FUNAMBOL

Funambol Administration Guide v6.5

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Contents

Introduction

The contents of this guide will guide you through both initial and ongoing Funambol DS Server administration tasks, using the *Funambol Administration Tool*, a standalone application with versions for both Linux and Microsoft Windows. The following table lists the principal setup and maintenance tasks—mapping the key tasks to the appropriate occasions when you would need to do a particular task: for example, you would regularly change your admin password, but you would only configure and customize the Email Connector if your Funambol services incorporated an external mail server.

• Funambol Community Edition Task Checklist.

	SETUP TASK?	ON-GOING?	AS NEEDED?
Change the "Admin" account password	Optional	Yes	
	Optional		
Initial server configurations	Yes		
	Yes		
Server settings: Capabilities	If needed		
	If needed		
User accounts	(Automatic)	If needed	
	(Automatic)	If needed	
Principals	(Automatic)	If needed	
	Optional		
Configure Email Push	Optional		
	Optional		
Configure PIM Push	Optional		Yes
Configure Log files, Loggers	Optional		

As this table shows, certain tasks must be completed as part of the initial server setup. Some of the same tasks need to be done in an "on-going" basis, as part of normal system upkeep.

And some tasks would be done only on a "as-needed" basis, such as the addition of server modules or Inbox Listener activation.

Starting the Funambol Server Administration Tool

Alert: Before logging into the server with the Administration Tool, verify that both the server and the database have been started and are in operation. (If you are running the unbundled DS server, this is especially true, as the database does not automatically start.)

Chapter Contents

Opening the Administration Tool window

To open the Administration Tool window, follow these steps:

1 To start the Funambol Administration Tool if you installed the "PIM & Email Bundle", do one of the following:

WINDOWS: Click **Start**, and choose **Programs|Funambol|Administration Tool**.

LINUX: At the prompt, change to /opt /funambol/ and run this command:

`admin/bin/funamboladmin`

2 To start the Administration Tool if you installed the DS server by itself, do one of the following:

WINDOWS: Click **Start**, and choose **Programs|Funambol|Administration Tool|Funambol Administration Tool**.

LINUX: At the prompt, change to the DS server installation directory and run this command:

`admin/bin/funamboladmin`

3 The Funambol Administration Tool window appears.

No information is displayed until you log in with an administrative user ID and password—as detailed in the next section.

Logging into the DS Server

1 In the Administration Tool window, choose **File | Login**.

- Or, double-click the Funambol Admin Tool icon in the Navigation pane.

The Login dialog box appears.

2 If this is your first time logging in, you have two options:

- If the server is on a local host, make no changes to the default settings and click **Login**.

- If the server is on a remote host, enter the correct information in the **Hostname/IP** field, then click **Login**. (The default username and password are acceptable.)

TIP: The Administration Tool "remembers" the most recent entries for use in future logins.

After a successful login, the Admin Tool window **Navigation** pane lists your server as the root of an explorer-like tree that sorts your tasks into server settings, users, devices, principals, modules and more.

3 Your first post-login task is to replace the password for the main "admin" user account—as detailed in the next section.

Changing the Admin User Login Password

You should regularly change the "admin" password to add more security to your system, when you first log in and at regular intervals thereafter. Note that when you apply the change, you'll need to immediately exit the Funambol Admin Tool, then restart it and log back in to the server, using the new password.

1 In the Admin Tool window, expand the server tree in the Navigation pane, and double-click **Users**.

2 When the Search Users features appears, click in the **Username** field and type "admin".

3 Click **Search**.

The admin account should appear in the results table.

4 Select the admin account and click **Edit**.

The User Details options appear, with key information displayed in editable fields.

5 Type a new password in both **Password** and **Confirm Password** fields.

6 Click **OK** to save and apply the new password.

• IMPORTANT!

1 After changing the password, exit the Admin Tool.

2 Restart the tool and log in again as "admin"—using your new password.

This confirms your new password.

For information on creating additional admin user accounts, see "Creating Additional Administrator User Accounts" on page 7.

Logging in through a Proxy

After you've configured and activated your DS server, you or other admin-role users may need to log in for administrative purposes through a proxy server, depending on your location and network connection. This requires a slight adjustment of the login procedure, as detailed in this section:

1 In the Admin Tool window, choose **File/Login**.

• Or, double-click the Funambol Admin Tool icon in the Navigation pane.

The Login dialog box appears.

2 Verify your user entries in the active fields.

3 Check the **Use Proxy** checkbox.

Additional features appear in the Login dialog box.

4 Enter the relevant proxy server information. (Once you've logged in with proxy settings, the Login dialog box retains your entries for future use.)

5 Click **Login**.

After a successful login, the Admin Tool window **Navigation** pane lists your server as the root of a tree that incorporates server settings, users, devices, principals and modules.

Creating Additional Administrator User Accounts

If your Funambol server workload justifies the use of more than one system administrator, you can add the needed accounts by following these steps:

1 After expanding the server tree in the Navigation pane, right-click **Users** in the navigation pane and choose **Add User**.
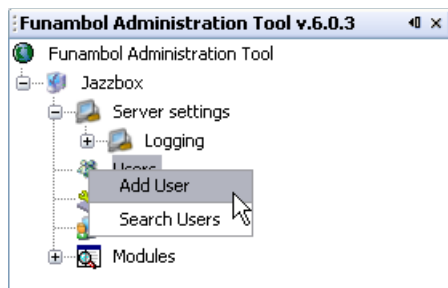
The Add User options appear in the Data Entry pane.
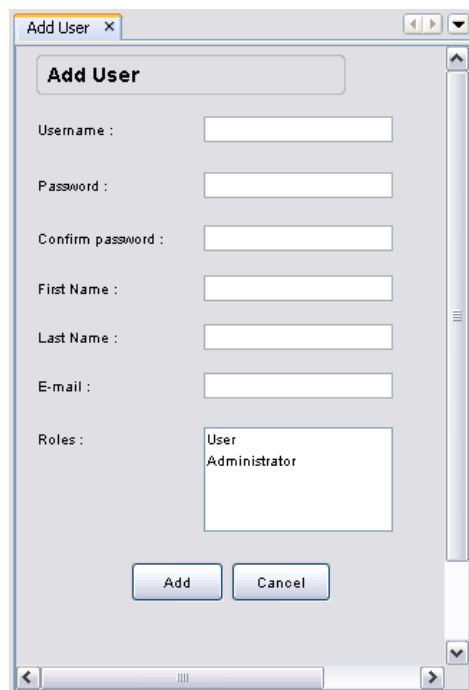
2 Enter the relevant information in the following fields.

Username	Enter a name up to 255 characters in length, using any characters. This name is case-sensitive.
Password	Enter a unique, secure password.
Confirm password	Re-type the same password.

First Name	Enter the user's first name (not including any middle initials).
Last Name	Enter the user's last name.
Email	The email address the user wants to link to the Funambol server.
Roles	Choose **Administrator**. (Anyone using this account will be able to perform administrative tasks but not synchronizations.)

3   Click **Add** to save the settings.

A confirmation message appears in the Output-Messages pane.

4   Repeat this procedure to create any needed administrator accounts.

5   You can now communicate this admin-user account information to relevant would-be users.

A Tour of the Administration Tool Window

The Funambol Administration Tool window is divided into three panes, as shown here in a typical working mode (example of a Log file configuration).
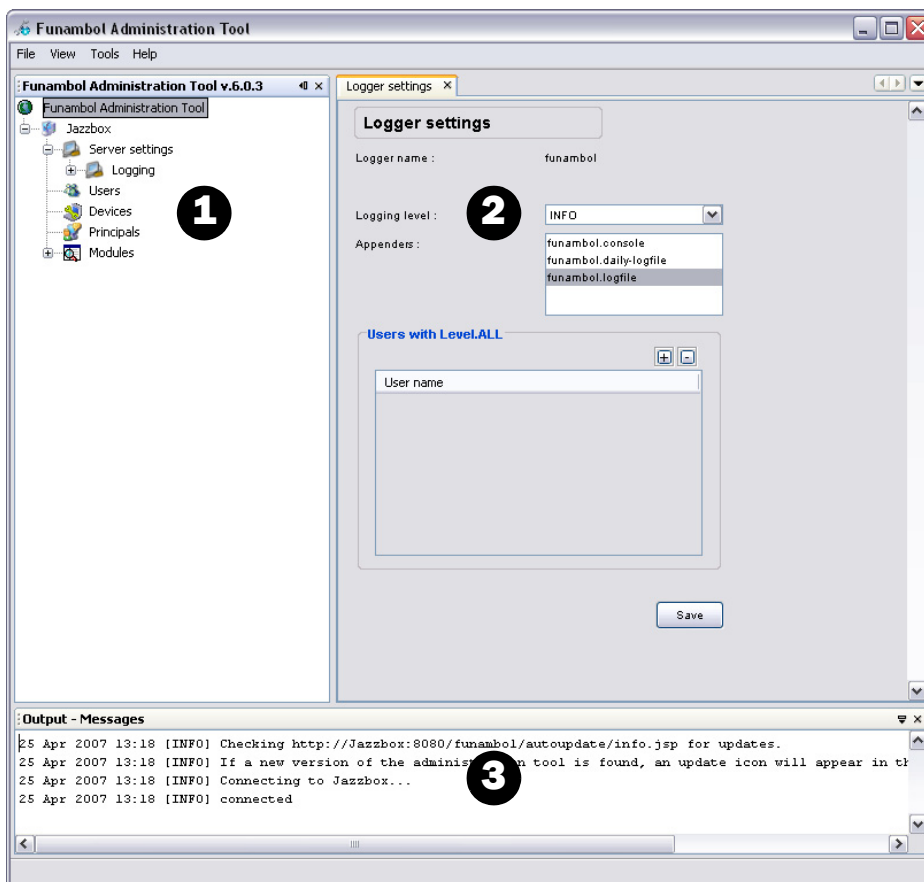
[-1-] — **Navigation**   Lists all the primary components, that you can add to or edit, to monitor and maintain the server, users, devices, principals, modules, etc.

Double-click an item in the expanded Navigation tree, to see the current entries and editable options in the Data Entry pane.

[-2-] — **Data entry**   Use the features in this pane to add, edit, delete or search for information related to the item selected in the Navigation pane.

[-3-] — **Output Messages**   This pane displays in-progress status messages (results, success or failure) relevant to your current task.

In addition, you can temporarily hide one or two of the three principal panes, as needed. For example, some Data Entry displays are so full of options, it's helpful to be able to hide both Navigation and Output panes in order to see all the options.

• Maximizing/minimizing the Data Entry pane

You can quickly maximize the Data Entry pane to hide both Output Messages and Navigation panes by doing the following:

1 Double-click the Data Entry label tab to expand this pane.
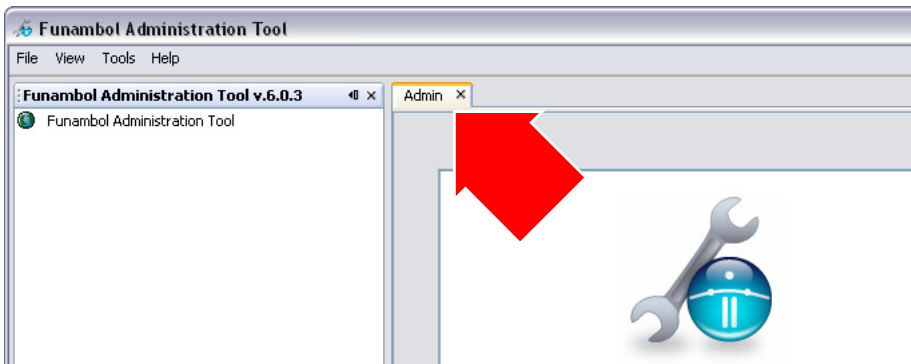
The expanded pane fills the window.

2 To see the Navigation pane, double-click the Data Entry pane label tab again.

The Data Entry pane is minimized to its original size.

