

**Interstar**

# LightningFAX

Administrator Guide



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Acknowledgments:

This product includes software developed by the Independent JPEG Group (IJG) (<http://www.ijg.org/>).

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Version Number 8.2B

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### Who Should Read this Manual

This manual is intended for system administrators who are integrating LightningFAX services the Windows 2003, 2000, NT, ME/98/95 operating systems. It introduces fax networking concepts. Also described is the operation of advanced components such as the various mail gateways, the Rasterization Server, the API ToolKit and Feedback API.

The manual continues with user and group creation and management and with advanced operations such as configuring inbound auto-routing and least-cost routing and load balancing.

### An Overview of the Manual

The other chapters in this guide include:

**Chapter 2 Configuring LightningFAX** explains how LightningFAX is configured, linking fax board channels and LightningFAX resources to send and receive fax transmissions.

**Chapter 3 Advanced Configuration and Maintenance** describes the configuration of advanced services for — the rasterization server, the printer driver resolution, the gateway for SMTP, the web access, the public phone book service and the network scanner service. It also describes procedures to view or update the LightningFAX license, take a snapshot of the system, and backup, upgrade, repair or remove LightningFAX and its components.

**Chapter 4 Gateway Notification Templates** describes the templates used to notify users of the gateways, about the status of their incoming and outgoing faxes.

**Chapter 5 Introducing Users** describes the creation, importation and management of users and user groups.

**Chapter 6 Introducing Profiles** describes profiles, which provide a means of storing and managing sender information for a variety of purposes.

**Chapter 7 User and Profile Management** describes the management of users and profiles, using the Active Directory schema extensions and the user administration MMC snap-in. This includes: specifying user properties such as calling permissions, number of retries, priority, billing information, etc..., as well as the creation of public profiles.

**Chapter 8 Introducing Inbound Auto-Routing** describes the inbound auto-routing of incoming transmissions, to the user's desktop, using ANI, DID, DTMF, DNIS and CSID.

**Chapter 9 Configuring Least-Cost Routing and Load Balancing** describes how to create a network of LightningFAX servers, to take advantage of least-cost routing and load balancing, when delivering transmissions via TCP/IP.

**Chapter 10 Number Restriction** explains how to configure the Number Restriction Table, by creating groups that can be associated with particular users, and rules that can restrict any combination of numbers.

**Chapter 11 Introducing the API ToolKit** describes the use of the API ToolKit to schedule and send unattended fax broadcasts.

**Chapter 12 API ToolKit Variables** describes the command variables available for use with the API ToolKit.

**Chapter 13 Feedback API Actions** describes how the Feedback API module can be used to trigger events, when faxes of a given status are sent. This chapter also describes the activity log report, a script that produces a log of all outgoing faxes with a status of *New*.

**Chapter 14 Feedback API Variables** describes the variables available with the Feedback API utility, and the formatting features that can be applied to them.

**Appendix A Installing LightningFAX in a Microsoft Cluster Server Environment** describes how to install LightningFAX components on a Microsoft cluster.

**Appendix B Error Messages** lists all the error messages displayed in LightningFAX.

## 2

# Configuring LightningFAX

A standard resource basically represents a grouping of fax channels (inbound and outbound). All channels in a resource share the same transmission parameters, such as CSID, number of retries, etc... It is however possible to override these parameters with individual user settings, if need be.

A resource is a repository for all the faxes sent or received on its channels. Each resource also has the potential to have its own routing table.

A resource is linked to only one driver, but a driver can connect to multiple resources (based on channel mapping).

Users are assigned access rights to a resource, which then lets them send and receive faxes through its channels. A user with access to multiple resources can thus have different personalized settings for each resource.

After initial installation to the Microsoft Windows operating system, the LightningFAX manager displays three resources in the tree view.

---

<b>Common Resource</b>	<b>Resource 1</b>	<b>All Resources</b>
------------------------	-------------------	----------------------

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By default, `Resource 1` is associated with all LightningFAX channels. It is `Resource 1` that actually transmits incoming and outgoing faxes. The `Common Resource` and `All Resources`, which cannot be associated with LightningFAX channels, are folders through which users access faxes.

The `Common Resource` is the bridge between all resources. Any communication between two resources must be done through the `Common Resource`.

It displays faxes forwarded or copied by other members of the LightningFAX network. All users have implicit access to this resource.

## Chapter 2 Configuring LightningFAX

In addition, groups are displayed in the `Common Resource`. When the `Common Resource` is expanded, a list of the group members is displayed. Users who do not belong to groups remain listed under `Ungrouped Users`. Faxes submitted to this resource are systematically processed by the LCR engine and redirected to a regular resource either on the current or on a remote server.

`All Resources` allows users to view simultaneously both incoming and outgoing faxes. For example, an administrator configures `Resource 1` to transmit outgoing faxes. A second resource, `Resource 2`, is specified and configured to transmit incoming faxes. Finally, a user is given access to both resources. Only the user's outgoing faxes are displayed under `Resource 1`; the user's incoming faxes are displayed under `Resource 2`. By going to `All Resources`, the user can display both incoming and outgoing faxes at once.

`All Resources` has no configurable properties.

**Note:** Only LightningFAX administrators can access and modify resource properties.

In a simple faxing environment, there should be no concern about multiple resources. Users should simply be configured to `All Resources`.

### Default Folders - `Common Resource` and `All Resources`

Within the `Common Resource` and `All Resources`, after initial installation, are a series of default folders. Two — `Ungrouped Users` and `All Users` — represent user categories. Within these folders appear the individual LightningFAX user ID's. These too can be thought of as folders; when expanded, the user ID's display folders for incoming, outgoing and incoming/outgoing faxes. Within each of these sub-folders, are folders for current, archived and current/archived faxes. Finally, current, archived and current/archived folders display faxes grouped according to status: for example, `New`, `Failed`, `Sent`, etc...

