” on page 2-4.

Send Ad-Hoc E-Mail to Users

You can send “ad-hoc” e-mail messages to one or more users, using controls on the **Users** page. This feature bypasses the e-mail templates, and is useful for sending one-time (as opposed to recurring) messages. For details, see “Send E-Mail” on page 4-4.

Re-Send Template E-Mail Messages

You can also use the “ad-hoc” e-mail feature to re-send a template message. For example, you might want to re-send the User Creation E-Mail Template message if the user did not receive their original e-mail, or if you have made changes in the user’s profile. For details, see “Re-Sending a Template Message” on page 4-5.

E-Mail Logging

The log facility named **template** can be used to record events that occur when sending template-based e-mail messages. For further information, see “Event Logs” on page 2-7.

Appendix

A

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```

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```
* zlib.h -- interface of the 'zlib' general purpose compression library
  version 1.2.3, July 18th, 2005

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Glossary

G

GLOSSARY

AdaptiveContent

The process of altering incoming digital content (typically, HTML, XML, or text files) by writing scripts which perform sophisticated find-and-replace operations on the files' contents. AdaptiveContent transformations may be written in common scripting and programming languages such as Perl, Java, or the Kinecta Transformation Language (KTL). A typical AdaptiveContent transformation would change the background color, font family, and banner ad graphics on a group of incoming Web pages before they are made available for browsing from a local Web server.

Custom Content Source Monitor Extension

An extension to the Connection Server that uses the Connection Server API to define a custom content source. Custom Content Sources include external applications and data stores such as Content Management Systems or repository databases. When programmed and configured, Custom Content Sources appear as Content Source options in the Connection Server.

Content Provider

The party that makes offers available to a network of authorized subscribers. Content providers can be publishers or aggregators of digital assets.

Content Repository

Any local or remote data storage-and-retrieval system, such as a hard disk, Web server, network database or Content Management System (CMS). A subscription offer can include files from any number and combination of local and remote content repositories.

Digital Asset

Any type of electronic file including text, images, HTML, XML, compressed archives (.zip, .tgz), executables, and broadband (streaming) media.

Electronic Document Management

A system focused on the life cycle management of desktop documents that can be used to control collaborative authoring, versioning, workflow, and access. Electronic document management systems tend to focus on desktop content and are limited in functionality.

Extensible Markup Language (XML)

A World Wide Web Consortium (W3C) standard for representing structured data in text files with user-defined (extensible) HTML-style tags.

Failover

Connection Server can be configured to automatically switch to a secondary or tertiary ICE server in the event of failure of the primary server.

FTP

File Transfer Protocol. A TCP/IP service that allows sending and retrieving of any type of file from one computer to another. FTP is a client-server application; the client requests the transfer from the server.

FTP server

The server component of the FTP file transfer application.

HTTP

Hypertext Transfer Protocol. The client-server TCP/IP protocol used on the World Wide Web for the exchange of HTML documents. It conventionally uses port 80.

Information and Content Exchange (ICE)

:A W3C recommendation designed to significantly reduce the cost of doing business online and increase the value of business relationships by facilitating the controlled exchange and management of digital information between networked partners and affiliates.

Java Virtual Machine (JVM)

A specification for software that interprets object-oriented Java programs. To use a java-based application program, a Java Runtime Environment (JRE) must be installed on the machine where the java application runs. Among other things the JRE contains a Java

Virtual Machine; the JRE is the smallest set of executables and files that constitute a standard Java platform.

Offer

A package of digital content which is assembled by a content provider. An offer can contain any type or quantity of digital asset.

Publishing Requirements for Industry Standard Metadata (PRISM)

An initiative for the development of the publishing industry standard XML metadata vocabularies to facilitate repurposing, aggregation and distribution of content.

Publisher

An organization which produces original content, usually for distribution to other organizations and/or end users.

Pull delivery mode

This method of content delivery is initiated by the receiver, who polls the distributor for new or updated content according to a pre-defined schedule. Pull delivery is appropriate for content that changes on a regular, pre-determined schedule.

Push delivery mode

This method of content delivery is initiated by the sender (also known as the distributor or syndicator), who notifies the receiver that content will be delivered. Push delivery is governed by a pre-defined schedule and is appropriate for content that is time-dependent and sporadically updated.

Secure Sockets Layer (SSL)

A protocol designed to provide encrypted communications on the Internet. SSL is layered beneath application protocols such as HTTP, SMTP, Telnet, FTP, Gopher, and NNTP and is layered above the connection protocol TCP/IP. It is used by the HTTPS access method.

Subscriber

The party that receives offers at defined intervals from at least one content provider.

Subscription

The unique pairing of one offer with one subscriber.

Syndication

An application of Distributed Information Management in which digital assets are periodically distributed from a content provider to at least one subscriber. The content usually has timely value like news, financial reports, weather forecasts, horoscopes, or product specifications, pricing, and availability.

Transform

To alter the content or format of incoming data before being served from a subscriber's site, or to change the file's structure for different display types and content repositories.

Universal Unique Identifier (UUID)

A Universal Unique IDentifier is a 128-bit number assigned to the Subscription Client and Connection Server. Each UUID is guaranteed to be unique. To guarantee this uniqueness, the Connection Server system uses an algorithm that relies upon a combination of hardware addresses, time stamps, and random seeds.

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