• Hiding/Restoring the Navigation pane

To hide just the Navigation pane, click the **Hide** button once.
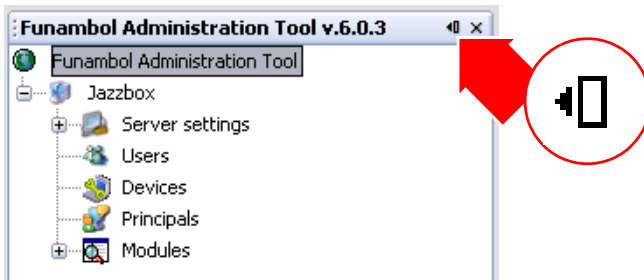
The Navigation pane collapses into the left window frame, visible as a sideways label.
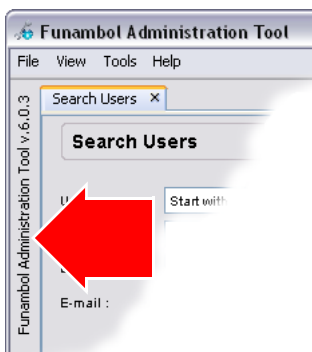
To reopen the Navigation pane, (1) float the cursor over the label, then (2) when the pane temporarily reappears, (2) click the **Show** button.
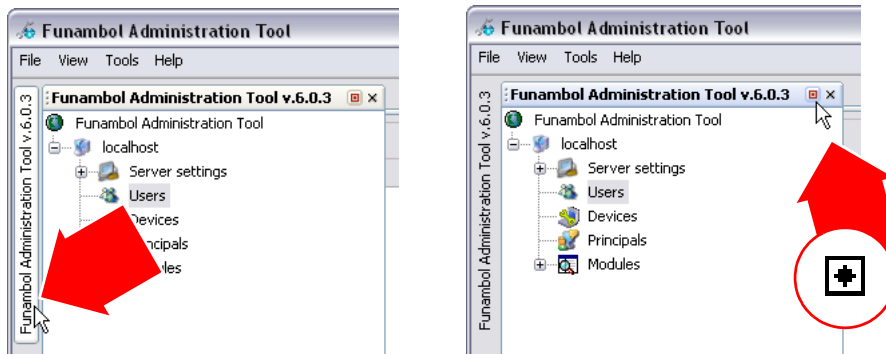
• Hiding/Restoring the Output pane

To hide just the Output-Messages pane, click the **Hide** button once.
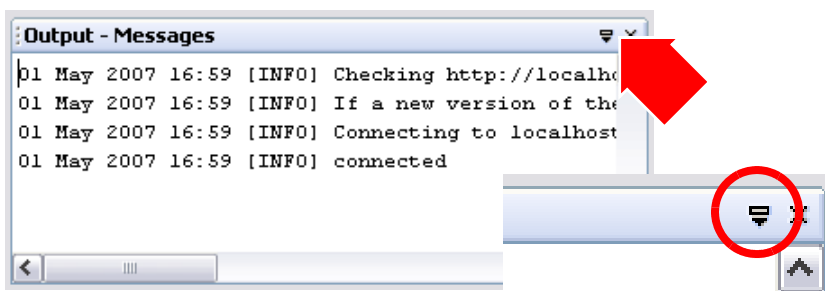
The Navigation pane collapses into the window frame, visible as a tab label.

To reopen the Output-Messages pane, (1) float the cursor over the tab label, then (2) when the pane temporarily reappears, (2) click the **Show** button.
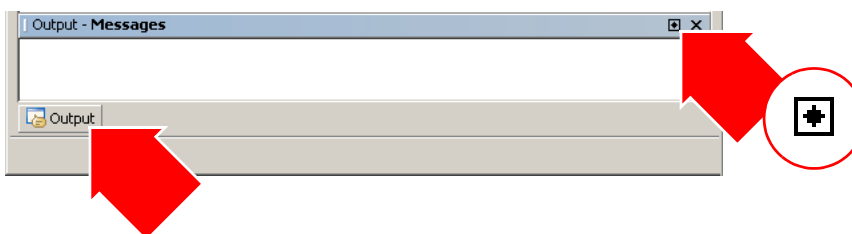
Note: The Data Entry pane cannot be hidden, only the Navigation and Output-Messages panes (singly or both at once) can be hidden.
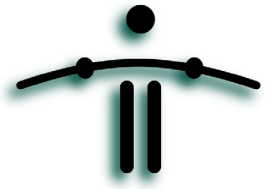
Reviewing DS Server Settings

You can review and modify the server settings via the Administration Tool (as detailed in this chapter). The contents include the following server administrative options:

Getting Started

To open the DS server file containing the principal settings in the Administration Tool, follow these steps:

1   In the Administration Tool window, expand the server tree in the Navigation pane.

2   Double-click **Server Settings**.

The Server Setting options appear in the Data Entry pane.

3   You can review and change server setting as organized into the following key categories:

Capabilities	(Detailed in "Reviewing the Capabilities Options" on page 13)
Engine	(Detailed in "Reviewing the Engine Options" on page 13)

4   Under "Engine", you'll find additional options for the following:

Data Transformer Manager	(Detailed in "Configuring the DataTransformer Manager" on page 15)
Strategy configuration	(Detailed in "Configuring Strategy" on page 17)

This chapter guides you through the options for each category, as incorporated into the Administration Tool.
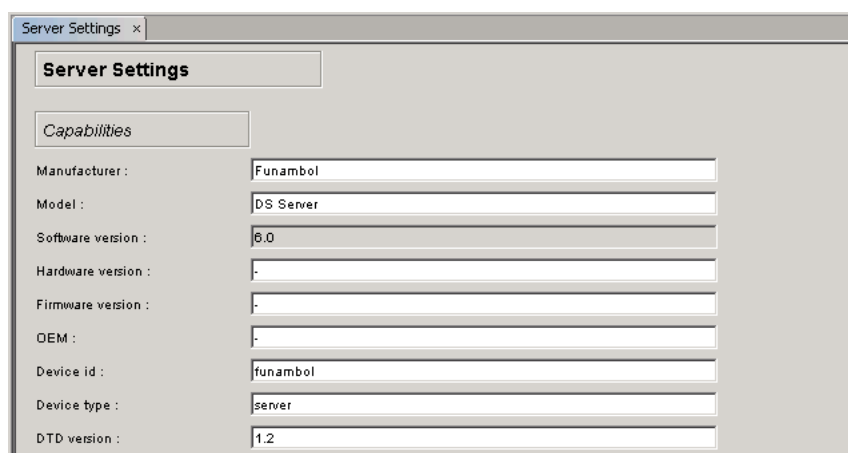
Reviewing the Capabilities Options

These options include all the settings that determine what is initially sent to the SyncML device or client/plug-in, to describe important server characteristics.

ALERT: In most DS server installations, the default *Capabilities* and *Engine* settings should not require any changes.

1   Open the **Server Settings** in the Data Entry pane if you haven't already done so.

The Server Settings options appear in the data Entry pane, including the **Capabilities** options as shown here

This collection of options represents information about the DS server that is sent to the client program/mobile device, to help in identifying the server.

2   Review the options (under "*Capabilities*"), and make any needed changes—ONLY IF NECESSARY.

3   When you are finished, click **Save** to save any changes.

4   Look for a confirmation message in the Output-Messages pane.

You can now review the DS server *Engine* options, detailed in the next section.

Reviewing the Engine Options

These options include all the settings that control the behavior of the DS server. In most server installations, you'll need to attend to the engine settings for Handler, Data transformer and Strategy.

ALERT: In most DS server installations, the default *Capabilities* and *Engine* settings should prove adequate.

1   Open the **Server Settings** in the Data Entry pane if you haven't already done so.

The Server Settings options appear in the data Entry pane, including the **Engine** options as shown here.

Engine	
Server URI :	
Officer :	com/funambol/server/security/UserProvisioningOfficer.xml
Handler :	com.funambol.server.session.SyncSessionHandler
Device inventory :	com/funambol/server/inventory/PSDeviceInventory.xml
Data transformer manager :	com/funambol/server/engine/transformer/DataTransformerManager.xml Configure
Strategy :	com/funambol/server/engine/Strategy.xml Configure
User manager :	com/funambol/server/admin/DBUserManager.xml
Min. value for max. msg size :	2500

Save   Cancel

2   Review the following options.

Server URI   Specifies the URI to be used by the client in responding to the server messages. Note that this value doesn't affect the URL or port used by the application server that runs the Funambol application.

Officer   Controls how users are authenticated and granted access to the system. (See "Assigning the Officer for the Email Connector" on page 37 for more details.)

Handler   This option (utilizing the contents of an XML-format file) manages the synchronization sessions.

Device Inventory   This option manages all the device records.

Data Transformer Manager   This option involves a separate dialog box that allows you to customize the encryption applied to incoming and outgoing messages. (See "Configuring the Data-Transformer Manager" on page 15 for more details.)

Strategy   This option involves a separate dialog box in which you can fine-tune the prioritization of data, when duplications are detected. (See "Configuring Strategy" on page 17 for more details.)

User Manager   This option manages all the user records. If you plan to store user records on a LDAP server, you'll need to create a new user manager and select the resulting XML file in this field.

Min. Value for Max. Msg Size   This option specifies the minimum value to be used by the client for MaxMsgSize. This value is the maximum size that all messages sent by the server must have (specified by the SyncML protocol).

	If a client specifies a value for MaxMsgSize that is smaller that "Min. Value for Max. Msg Size", the server refuses the synchronization and will log an error.
Check for updates	[Active by default] Enables the DS server to check the Funambol web site daily for updates (that will be automatically downloaded and installed).

3   Make any needed changes—ONLY IF NECESSARY.

4   When you are finished, click **Save** to save any changes.

5   Look for a confirmation message in the Output-Messages pane.

You can now review the encryption and duplicate-information strategy options, detailed in the following sections.

Configuring the DataTransformer Manager

These options, part of the *Engine* settings, control which encryption algorithms are applied to data traffic. Transformations are applied to data in both directions, usually encrypting outgoing data and decrypting incoming data.

You can specify the name and class of transformers for both incoming and outgoing items, with the source URI of items to be transformed along with the name of the transformer to be used.

1   In the **Engine** options of the Server Settings, review the information noted in the **Data-Transform Manager**.

2   To edit or replace this entry, click **Configure**.

The DataTransform Manager options appear in the Data Entry pane.
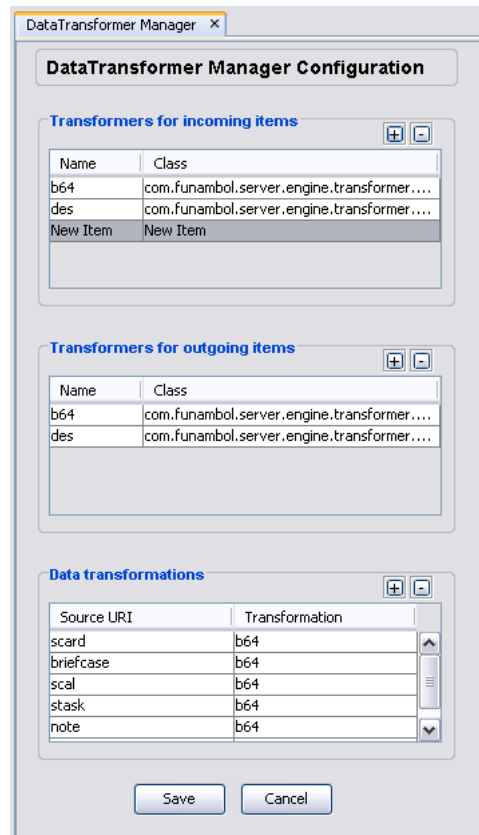
FIGURE 3-3

This collection of features includes default transformation encryption components, and pre-set combinations that are applied to incoming and outgoing messages.

3   Review the following options, and make the needed changes.

This includes (1) adding new rows/entries, (2) editing the existing rows/entries, and (3) deleting existing rows/entries.

4   Under **Transformers for incoming items**—click the "+" icon in the upper right corner of this table.

A new row appears at the bottom of the table.
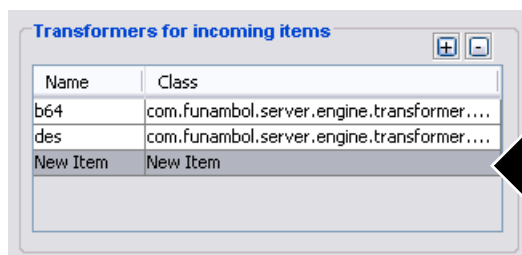
FIGURE 3-4

5   Click each cell in the row to make it active, and make the needed entries to guide the server in decrypting information from a specific item (scard) that may have a combina-

tion of encryption applied. This allows the server to decrypt the data received from a client and synch it.

6   Under **Transformers for outgoing items**—click the "+" icon in the upper right corner of this table.

7   When a new row appears at the bottom of the table, make the needed entries to guide the server in encrypting information extracted from a specific item (scard) that may require a specific combination of encryption applied. This allows the server to encrypt the data and transmit it to the client.

8   Under **Data Transformations**—click the "+" icon in the upper right corner of this table.

When a new row appears at the bottom of the table, make the following entries in each column of the new row:

Source URI   Enter the value of the source (e.g., scard, mail)

Transformation   Enter the needed encoding parameters, separated by a semi-colon.

9   When you are finished, click **Save**.

10   A confirmation message appears in the Output-Messages pane.

11   To return to Server Settings, click **Cancel**.

Configuring Strategy

These options, part of the *Engine* settings, are where you can set the preferred conflict resolution applied by the Funambol DS Server to SyncSources. In other words, if the DS server tries to synchronize two copies of similar records, you can use these features to specify how the server handles any potential conflicts. This is done by designating either client or server as "winner".

1   In the **Engine** options of the Server Settings, note the XML file pathway in the **Strategy** field. This file stores all data-conflict strategy settings.

2   To review the current settings and make changes, click **Configure**.

The Strategy Configuration options appear in the Data Entry pane
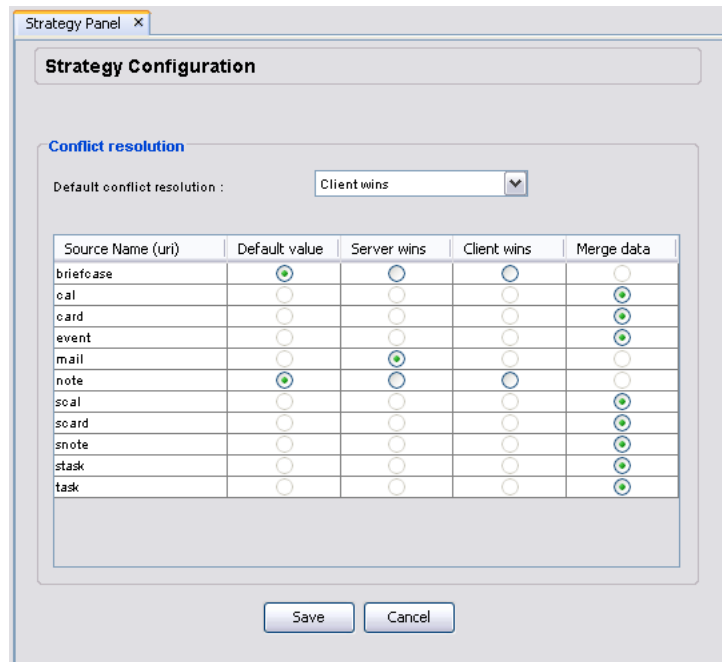
3 Open the **Default Conflict Resolution** menu and choose an option.

- Your options are **Client wins** and **Server wins**.

This setting is applied to those syncsources that do not need to be configured individually, and can be used to globally switch the conflict resolution for all such syncsources.

4 Review the table and select the preferred conflict resolution for each URI source name (where the option is active).

NOTE: Data source with only one active resolution option reflect their base syncsource. Other sources with two or more resolution options reflect different syncsources.

5 When you are finished, click **Save**.

A confirmation message appears in the Output-Messages pane.

6 To return to Server Settings, click **Cancel**.

CHAPTER 4

Adding and Managing DS User Accounts

Chapter Contents

Important Notice

You do **not** need to manually add new user records (as detailed in this chapter), as a would-be Funambol user auto-loads his or her account (including device and principal records) when they initially connect to the DS server.

How does this work? Each user initially prepares their mobile devices for a "sync" by entering a username and password of their choice, along with the Funambol server URL. During the resulting connection attempt, this information triggers the DS server to [1] auto-generate a new user record (applying their user name and password), [2] adding a new device record. Finally [3] the DS server links user and device automatically in a new principal record. A synchronization then starts. This auto-loading process is particularly handy if you have a large number of potential users.

• Why have New User features?

When would you possibly manually create new user and device records? If you are setting up an email synchronization for a potential (unregistered) user, you may need to create the records for (1) User, (2) Device and (3) Principal, then use the new user record to link to the relevant mail server (using the Email Connector, as detailed in a later chapter.) The actual user (who hasn't registered yet) must then be sent a copy of the Funambol URL, plus the newly recorded username and password, to use in setting up all their synchronization connections with clients, plug-ins and devices.

Introduction

It is critically important to understand how "User" records fit in with *Device* and *Principal* records, as they are linked in the DS process.

User records	A separate user record must exist for every person who will be synching data between a wireless device and the DS server. It doesn't matter how many devices each person will be synching, there must be a single record for that person.
Device records	Each wireless device—laptop, smartphone, PDA, etc.—must have a record in the DS server database, whether used solely by one person, or shared among several users
Principal records	This set of records allows you to combine individual users and devices, so that you can account for all usage patterns. This includes the following:
	Exclusive use of one device by one person.
	Shared use of one device by several people.
	This enables the DS server to specifically sort out data synchronized from more than one user, who share the same work-use cell phone. Their specific data will be available only to them, once they've been identified in a "principal" record.

Adding a New User Record/Account

To add a new user record to the DS server database, follow these steps:

1 After expanding the server tree in the Navigation pane, right-click **Users** in the navigation pane and choose **Add User**.

The Add User options appear in the Data Entry pane.

2 Enter the relevant information in the following fields.

Username	Enter a short name (remembering the space and typing limitations of mobile devices), up to 255 characters in length, using any combination. User names are case-sensitive.
Password	Enter the user's password. (Passwords, too, are case-sensitive.)
Confirm password	Re-enter the same password.
First Name	Enter the user's first name (not including any middle initials).
Last Name	Enter the user's last name.
Email	Enter the email address the user wants to link to the Funambol server.
Roles	Select a role from the following:
	A **User** can perform synchronizations with the server.
	An **Administrator** can log into the Administration Tool and perform administrative tasks but not synchronizations.

3 Click **Add** to save the settings, or click **Cancel** to quit without saving the settings.

A confirmation message appears in the Output-Messages pane.

4 Repeat this procedure to create any other user accounts.

You can now communicate the account information to would-be users.

Editing Existing User Accounts

To review and change the information for an existing user account, follow these steps:

1 After expanding the server tree in the Navigation pane, double-click **Users**.

The Search User options appear in the Data Entry pane.

```
Search Users  ×

 Search Users

 Username :     Start with    ▼ [                    ]
 First Name :   Start with    ▼ [                    ]
 Last Name :    Start with    ▼ [                    ]
 E-mail :       Start with    ▼ [                    ]

               Reset              Search


 Username    First Name    Last Name    E-mail    Roles

                                                          Add


                                                         Delete


                                                          Edit
```

2 Click in one or more relevant search fields (e.g., just **Last Name**, or both **First Name** and **Last Name**) and type the search text.

3 Click **Search**.

The resulting matches, if any, appear in the table.

4 Click the likely record and then click the now-active **Edit** button

The Edit User options appear in the Data Entry pane, displaying the current user's information.

5 Review the following fields, and make the needed changes.

Username	The user's system ID.
Password	The user's password.
Confirm password	Confirmation of the user's password.
First Name	The user's first name (not including any middle initials).
Last Name	The user's last name.
Email	The email address the user wants to link to the Funambol server.
Roles	The choices include **User**, who can only perform synchronizations with the server, or **Administrator**, who can only perform administrative tasks.

6 Click **Add** to save the changes, or click **Cancel** to quit without saving the settings.

Deleting Existing User Accounts

1   After expanding the server tree in the Navigation pane, double-click **Users**.

The Search User options appear in the Data Entry pane.

2   Click in one or more relevant search fields (e.g., just **Last Name**, or both **First Name** and **Last Name**) and type the search text.

3   Click **Search**.

The resulting matches, if any, appear in the table.

4   To verify the account is the one that is to be deleted, select the likely record and click the now-active **Edit** button.

5   Review the User Details options, then click **Cancel** to reopen the Search Users pane.

6   Select the record and click the now-active **Delete** button.

CHAPTER 5

Managing Device Records

Chapter Contents

Important Notice

You do **not** need to manually add new device records (as detailed in this chapter), as a would-be Funambol user auto-loads his or her account (including user, device and principal information) when they initially connect to the DS server.

How does this work? Each user initially prepares their mobile devices for a "sync" by entering a username and password of their choice, along with the Funambol server URL. During the resulting connection attempt, this information triggers the DS server to [1] auto-generate a new user record (applying their user name and password), [2] adding a new device record. Finally [3] the DS server links user and device automatically in a new principal record. A synchronization then starts. This auto-loading process is particularly handy if you have a large number of potential users.

• Why have New User features?

When would you possibly manually create new user and device records? If you are setting up an email synchronization for a potential (unregistered) user, you may need to create the records for (1) User, (2) Device and (3) Principal, then use the new user record to link to the relevant mail server (using the Email Connector, as detailed in a later chapter.) The actual user (who hasn't registered yet) must then be sent a copy of the Funambol URL, plus the newly recorded username and password, to use in setting up all their sync connections with clients, plug-ins and devices.

Introduction

As with user records, this chapter guides you through the creation and management of the needed records. Each wireless device—laptop, smartphone, PDA, etc.—must have a record in the DS server database, whether used solely by one person, or shared among several users. As

noted previously, this permits you to set up synchronization for each user on any relevant device.

Adding a New Device Record

To manually add a new device record to the DS server, follow these steps:

1 In the Navigation pane, right-click **Devices** in the navigation pane and choose **Add Device**.

The Add Device options appear in the Data Entry pane.

2 Enter the relevant information in the following fields.

ID	The device ID, e.g., the phone IMEI for SyncML phones.
Type	The device type.
Timezone	The timezone associated with the device.
Charset	The character set used for communication with the device. Valid values: UTF-8, UTF-16, ISO-8859-1, US-ASCII.
Address	IP address of the device (if applicable).
Phone number	The full phone number of the device.
Notification Type	Choose the correct type from the options in this menu:
	OMA DS 1.2: works with our plug-in and with SyncML 1.2 clients

Nokia OMA DS 1.1: works with Nokia phones that support SyncML 1.1

Description   [-Optional-] Informational or descriptive text.

3   Click **Add** to save the settings.

A confirmation message appears in the Output-Messages pane.

Editing Existing Device Records

To review and revise the settings for an existing device record, follow these steps:

1   In the Navigation pane, double-click **Devices** in the Navigation pane.

The Search Devices options appear in the Data Entry pane.

FIGURE 5-2

2   Click in one or more relevant search fields and type the search text. (Or, to view a complete list of all existing device records, make no entries in the search fields.)

3   Click **Search**.

The resulting matches appear in the table.

4   Click the likely record and then click the now-active **Edit** button

The Edit Device options appear in the Data Entry pane.

FIGURE 5-3

5   Review the information in the following fields and make any needed changes.

ID	[-Read only-] The device ID, e.g., the phone IMEI for SyncML phones.
Type	The device type.
Timezone	The timezone associated with the device.
Charset	The character set used for communication with the device. Valid values: UTF-8, UTF-16, ISO-8859-1, US-ASCII.
Address	IP address of the device (if applicable).
Phone Number	The full phone number of this device.
Notification Type	Choose the correct type from the options in this menu: **OMA DS 1.2:** works with Funambol plug-ins and with SyncML 1.2 clients **Nokia OMA DS 1.1:** works with Nokia phones that support SyncML 1.1
Description	[-Optional-] Informational or descriptive text.

6   Click **Save** to save any changes.

A confirmation message appears in the Output-Messages pane.

Reviewing Device Capabilities

If you wish to examine—in great detail—the technical functionality (which we call "capabilities") of a specific device, you can do so in this version of the Administration Tool, in the Devices data entry options. Owing to the fact that all of the "Device Capability" categories and options are read-only displays, and cannot be modified, the information has been printed in a separate chapter—"Reviewing Device Capabilities" on page 73.

Deleting Device Records

To delete an existing device record from the DS server database, follow these steps:

1   After expanding the server tree in the Navigation pane, double-click **Devices**.

The Search Devices options appear in the Data Entry pane.

2   Click in one or more relevant search fields and type the search text.

3   Click **Search**.

The resulting matches, if any, appear in the table.

4   To verify the account is the one that is to be deleted, select the likely record and click the now-active **Edit** button.

5   Review the Device Details options, then click **Cancel** to reopen the Search Devices pane.

6   Select the record and click the now-active **Delete** button.

A confirmation message appears in the Output-Messages pane.

Managing Principals

Chapter Contents

Important Notice

You do **not** need to manually add new principal records (as detailed in this chapter), as a would-be Funambol user can auto-load his or her account (including user, device and principal information) when they initially connect to the DS server.

How does this work? Each user initially prepares their mobile devices for a "sync" by entering a username and password of their choice, along with the Funambol server URL. During the resulting connection attempt, this information triggers the DS server to [1] auto-generate a new user record (applying their user name and password), [2] adding a new device record. Finally [3] the DS server links user and device automatically in a new principal record. A synchronization then starts. This auto-loading process is particularly handy if you have a large number of potential users.

• Why have New User features?

When would you possibly manually create new user and device records? If you are setting up an email synchronization for a potential (unregistered) user, you may need to create the records for (1) User, (2) Device and (3) Principal, then use the new user record to link to the relevant mail server (using the Email Connector, as detailed in a later chapter.) The actual user (who hasn't registered yet) must then be sent a copy of the Funambol URL, plus the newly recorded username and password, to use in setting up all their sync connections with clients, plug-ins and devices.

Introduction

In the wireless mobile universe, there are two overlapping combinations of user and device that pose a potential quandary for centralized data synchronization services.

- A single Funambol user using more than one device or client for data synchronization. For example, one person might have an at-work SyncML phone, a personal-use smart-phone, a copy of Microsoft Outlook on their laptop, and a PocketPC PDA.
- Or, that same individual may be one of several users who would want to synchronize data from a single device that they take turns sharing.

With these two associations in mind, the Funambol DS Server incorporates the concept of a *principal*, that associates a single user with a specific device. This allows one device to be shared by multiple users, or one user to utilize any number of devices—all synchronizing with Funambol, but without the wrong data going to the wrong client. Each of these associations is uniquely identifiable in the system as a *principal*.

Creating a New Principal

To create a new principal in Funambol, you use the Administration Tool to search for [1] the desired user, then [2] for a device match. After selecting a matching user and device from the search results tables, you link them as an individual principal.

NOTE: Remember that you can pair more than one user with the same device, each as a unique principal. If a single phone has five users, you would create five principals to represent the associations.

1 In the Navigation pane, right-click **Principals** and choose **Add Principal**.

   The Add Principal options appear in the Data Entry pane.

- TIP: You may want to make more room for the Data Entry pane, by reducing both Output and Navigation panes, as described in *"A Tour of the Administration Tool Window"* on page 9.

2 Enter the relevant information in one or more of the **Users** search fields, and click **Search**. (Some portion of the user's last name is a good starting point.)

The results (if any) appear in the table below.

3 Enter the relevant information in one or more of the **Devices** search fields, and click **Search**.

The table below the search form lists the results of your query.

When you've identified a user and a matching device, the tables should look like this example.

Username	Name	E-mail	ID	Type	Description
prosewonk	Giovanni Funambolo	mudhen@funambol....	Nokia 880	Phone	Bogus

Add Principal   Cancel

FIGURE 6-2

4 If your search turned up one match for each category, make sure each record is selected.

5 If your search turned up multiple matches for user or device, select the correct record for each category.

6 Click the now-active **Add Principal** button to save the user/device pairing.

Look in the Output-Messages area for confirmation of the new principal.

Editing Existing Principals

As there is no way to directly edit a principal record, you have the option in the Funambol Administration Tool to (1) delete the existing record and (2) create a new, replacement principal record.

Deleting Existing Principal Records

1 Right-click the **Principals** icon in the Navigation pane and choose **Search Principals**.

The Search Principals options appear in the Data Entry pane.

2 Search for a specific principal, using any of the data fields.

- Or, to view the complete catalog of principals, leave the search fields empty and click **Search**.

3 Select the appropriate result in the table below the search form.

4   Click **Delete**.

5   When the deletion confirmation dialog box appears, click **OK**.

The selected record is deleted. A confirmation message appears in the Output-Messages pane.

Reviewing Last Synchronization TimeStamps

To find and display the details about the most recent ("last") synchronization of a specific principal, follow these steps:

1   Right-click the **Principals** icon in the Navigation pane and choose **Search Principals**.

The Search Principals options appear in the Data Entry pane.

2   Search for a specific principal, using any of the data fields.

- Or, to view the current catalog of principals, leave the search fields empty and click **Search**.

3   Select the appropriate result in the table below the search form.

4   Click **Details**.

The Last Synchronization Timestamps options appear in the Data Entry pane.

FIGURE 6-3

Last Synchronization Timestamps

Principal Id :   2

Username :   jmilligan

Device Id :   sc-pim-outlook

Database	Sync Type	Status	Client anchor	Server anchor	Start	End
scal	TWO-WAY	200	1165020255406	1165020255	2006-12-01 16:44:15.39	2006-12-01 16:44:15....
scard	TWO-WAY	200	1165020254906	1165020254	2006-12-01 16:44:14....	2006-12-01 16:44:15....

5   The table provides the following information about the most recent synchronizations of the selected principal:

Database	Identifies the syncsource used by the principal.
Sync Type	Notes the type of synchronization.
Status	Reports the sync status code
Client anchor	Displays the client anchor last used
Server anchor	Displays the server anchor last used
Start	Notes the start time of the most recent synchronization
End	Notes the end time of synchronization

6   IF you want to verify that this is indeed the most recent synchronization, click **Refresh**.

7   When you are finished, you must either double-click another icon in the server tree, or exit the Administration Tool.

Extra Options

You can delete the records about the most recent synchronizations, but this not only erases the records, but will force the DS server to perform a "deep" comparison of client and server data. This will be automatically initiated the next time the client device or service attempts to synch with the DS server. You may want to perform this task only if there are problems arising from previous synchronizations.

1   To start the process, click the **Reset** button.

2   If you do delete the most recent synchronization information, the server automatically performs a slow synchronization the next time. Note that this synchronization may take some time.

Installing and Using the Email Connector and Inbox Listener

Chapter Contents

About the Funambol Email Connector

The *Email Connector*, a key Funambol server module, allows a user to synchronize email clients on their computers and mobile devices to external mail servers through a Funambol DS connection. The Email Connector module incorporates a basic Funambol server Sync-Source—"mail"— that enables email synchronization and email push for both POP and IMAP email. When this module is set up and active, email can be synchronized with a designated mail server, but with important protocol-specific differences:

- POP users can synch their client Inbox folder (but no subfolders), and can send mail through their client Outbox

- IMAP users enjoy full synchronization of all folders and subfolders with the mail server

You set up the Email Connector as a "mail" service, then configure the protocols (POP or IMAP) on a per-user record basis, through the Users options.

Note that (as detailed in this chapter) user authentication with the email server can be configured to rely on the user's own mail authentication settings—which means a simpler setup for you, the administrator.

The Email Connector serves your users who want to manually synchronize their various email clients. You can also install and configure Funambol Inbox Listener (as detailed in "About the Inbox Listener" on page 47) to enable email push, so that the DS server is automatically loaded with the latest incoming email, and copies are pushed to all active client devices.

Installation/Operation Requirements

If you have previously installed the Funambol *PIM & Email* Bundle, the Email Connector is present, ready for setup and use (as detailed in this chapter.) If you've installed only the DS server on an existing host (that meets the requirements), you should install the Email Connector as a separate component—as detailed in this chapter.

As with the Funambol DS server, the Email Connector (and Inbox Listener) need to be installed on an application server running JDK/JRE, as well as hosting a JDBC-compliant database. More specifically, the Email Connector requires the JavaMail API JAR file (mail.jar) and the JavaBeans Activation Framework JAR file (activation.jar) be accessible by your application server. If you are using Tomcat, no action is required. If you are using a different application server, you may need to copy these files to the library folder of your application server. The files are available in the Funambol email archive file in this directory:

> funambol-email-6.5.x\Funambol\inbox-listener\lib

Issue/Alert: If you've already set up a working DS server, there are cautions noted in this chapter that, if heeded, reduce the risk of your erasing existing Funambol data during Email Connector installation.

Installing the Email Connector

Before you begin, review the following information:

- If you installed the Funambol PIM & Email Bundle, the Email Connector is ready for use. Turn to "Configuring the Email Connector" on page 37 to proceed.

- If you installed the DS server only on an existing host (that meets the requirements), you can install the Email Connector (as a standard Funambol *module*) as detailed in the rest of this section.

- If you are upgrading an older version of Email Connector on an existing and operational system, see the Release Notes for IMPORTANT information about the following proce- dure. Version numbers of both existing and new Email Connectors may affect key tasks, esp. involving rebuilding an existing database. (If the existing version is old enough, the database schema will have been altered enough to warrant a rebuilding, though the database is in active use.)

To install the Email Connector on an operational application server (already running an installa- tion of the Funambol server), follow these steps:

1 Download a copy (if you have not already done so) of the latest Email Connector zip archive:

```
funambol-email-(version_number).zip
```

2 Verify that the following directory is present in your master Funambol DS directory:

For Email Connector . /funambol/connectors/email

3 Unzip the archive (named **funambol-email-<x.x.x.>s4j**) to this location:

```
/funambol/ds-server/modules
```

4 Using a text editor, open the /funambol/ds-server/install.properties file.

5 Find the line that begins **modules-to-install=**

(This line specifies, in a comma-separated list, the modules that will be installed dur- ing installation.)

6 Add this item to the list:

```
funambol-email-<x.x.x>
```

IMPORTANT: Leave off the .s4j filename extension.

7 Save your changes and close install.properties.

8 Open a command line window and type one of the following commands at the prompt:

WINDOWS: cd <DS_SERVER_HOME>

                bin\install-modules <application_server>

LINUX: cd <DS_SERVER_HOME>

                sh bin/install-modules.sh <application_server>

9 As the installation proceeds, you are prompted to create (rebuild) the database for the DS server. You have the following options:

- If you are upgrading an existing DS server, check the compatibility of the existing DS server/Email Connector version number with the version number of this upgrade. Depending on the comparison, you may or may not be rebuilding the database.

- If this is an upgrade—Type **n** (no) if you are installing the Email Connector on a working DS server that is storing user data in an existing database that you do not want to lose.

- If this is a first-time installation—Type **y** (yes) if you are installing a Email Connector module on a yet-unused DS server. This initializes the database, creates the Connector-specific tables, and registers the Connector with the server.

The EmailOfficer.xml file is also copied to this directory:

`<DS_SERVER_HOME>\config\com\funambol\server\security`

10 As the installation script processes each module, you are prompted to rebuild each module's database.

- Type Yes (**y**) if this is a first-time installation, or

- Type No (**n**) if you are upgrading, and an operational database already exists.

When installation is complete, a "build successful" message appears.

You can now configure the Email Connector as detailed in the next major task section.

Configuring the Email Connector

To configure the Email Connector for external mail server communications and synchronizations, you use the Funambol Administration Tool to perform the following actions:

- Assigning the Officer for the Email Connector (to enable user authentication)

- Configuring the Email Connector

- Setting Up the Email SyncSources (POP and IMAP)

Each of these tasks is detailed in a separate sub-section.

Assigning the Officer for the Email Connector

After the initial installation, a key Server setting, "Email Officer", controls how users are authenticated and then permitted access to server functions. You have two xml file options that can be designated as the Officer:

• The default Officer is "UserProvisioningOfficer.xml". Use this file if your DS server does not have access to a mail server or other external source of user authentication.

• The alternate Officer is "EmailOfficer.xml". Use this file if your DS server has access to a mail server or other user-authentication source. This greatly simplifies your user-connection setup; your users can set up device sync profiles using their email login entries for authentication and access to Funambol. When they first connect, the system validates their identity, then auto-generates the needed user, device and principal records.

To change the default to "EmailOfficer.xml", follow these steps:

You can choose from two Officers, which are server JavaBeans that establish different ways to authenticate users for access to DS server resources. The two options are:

UserProvisioning [-Default-] Use this file if your DS server does not have access to a mail server or other external source of user authentication.

If this officer is active, you must manually enter each user's account, including ID and password, then communicate that information to the user to aid them in preparing their clients and devices for synchronization.

Email Use this file if your DS server has access to a mail server or other user-authentication source. This greatly simplifies your user-connection setup; your users can set up device sync profiles using their email login entries for authentication and access to Funambol. When they first connect, the system auto-generates the needed user, device and principal records.

If this officer is active, the user will be able to auto-create their user account (including device and principal information) at the time of their initial connection to the DS server.

1 After opening the Administration Tool, log into the server.

2 Expand the server tree in the Navigation pane.

3 Double-click **Server settings**.

The Server Settings options appear in the Data Entry pane (as highlighted below)

FIGURE 7-1

4 In the **Officer** field (included in the *Engine* options), the default entry is "UserProvisioningOfficer.xml". Edit the entry as follows (with edits shown in bold):

    com/funambol/server/security/**EmailOfficer.xml**

5 Click **Save** to save and apply the configuration settings.

You can now proceed with Email Connector configuration.

Configuring the Email Connector

1 Expand the Navigation pane tree as follows:

    Modules > email > FunambolEmailConnector

2 Double-click **FunambolEmailConnector**

The Email Connector options appear in the workpane, divided into two collections of options:

• **Public Mail Servers**
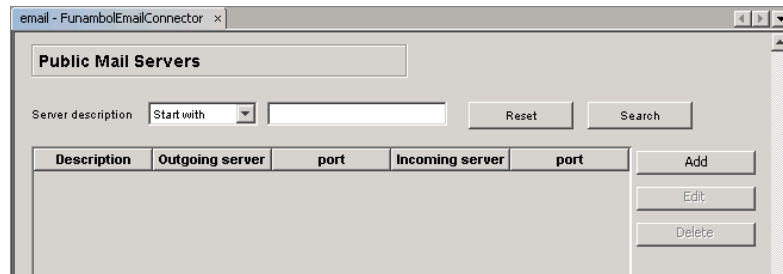
• **Accounts**
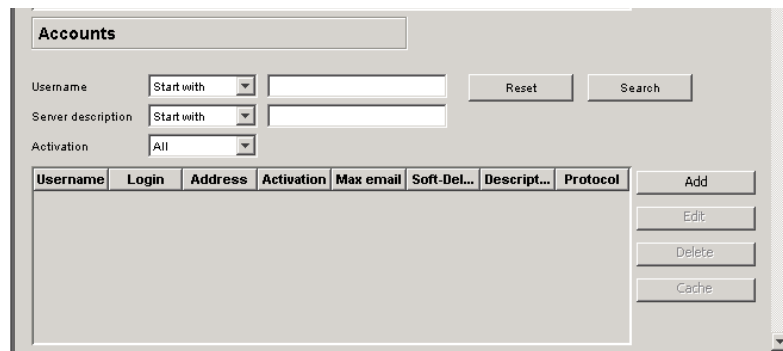
3 Use these features to complete a sequence of three setup tasks:

• Create records for those mail servers your Funambol users would synchronize with

• Link existing user records to relevant servers

• Activate mailbox monitoring and email push on a per-account basis.

Each of these tasks is detailed in the following sub-sections.

[1] Creating Public Mail Server Records

The DS server is pre-loaded with three of the most common public mail servers—AOL, Yahoo and Google Gmail. After activating this group, you may need to manually add more mail servers. This section describes both tasks in step-by-step detail.

1 After opening the FunambolMailConnector options, locate the Public Mail Server options and click **Search**.

The table lists a default set of public servers, ready for use.
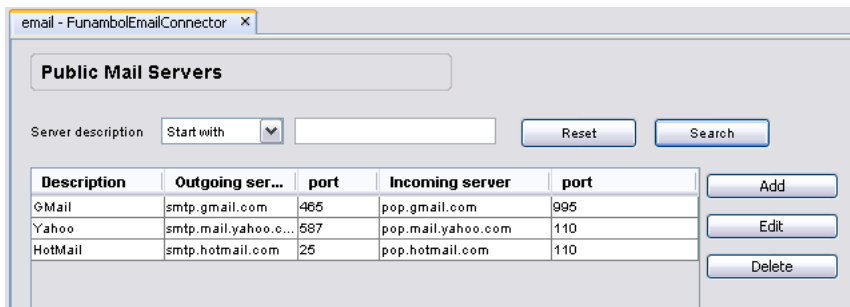
FIGURE 7-4

2   If this list is not inclusive of servers utilized by your users, click **Add**.

The Mail Server Details dialog box appears.
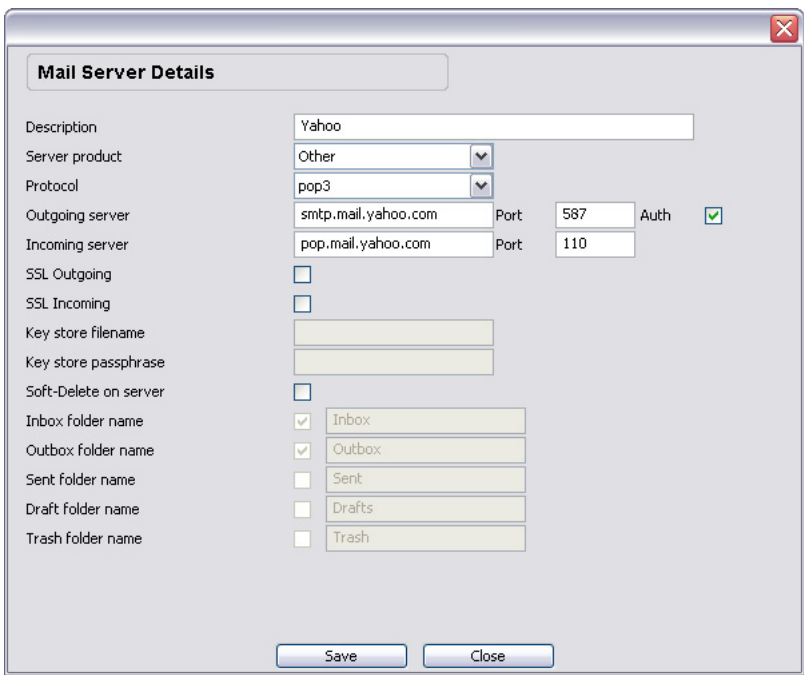
FIGURE 7-5

3   Review the following options (some of which are read-only) and make needed entries and selections:

Option	Description/Action
Description	A plain-language descriptive name for this server, usually incorporating the server's brand name, e.g. Scalix.
Server product	[Default: "Other"] Open this menu and choose the mail server application -- if it matches one of the listed options.
Protocol	Open this menu and choose "pop3" or "imap". Note that some options will be activated (or rendered inactive) depending on your choice of protocol.

Option	Description/Action
Outgoing Server	The URL of the outgoing email server.
Port	Outgoing email server port. Default = 25 (SMTP)
Auth	if checked, the user credentials (mail login and password) are sent to the email server to authenticate the outgoing mail.
Incoming Server	The URL of the incoming email server.
Port	Incoming mail server port. Default entries are = 110 (POP), 143 (IMAP)
SSL Outgoing	If checked, this option activates SSL on all outgoing messages.
SSL Incoming	If checked, this option activates SSL on all incoming messages.
Keystore Filename	The path to the Java keystore (If SSL is checked).
Keystore Passphrase	The password phrase for the Java keystore (If SSL is checked)
Soft-delete on server	(-Inactive option-) Click this checkbox to activate a feature that will delete messages from the mail server that have been deleted from the client device.
Inbox Folder Name	[Read only] Displays the name server label assigned to the Inbox folder. (Inactive by default)
Outbox Folder Name	[Read-only] Displays the name server label for the Outbox folder. (Inactive by default.)
Sent Folder Name	[Inactive by default] Displays the name server label for the Sent folder.
Drafts Folder Name	Enter the name server label for the Drafts folder. Check this option to activate synchronization. (Optional).
Trash Folder Name	Enter the name server label for the Trash folder. Check this option to activate synchronization. (Optional).

4   Click **Save**.

5   When a (confirmation) dialog box appears, click **OK**.

6   Repeat the previous steps as needed until you have records for all relevant mail servers.

NOTE: If your mail server uses SSL, after adding a new server record you will have to import the server's certificate manually. In order to do this, you need to download the certificate (please, refer to your mail server's documentation for help) and import it into the *cacerts* keystore, i.e. JDK's standard keystore. The command to do this is:

> keytool -import -file Your_Server's_Cert.cer -keystore cacerts

If the server's certificate is already present, you will be asked if you wish to overwrite it.

[2] Linking User Accounts to Mail Servers

Do not start this task until you have already compiled a DS-server database of user records.

1   In the FunambolEmailConnector "Account" options, click **Add**.

The Search Users dialog box appears.

2   Use the search features to find matching user records (from your Funambol database of already-active users).

3   Double-click the exact user match.

This Search Users dialog box is replaced by the User Account Details <username> dialog box.

It now displays a set of options related to the current state of the user record -- including mail-server option specifics that automatically fill in with relevant values.

4   Review the left-hand column of user-specific options, and make any needed changes:

Login   Enter the mail server user name for this record.

Password   Enter the related password.

Confirm Password   Re-enter the same password text.

Email Address   Enter the full text of this user's email address.

Listener ID   This field stores the numeric ID of the active Inbox Listener that enables email push through your DS server. By default, your one instance of Inbox Listener is ID'ed as "1", but if you plan to sort a large number of user records to multiple instances of Inbox Listener, you'll need to put the relevant instance ID in this field.

Active   Enter a checkmark in this option to activate Inbox LIstener for this account.

Push   Enter a checkmark to activate email push, by which the Inbox Listener notifies the DS server of new email to be pushed to the user's client device.

Refresh Time   Enter a number that determines how many minutes between mailbox pollings.

Max Email Number   (*Applies to POP accounts*) Choose a number from the menu to control the maximum number of email messages that are pushed to the user at one time.

Max IMAP Email   (*Applies to IMAP accounts*) Choose a number from the menu to set the maximum number of email messages that are cached from the Inbox, Drafts, Sent and Trash folders at one time

5　Review the right-hand mail server-specific options—but don't make any changes at this time.

6　Open the **Mail Server** menu and choose the pre-existing mail server used by this user.

The existing server settings automatically load into this dialog box. All the options are read-only—as shown here.
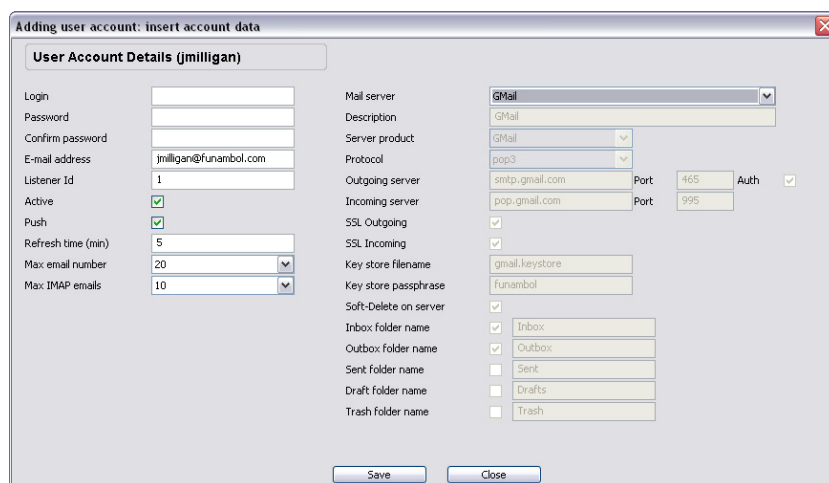
7　Click **Save**.

8　When a (confirmation) dialog box appears, click **OK**.

9　Repeat this procedure as needed to link all users to mail servers.

[3] Activating Mailbox Listening and Email Push for User Accounts

If a user wishes to make use of email push, you can use the Administration Tool to open that user's record and reset the relevant Inbox Listener-activation options. Three options are involved.

1　Expand the Navigation pane tree as follows:

　　Modules > email > FunambolEmailConnector

2　Double-click **FunambolEmailConnector**

The Email Connector options appear in the workpane, divided into two collections of options.

3　Select a user record (after searching for and finding the records) and click **Edit**.

4　When the User Account Details <username> dialog box appears, look for these options:

Listener ID　　　This field stores the numeric ID of the active Inbox Listener that enables email push through your DS server. By default, your one instance of Inbox Listener is ID'ed as "1", but if you plan to sort a large number of user records to multiple instances of Inbox Listener, you'll need to put the relevant instance ID in this field.

Active   Enter a checkmark in this option to activate Inbox LIstener for this account.

Push   Enter a checkmark to activate email push, by which the Inbox Listener notifies the DS server of new email to be pushed to the user's client device.

5   If you made any changes, click **Save**.

6   When a (confirmation) dialog box appears, click **OK**.

Manually Enabling Encryption/Encoding

All communication between the Email Connector and any SyncML client is automatically encoded with base64. If you prefer, those communications can be encoded with both DES and base64. To do so, follow the procedure described below.

1   In the Navigation pane, expand the server tree and double-click **Server Settings**.

The Server Settings options appear in the Data Entry pane.

2   Locate the **Data transformer manager** option (under *Engine*) and click the **Configure** button (to the right of the field).

3   When the Data Transformer Manager Configuration options appears as shown here, click the "+" icon in the upper right corner of the **Data Transformations** table.
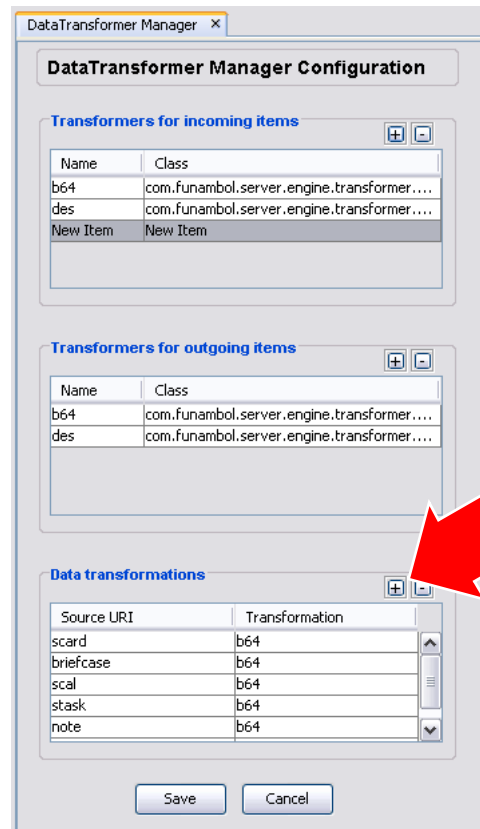
This creates a new row at the bottom of the table.

4   Make the following entries in each column of the new row:

Source URI   Enter the value of the Source URI (e.g., the string "mail") of the SyncSource instance you created in the previous section.

Transformation   Enter this text: "des;b64" to apply the DES cipher and Base64 encoding.

5   Click **Save** to save and apply this encryption transformation.

About the Inbox Listener

In conjunction with the Email Connector, the Inbox Listener is a key component that makes it possible for the Funambol server to monitor external mail servers, and when new in-bound messages are detected in a user's mailbox, to do the following:

- (1) send an alert to the user

- (2) automatically synch ("push") the new messages to the user's Funambol archives

When a new message is detected by the Inbox Listener, the Funambol engine notifies the user's device about the new mail. The device then initiates the email synchronization process with the email server via the Funambol engine and Funambol Email Connector.

NOTE: There is no access to the Inbox Listener by means of the Administration Tool. You must use the command line (as detailed here) to configure and manage the Inbox Listener.

Installing the Inbox Listener -- [Optional]

If you installed the PIM & Email Bundle, both Inbox Listener and Email Connector are present, ready for configuration and use. But if you installed the DS server (as a standalone service) on an existing host (that meets the requirements), you can install the Inbox Listener at this point. (This requires a previous installation of Email Connector.)

Requirements

- An operational Funambol DS Server

- An application server

- JDK/JRE version 1.5 or later

- A JDBC-compliant database on your system.

- An active installation of Email Connector.

Getting started

To install/start the Inbox Listener, follow these steps:

1   Open the Email Connector directory that you previously installed. (The directory should be at this location:

```
/funambol/ds-server/modules
```

2   Using a text editor, change to the /inbox-listener-<version>/bin directory

3   Open the inboxlistener script file, and edit the following parameters to reflect your Funambol server environment:

```
JAVA_HOME=
```

```
JDBC_JAR=
```

4   Save your changes.

5   Change to this directory:

```
/funambol/inbox-listener
```

6   Run this command to start the Inbox Listener

```
./inboxlistener.sh start [-debug]
```

After the Inbox Listener has started, you can now configure the program.

Configuring the Inbox Listener

To customize the Inbox Listener to match your system, you'll follow the procedure detailed in this section, but you'll need to do this twice—once for POP mail and once for IMAP mail. The following cannot be done with the Administration Tool; you must use a command line window, as described here.

1   Change to this directory:

     <FUNAMBOL_HOME>\inbox-listener\config\email\email

2   Use your text editor to open the InboxListener.xml file.

3   Review and change any of the following properties:

(Listed under "InboxListnern module info")

listnerid	Enter the ID of the inbox listener. By default, this is "1", but if you want to set up a number of instances of Inbox Listener to help serve a large group of users, you'll use this ID to differentiate the instances.
startupNotification	If "true", this sends a notification to all registered users when the inbox listener module starts
saveSubject	If "true", this saves the subject in the caching system for use in debugging.
saveSender	If "true", this saves the sender in the caching system for use in debugging.
reloadingTime	At your selected interval, the Inbox Listener will check the user accounts for additions or changes.
keystoreHome	This is the directory pathway to the keystore certificate file.

(Listed under "WebService Notification Conf")

wsEndPoint	Funambol Administration URL (complete path)
wsUsername	Funambol Administrator username
wsPassword	Funambol Administrator password
wsSyncSource	The name of the email syncsource.

(Listed under "DBMS Configuration")

Driver	Database driver (and pathway)
Url	The Database URL
User	The User ID with access the database
Password	The password with access the database
reloadingTime	Interval at which the inbox listener checks the list of accounts in the database; specified in milliseconds. ("3" is a safe value.)

4   Save your changes and close the file.

Strategizing the Inbox Listener configuration

IF you anticipate a large number of users who want email push for their mail data, you can adapt the Inbox Listener as noted here:

- Divide your email-push users into small groups, based on the first letter of the last name. E.g,, A-F, G-M, etc.

- Install as many instances of Inbox Listener as the number of user "groups".

- Configure each instance with a unique ID (1, 2, 3, etc.)

- Edit each user account, to input the relevant ListenerID value.

- When your system is fully functional, the Inbox Listener instances will more efficiently serve smaller groupings of users.

Reviewing Current IMAP Folder Names

If you need to verify the exact IMAP folder names for a specific account, you can use the Inbox Listener "IMAP Folder Subscriber" utility, as detailed here. It may prove helpful when you edit the IMAP syncsource.

1   Open a command line window.

2   At the prompt, type the following:

For Windows:

```
cd <FUNAMBOL_HOME>\inbox-listener\bin

subscribe
```

For UNIX/Linux:

```
cd <FUNAMBOL_HOME>/inbox-listener/bin

sh subscribe.sh
```

3   When the Folder Subscriber appears, use the following commands:

0 – quit	Enter this command at the prompt to exit the Console.
1 – select account	Enter the IMAP mail server user ID for a mailbox.

4   When the IMAP folder names appear, note them down for future reference.

The information should include exact folder pathway and folder name.

5   Exit the Folder Subscriber when you are finished.

NOTE: If your selected mail server uses SSL, please repeat the procedure detailed in the NOTE on page 41 for every Inbox Listener instance that is using a different JDK (for example, if it is running on a different machine or virtual machine).

Starting and Stopping the Inbox Listener

To start the Inbox Listener, follow these steps:

1   Open a command line window (Windows or Linux.

2   At the prompt, type the following:

Windows:

```
cd <FUNAMBOL_HOME>\inbox-listener\bin
startlistener.cmd [-debug]
```

Unix/Linux: (do the following as root)

```
cd <FUNAMBOL_HOME>/inbox-listener/bin
./startlistener.sh [-debug]
```

Stopping the Inbox Listener

To stop the Inbox Listener if it's a foreground process (which it shouldn't be except for testing purposes), follow these steps:

1   Open a command line window.

2   At the prompt, type the following:

Windows:

```
cd <FUNAMBOL_HOME>\inbox-listener
bin\inboxlistener.cmd stop
```

• TIP: If the Inbox Listener was started with -debug, you use the Ctrl-c key combination to stop it.

Linux:

```
cd <FUNAMBOL_HOME>/inbox-listener
sh bin/inboxlistener.sh stop
```

Maintenance

When using a Postgres database, you need to periodically check the the size of the table `fnbl_email_inbox`. To do so, go to the postgres console and run this query:

```
select * from pg_relation_size('fnbl_email_inbox');
```

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which will return the number of bytes occupied by the `fnbl_email_inbox` table.

If necessary, use the VACUUM facility provided for Postgres to clean up the database. To do a deeper cleaning and free the disk space, the VACUUM function should be run with the 'full' option. Please refer to official Postgres documentation for further details.

CHAPTER 8

Installing and Activating PIM Listener

Chapter Contents

Introduction

The Funambol PIM Listener monitors the DS server PIM database. If PIM Listener detects any out-of-sync data, a prompt is sent to the Funambol engine. If correctly configured, the server notifies any affected, out-of-sync devices, that, in response, automatically initiate a new synchronization process to update all their data.

Installing the PIM Listener

If you have previously installed the Funambol *PIM & Email* Bundle, the PIM Listener is present, ready for setup and use (as detailed in this chapter.) If you've installed only the DS server on an existing host (that meets the requirements), you can separately install the PIM Listener as a standalone component—as detailed in this chapter.

As with the Funambol DS server, the PIM Listener needs to be installed on an application server running JDK/JRE, as well as hosting a JDBC-compliant database. You also need to verify the presence of the foundation module (funambol-foundation-x.y.x.s4j) in your DS server installation, and add it if not present.

Do you need to install the PIM Listener?

To confirm the presence (or absence) of PIM Listener in your Funambol DS server installation, look for this directory:

```
/Funambol/pim-listener
```

Inside you should see the following top-level directories:

```
/bin

/config
```

```
/docs

/lib

/logs
```

If this directory (and its contents) is present, you can skip the installation. Proceed with configuration, as detailed in the next section, "Configuring the PIM Listener" .

INSTALLATION

1 If not already present on your DS server, the Funambol PIM Listener software can be freely downloaded from this location:

Site: www.funambol.com/opensource/downloads.html

File: funambol-pim-listener-x.y.z.zip

2 Unzip the funambol-pim-listener-x.y.z.zip file to the Funambol DS Server home directory.

3 Extracting the file creates the following directory structure:

4 Change to the <FUNAMBOL_HOME>/pim-listener/bin directory.

5 Edit the following line in the pimlistener.sh file, to add the same reference to your JDBC driver JAR file.

```
JDBC_JAR=
```

6 Edit the following line in the pimlistener.cmd file, to add the same reference to your JDBC driver JAR file.

```
JDBC_JAR=
```

7 If your DS server host runs Unix/Linux, assign the execution permission for the *.sh files under <FUNAMBOL_HOME>/pim-listener/bin

Configuring the PIM Listener

This section details the configuration of the software, including setting the log.

Configuring the PIM Listener

1 Change to this directory:

```
<FUNAMBOL_HOME>/pim-listener/config/com/funambol/pushlistener/
```

2 Open the `PushListenerConfiguration.xml` file.

3 Edit the following properties:

Property	Description
listenerId	This records the number of the PIM listener. If you have a large user group, you can install and run separate instances of the PIM listener, and they will be numbered serially and dynamically as the cluster nodes are added or removed. The users will be automatically assigned to the different PIM listener instances.
maxThreadPoolSize	Specifies the max number of threads that can be used. This should be a function of the number of users to monitor.
healthThreadExecutionPeriod	Sets the interval (in seconds) between executions of the HealthThread, a thread that at regular intervals assesses the PIM Listener status.
registryMonitorPollingTime	Sets the interval (in seconds) between executions of the RegistryMonitor, a thread that regularly checks the database for changes to the monitored accounts.
taskPeriodTolerance	Sets the tolerance accepted on the period between two data check. If a user is scheduled to be checked every x seconds (period), a warning is triggered if the data check occurs after x + periodTolerance/x
registryTableName	Defines the table that contains the registry basicDataSource. Enter the following information to enable PIM Listener to connect to the database:
	driverClassName: Enter the database driver
	username: Enter the user name to access the database
	password: Enter the user password to access the database
	url: Enter the database URL
	maxActive: Enter the maximum number of active connections
WSServerInformation	Records the information used to call any webservices exposed by the ds server, as noted below:
	url: Enter the Funambol engine administration URL

Property	Description
	username: Enter the Funambol engine adminis-trator username
	password: Enter the Funambol engine adminis-trator password

Configuring PIM LIstener logging

The Funambol PIM Listener uses log4j as the basis for its logging system. In order to configure the PIM Listener log, follow these steps:

1 Open this directory:

```
<FUNAMBOL_HOME>/pim-listener/config directory
```

2 Open the log4j.xml file and edit it according to your preferences.

- By default, that file will be updated every 30 seconds.

3 Please see the log4j documentation for details about log configuration.

About the detailed appenders

By default, two detailed appenders are configured in the PIM Listener:

- detailed-console
- detailed-log-file

Both appenders use this layout:

[%d{yyyy-MM-dd HH:mm:ss,SSS}] [%c] [%p] [%t] [%X{entryId}] [%X{deviceId}]

[%X{userName}] [%X{sourceURI}] %m%n

These options, when utilized fully, create a very enriched log message with this [text]:

username/deviceId/sourceUri.

Activating and Using the PIM Listener

This section covers the procedures for starting the PIM Listener, and managing the user account database. The following tasks are covered in separate sub-sections.

- Starting the PIM Listener
- Monitoring the status of the PIM Listener
- Adding user accounts to the PIM Listener

Starting the PIM Listener

In the case of either Windows or Linux server installations, you must set the JAVA_HOME envi-ronment variable for both of the following scripts **before** running them. That variable must point to a valid JDK/JRE 1.5.x installation directory.

To start the PIM Listener after configuring the scripts, follow these steps:

1 Open a command line window and type the following at the prompt:

Windows:

```
cd <FUNAMBOL_HOME>\pim-listener

bin\pimlistener.cmd start [-debug]
```

- TIP: If you run the PIM Listener using –debug, the output messages will be displayed on the console.

Linux:

```
cd <FUNAMBOL_HOME>/pim-listener

sh bin/pimlistener.sh start [-debug]
```

- TIP: If you run the PIM Listener using –debug, the output messages will be displayed on the console.

Monitoring the PIM Listener status

To review the current PIM Listener status, follow these steps:

1 Open a command line window and type the following at the prompt:

Windows:

```
cd <FUNAMBOL_HOME>\pim-listener

bin\pimlistener.cmd status
```

Linux:

```
cd <FUNAMBOL_HOME>/pim-listener

sh bin/pimlistener.sh status
```

Managing the user account database

To configure the users that must be monitored, follow these steps:

1 Open a command line window and type the following at the prompt:

Windows:

```
cd <FUNAMBOL_HOME>\pim-listener

bin\pimlistener.cmd console
```

Linux:

```
cd <FUNAMBOL_HOME>/pim-listener

sh bin/pimlistener.sh console
```

2 When the PIM Listener console window appears, use the following commands to enter and/or manage your user accounts:

Command	Description
0 - quit	Exits the PIM Listener console.

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Command	Description
11 – list entries	Displays a list of all monitored users (entries).
12 – list entries by username	Displays a list of all entries associated with a specific user.
13 – list entries by listener id	Displays a list of all entries associated to a PIM Listener.
14 – get entry	Displays the entry with a specified ID.
15 – enable entry	Enables the entry with a specified ID.
16 – disable entry	Disables the entry with a specified ID.
17 – insert entry	Inserts a new entry through a guided procedure. Please note that by activating calendars, tasks will be activated as well.
18 – update entry	Update an already existing entry.
19 – mark an entry as deleted	Marks an entry deleted. The record in the database will be automatically deleted by the PIM Listener itself.

Stopping the PIM Listener

To stop the PIM Listener, follow these steps:

1 Open a command line window and type the following at the prompt:

Windows:

```
cd <FUNAMBOL_HOME>\pim-listener

bin\pimlistener.cmd stop
```

• TIP: If the PIM Listener was started with -debug, use the Ctrl-c key combination to stop it.

Linux:

```
cd <FUNAMBOL_HOME>/pim-listener

sh bin/pimlistener.sh stop
```

• If the PIM Listener was started with -debug, use the Ctrl-c key combination to stop it.

Installing and Activating the CTP Server

Chapter Contents

Introduction

The Funambol *CTP Server* is responsible for keeping alive the connections between the mobile device and the Funambol push server.

Installing the CTP Server

If you have previously installed the Funambol *PIM & Email* Bundle, the CTP Server is present, ready for setup and use (as detailed in this chapter.) If you've installed only the DS Server on an existing host (that meets the requirements), you can separately install the CTP Server as a standalone component, as detailed in this chapter.

As with the Funambol DS Server, the CTP Server needs to be installed on an application server running JDK/JRE. You also need to verify the presence of the foundation module (funambol-foundation-x.y.x.s4j) in your DS Server installation, and add it if not present.

Do you need to install the CTP Server?

To confirm the presence (or absence) of the CTP Server in your Funambol DS Server installation, look for this directory:

        /Funambol/ctp-server

Inside you should see the following top-level directories:

        /bin

        /config

        /lib

        /LICENSES

If this directory (and its contents) is present, you can skip the installation. Proceed with configuration, as detailed in the next section, "Configuring the CTP Server" .

INSTALLATION

1 If not already present on your DS server, the Funambol CTP Server can be freely downloaded from this location:

Site: http://forge.objectweb.org/projects/sync4j

then, select "Files" and download the latest release of the CTP Server:

File: funambol-ctp-server-x.y.z.zip

2 Unzip the funambol-ctp-server-x.y.z.zip file to the Funambol DS Server home directory.

3 Extracting the file creates the following directory structure:

4 Change to the <FUNAMBOL_HOME>/ctp-server/bin directory.

5 Edit the following line in the ctpserver.sh file, to add the same reference to your JDBC driver JAR file.

        JDBC_JAR=

6 Edit the following line in the ctpserver.cmd file, to add the same reference to your JDBC driver JAR file.

        JDBC_JAR=

7 If your DS server host runs Unix/Linux, grant execution permission to the *.sh files under <FUNAMBOL_HOME>/ctp-server/bin

Configuring the CTP Server

This section details the configuration of the software, including setting the log.

Configuring the CTP Server

1 Change to this directory:

        <FUNAMBOL_HOME>/ctp-server/config/com/funambol/ctp/server/

2 Open the CTPServerConfiguration.xml file.

3 Edit the following properties:

Property	Description
portNumber	By default, the CTP Server opens a server socket on port 4745. Client devices connect to this port in order to receive notification messages. If you wish to change the port, change the value of this property accordingly.

Property	Description
loggingFilterEnabled	By default, the CTP Server doesn't log incoming and outgoing messages. If you want to log them you have to enable the logging filter by setting the value of this property to "true".
	Please note that the incoming and outgoing messages are logged at "trace" level, so you have to enable logging level to "All" in the file log4j.xml located in the directory: `<FUNAMBOL_HOME>/ctp-server/config/`
WSServerInformation	By default, the CTP Server connects to the ds-server web service at the URL: `http://localhost:8080/funambol/ser-vices/admin` using user = "admin" and password = "sa".
	If you wish to change these details, modify the value of the sub-properties **url**, **username** and **password**.
notificationGroupName	By default, CTP Servers and CTP Senders communicate using the group name *ctp-notification-group*. If you wish to install two distinct groups of processes, you muist specify a different group name either for the CTP Servers or for the CTP Senders.
	To specify the group name for the CTP Server, modify the value of this property.
	To specify the group name for the CTP Sender, open the `<FUNAMBOL_HOME>/config/com/funambol/server/notification/Push-Sender.xml` file and modify the **groupName** property.

Configuring CTP Server logging

The Funambol CTP Server uses log4j as the basis for its logging system. In order to configure the CTP Server log, follow these steps:

1   Open this directory:

   `<FUNAMBOL_HOME>/ctp-server/config directory`

2   Open the `log4j.xml` file and edit it according to your preferences.

   • By default, that file will be updated every 30 seconds.

3   Please see the log4j documentation for details about log configuration.

Activating and Using the CTP Server

This section covers the procedures for starting the CTP Server and managing the user account database. The following tasks are covered in separate sub-sections.

* Starting the CTP Server
* Monitoring the status of the CTP Server

Starting the CTP Server

In the case of either Windows or Linux server installations, you must set the JAVA_HOME environment variable for both of the following scripts **before** running them. That variable must point to a valid JDK/JRE 1.5.x installation directory.

To start the CTP Server after configuring the scripts, open a command line window and type the following at the prompt:

Windows:

```
cd <FUNAMBOL_HOME>\ctp-server

bin\ctpserver.cmd start [-debug]
```

* TIP: If you run the CTP Server using -debug, the output messages will be displayed on the console.

Linux:

```
cd <FUNAMBOL_HOME>/pim-listener

sh bin/ctpserver.sh start [-debug]
```

* TIP: If you run the PIM Listener using -debug, the output messages will be displayed on the console.

Monitoring the CTP Server status

To review the current CTP Server status, open a command line window and type the following at the prompt:

Windows:

```
cd <FUNAMBOL_HOME>\ctp-server

bin\ctpserver.cmd status
```

Linux:

```
cd <FUNAMBOL_HOME>/ctp-server

bin/ctpserver.sh status
```

Stopping the CTP Server

To stop the CTP Server, open a command line window and type the following at the prompt:

Windows:

```
cd <FUNAMBOL_HOME>\ctp-server
```

```
bin\ctpserver.cmd stop
```

- TIP: If the CTP Server was started with -debug, use the Ctrl-C key combination to stop it.

Linux:

```
cd <FUNAMBOL_HOME>/ctp-server
```

```
sh bin/ctpserver.sh stop
```

- If the CTP Server was started with -debug, use the Ctrl-C key combination to stop it.

CHAPTER 10

Customizing DS Log Settings

Chapter Contents

Getting Started

A basic DS server installation provides a single log file called funambol_ds.log, which you will find in the ds-server\logs directory. This file has been structured to store a lot of information; if you prefer, you can use the Funambol Administration Tool to redirect logging for specific server components so that more refined output is sorted into distinct log files.

To review the settings for the default system logger, follow these steps:

1 In the Funambol Administration Tool, expand the navigation pane server tree as noted here:

Server settings > **Logging > Loggers**

A list of logging categories (called "loggers") appears below "Logging", as shown here.
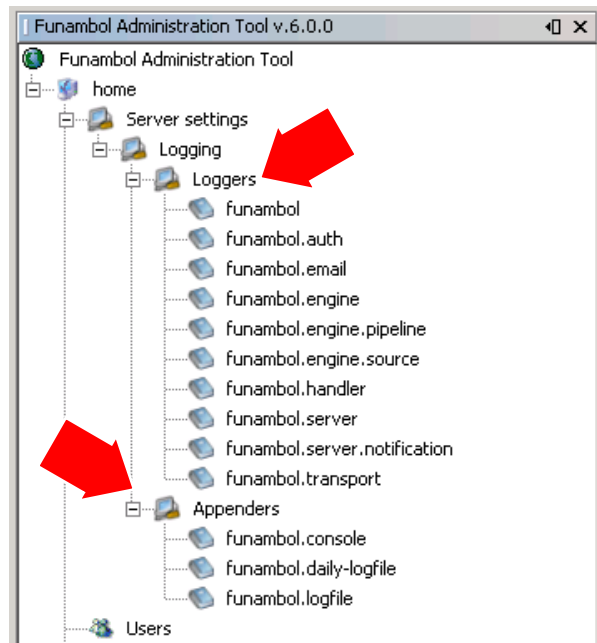
FIGURE 10-1

A second list of logging configuration files (called "appenders") are also listed here.

2   To review the default log file settings (automatically applied to all other loggers), double-click **Funambol** (under "loggers").

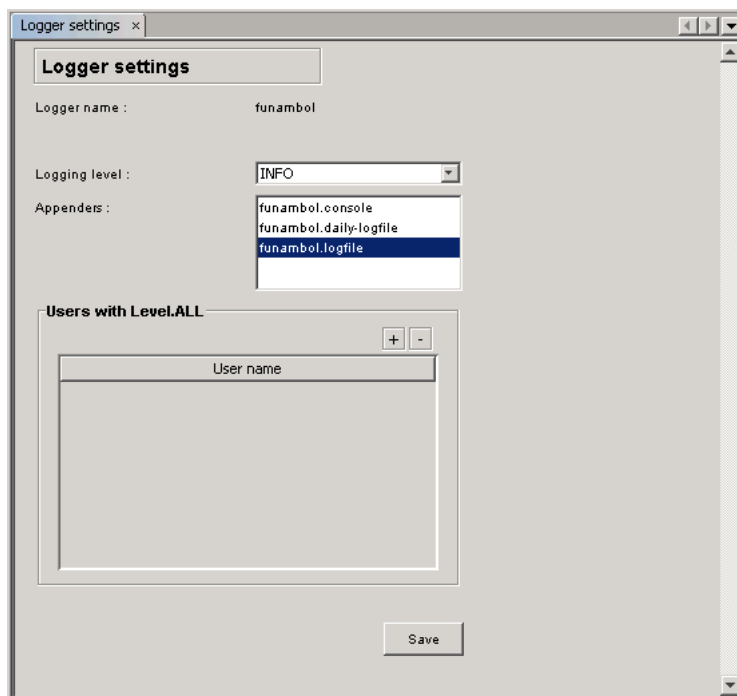The pane displays the current logger settings, which are editable.

FIGURE 10-2

These "funambol" settings are automatically applied to all of the other listed loggers.

3   To review—and customize—each logging category, double-click each logger name in the **Logger** tree.

Note that all of the options of all other loggers are grayed out (inactive).
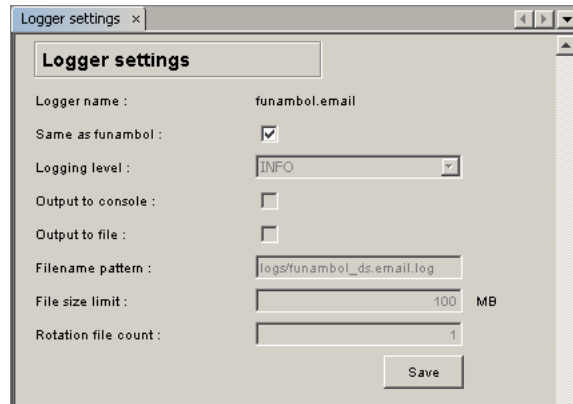
4   To customize the settings for a specific server logger, uncheck the **Same as Funambol** checkbox.

5   The following logging parameters become active, which you can now revise:

Logging Level   Open this menu and choose the level of information to be logged. (The default menu choice: INFO.)
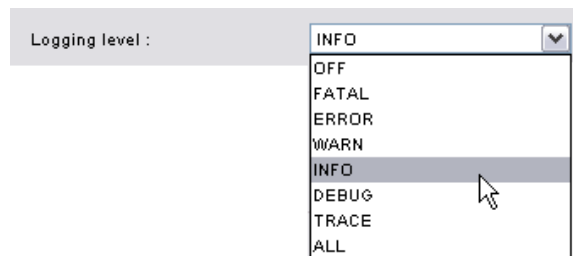
    The menu choice range from Off to All, reflecting the following:

    Off = no information logged

   ALL = info, errors and debug information are logged.

    To record all server problems when debugging the server or a syncsource, choose ALL. This level provides the most information. You should also use ALL if you wish to submit a log file for consideration by participants in any Funambol mailing lists.

Appenders   This list displays the relevant appenders that control aspects of this logger's operations. You can review each of the appenders and their settings in a separate procedure, detailed in the following section.

Users with Level.ALL This list is for additional logs that track specific individual users. To add a user to this list, click the plus [+] button, then double-click the "user name" row that appears to activate the text field.
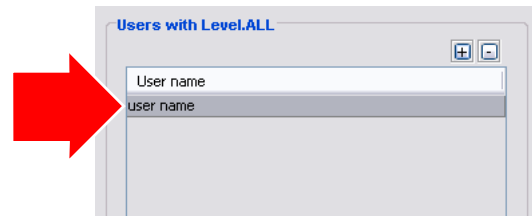
FIGURE 10-5

Type the exact text of a user name in this field, then click anywhere in the pane. The funambol_ds.log file now tracks the activities of the selected user.

Note: the log to ALL for users is valid only for specific actions (for example, syncing) carried out by a particular user, but it does not affect SMS sending. In order to enable full logging on SMS sending as well, which is controlled by the logger `funambol.server.notification.subitosms`, you must enable full logging on the parent logger: `funambol.server.notification`, by following these steps:

- Open the admin tool
- Log in to the server you want to manage
- Expand the server name
- Expand Server settings
- Expand Logging
- Expand Loggers
- Double click on `funambol.server.notification`; the logger configuration panel will appear on the right, make sure that the Logger name is `funambol.server.notification`
- Uncheck "Same as funambol.server" (in this way you are specifying different logging settings for the specific logger)
- Set Logging level to ALL
- Select funambol.logfile in the Appenders list

6   Click **Save** to save and apply your changes.

A confirmation message appears in the Output-Messages pane.

Reviewing the Logging Appenders

Appenders are files that store particular configurations that you can customize on a per-log basis.

1 In the Funambol Administration Tool, expand the navigation pane server tree as noted here:

Server settings > **Logging > Appenders**

Three appenders are listed in the Navigation tree:

funambol.console

funambol.daily-logfile

funambol.logfile

2 Double-click an appender to review its current settings.

The appender-specific options appear in the workpane. For example, if you open the "funambol.console" appender, this appears.

If you open the "funambol.daily-logfile" appender, this appears..
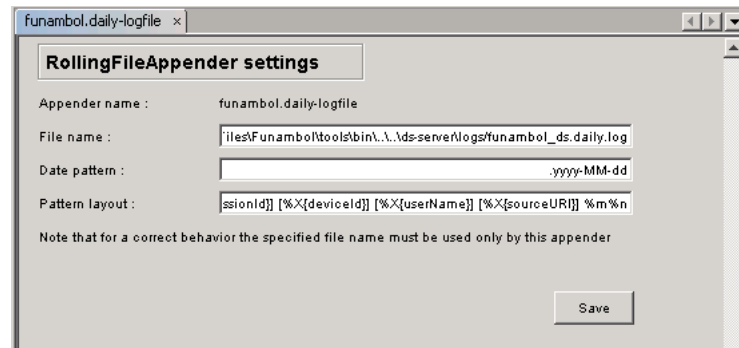
If you open the "funambol.logfile" appender, this appears..
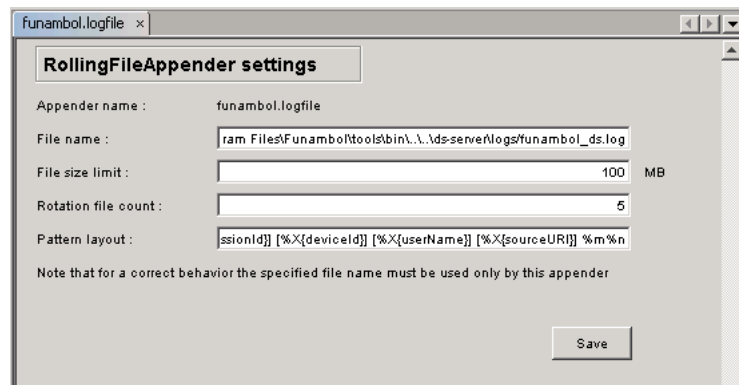
You can take advantage of the following options, to format any of the three log appenders:

File Name	Stores the log file name and exact pathway.
Date Pattern	Notes the pattern of date entries.
File Size Limit	Sets a maximum size for a log file, before earliest entries are deleted to make room.
Rotation File Count	Determines how many separate log files can be maintained.
Pattern Layout	Edit these text string elements to control how much data is stored per entry:

> **/** -the local pathname separator
>
> **%t** -the system temporary directory
>
> **%h** -the value of the "user.home" system property
>
> **%g** -an automatically generated number to distinguish rotated logs
>
> **%u** -a unique number to resolve conflicts
>
> **%%** -translates to a single percent sign (%)

TIP: Copy the current Pattern Layout string to a text editor, make any needed changes, then copy it back to this text field.

3   Click **Save** to save and apply any changes.

A confirmation message appears in the Output-Messages pane.

Customizing Log Files on a Per-User Basis

With version 6 of Funambol, you can add individual users to the log files maintained by the DS server. In addition to system status and activities, log files can now be directed to record all the activities of individual users. This enables you to check the activities and any potential problems experienced by users, from the point of view of the server. All you need is the exact Funambol username and the appropriate log file.

To set up a log file for an individual user, follow these steps:

1   In the Funambol Administration Tool, expand the navigation pane server tree as noted here:

> Server settings > **Logging > Loggers**

A list of logging categories (called "loggers") appears below "Logging".

2   Double-click the appropriate log file (under "loggers").

Note that all of the options of this logger are grayed out (inactive).

3   To add a user to this logger, uncheck the **Same as Funambol** checkbox.

4   You can now add one or more user-specific log files, by means of the **Users with LevelALL** list:

- Click the plus [+] button.

- Double-click the "user name" row that appears (shown here). This activates the text field.
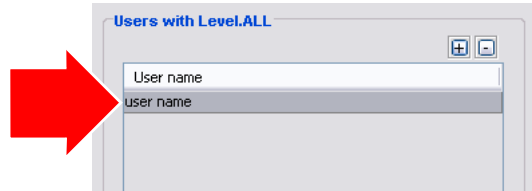
FIGURE 10-9

- Type the exact text of the Funambol user name in this field.

- Click anywhere in the pane to save your entry.

- Repeat this procedure to add other users, as needed.

An additional log file will be kept (with "level ALL") that tracks the activities of the newly entered user.

5   Click **Save** to save and apply your changes.

A confirmation message appears in the Output-Messages pane.

Funambol Reference Guide

Default SyncSource Properties

The Funambol DS Server provides the following default databases to which you can synchronize user data. Note that all noted URI entries are case-sensitive.

• Calendar

Usage: synchronizing calendar data, including events and tasks.

	MIME-TYPE	Clients
scal	text/x-s4j-sife	All Funambol-developed clients and plug-ins. This database manages events only.
cal	text/x-vcalendar text/calendar	Most of the common and known clients that are already built into a mobile device. This database manages both events and tasks.

• Contacts

Usage: synchronizing contact data.

URLI	MIME-TYPE	Clients
scard	text/x-s4j-sifc	All Funambol-developed clients
card	text/x-vcard text/vcard	Most of the common and known clients that are already built into a mobile device.
stask	text/x-s4j-sift	All Funambol-developed clients and plug-ins. This database manages tasks only.

URLI	MIME-TYPE	Clients
event	text/x-vcalendar text/calendar	Most of the common and known clients that are already built into a mobile device. This database manages events only.
task	text/x-vcalendar text/calendar	Most of the common and known clients that are already built into a mobile device. This database manages tasks only.

• Notes

Usage: synchronizing text-based notes.

	MIME-TYPE	Clients
snote	text/x-s4j-sifn	All Funambol-developed clients
note	text/plain	Most of the common and known clients that are already built into a mobile device.

• Briefcase

Usage: synchronizing briefcase data.

URLI	MIME-TYPE	Clients
briefcase	Application/*	All Funambol-developed clients

Install Properties

The <DS_SERVER_HOME>\install.properties file is the central repository of configuration information that is used by the installation procedure to set up the Funambol DS Server. A standard Java properties file, it contains the following parameters:

context-path	The context path to be used to configure the web container for the Funambol DS Server module. The DS Server will respond to URLs starting with this context path.
dbms	Name of the database where Funambol DS Server tables are created.
jdbc.classpath	Classpath including the JDBC driver for the database, if not included in the system classpath.
jdbc.driver	JDBC driver class.
jdbc.password	Database user password
jdbc.url	JDBC connection URL

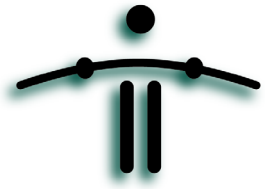| modules-to-install | Comma-separated list of Funambol DS Server modules to install. If a module has already been installed, the installation procedure reinstalls it again. |
| server-name | The server URI that will be specified in SyncML messages. The server will only respond to messages addressed to this URI. |

Reviewing Device Capabilities

If you wish to examine—in great detail—the technical functionality (which we call "capabilities")
of a specific device, you can do so in this version of the Administration Tool. All of the catego-
ries and options are read-only displays; you cannot edit them at this time.

1   After expanding the server tree in the Navigation pane, double-click **Devices**.

The Search User options appear in the Data Entry pane.

2   Click in one or more relevant search fields and type the search text.

3   Click **Search**.

The resulting matches, if any, appear in the table.

4   To verify the account is the one that is to be deleted, select the likely record and click
the now-active **Capabilities** button.

The Capabilities Details pane appears.

This pane is organized into collections of related "capability" options—Properties, Datastores, Extensions and a full range of Datastore Contacts. You can review all four sets of options through this Data Entry display.