### Default Folders - `Resource 1`

The default folders placed under `Resource 1`, and any subsequently declared LightningFAX resource, are the `Default Recipient`, `LCR`, the `Administrator` user and `All Users`. Within these folders are the folders for incoming, outgoing and incoming/outgoing faxes. As with other resources, these folders contain folders for current, archived, and current/archived faxes; within these are the faxes grouped according to status.

## Channels and Resources

A channel is a communications path by which one fax can be transmitted to the outside world. The more channels are available, the more faxes can be sent simultaneously. On an analog fax board, a channel is an actual physical connection to the external network, while with digital fax boards, it is only a virtual concept, by which the number of simultaneous transmissions can be limited, depending on the workload the server or network can support, or the range of channels the LightningFAX license authorizes.

After initial installation, all the fax board channels are associated with Resource 1.

If you are using a fax board with more than one channel, and certainly if you are using more than one fax board, you will want to use the additional resources available in LightningFAX, associating each resource with one or more fax board channels.

Once resources are associated with the available channels, you can create whatever user groups your organization requires, giving each group access to one or more resources and specifying their operating parameters.

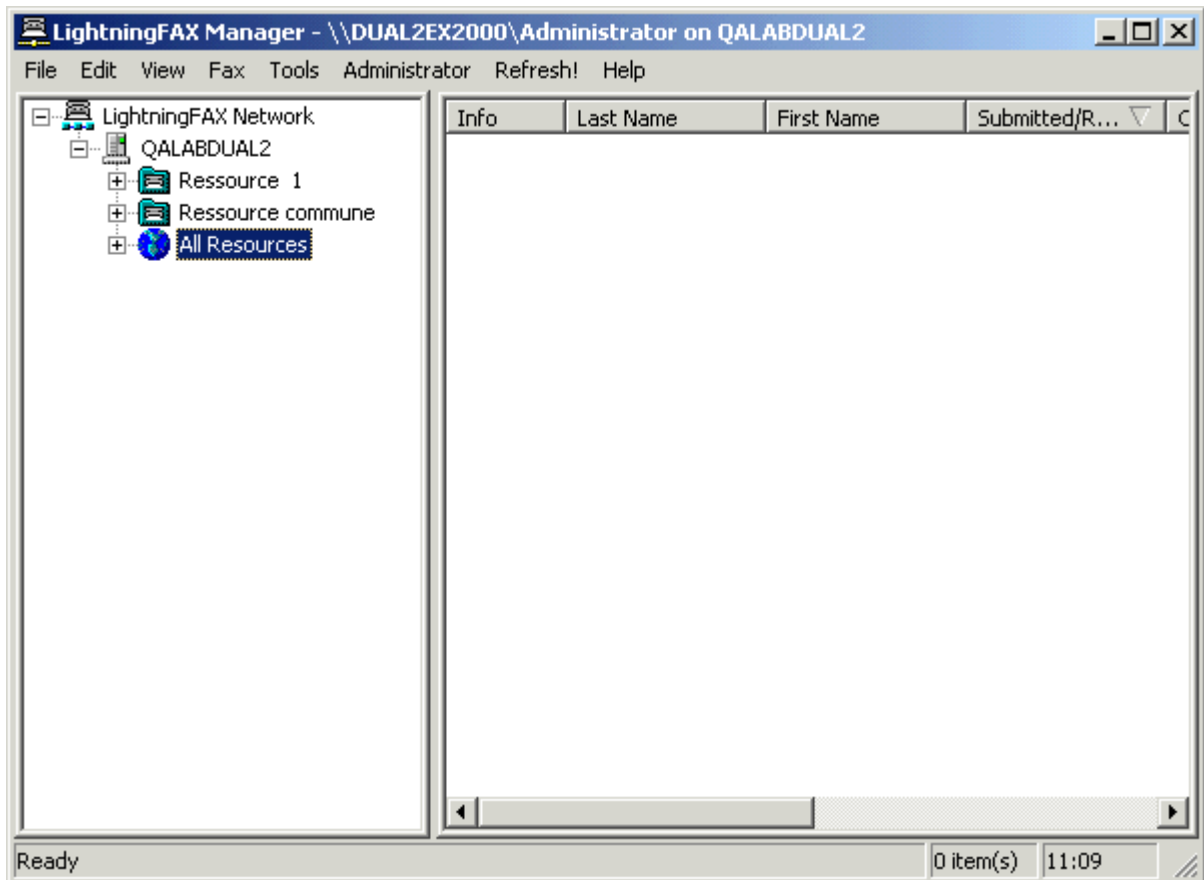
Once the groups are defined, you can create individual users. There are several methods of creating users. You can create them one at a time or instruct LightningFAX to import users from Lotus Notes or a Windows NT domain. Like groups, users can have specific parameters that grant or deny various operations and privileges.

## Adding a Resource

- 1 Select **Start** ➔ **Programs** ➔ **LightningFAX** ➔ **LightningFAX Manager**. The **LightningFAX Manager** dialog appears (see snapshot on next page).
- 2 Select **Administrator** ➔ **New Resource**. The **Resource Properties** dialog appears (see snapshot on page 7).
- 3 By default, LightningFAX generates the name **Resource n**, where *n* is a number indicating the current number of resources plus one. Change the name if you wish.
- 4 Enter an alphanumeric string in the **CSID** field, to specify the default local call station ID for the resource. Call station IDs can be no more than 20 characters.
- 5 By default, LightningFAX waits five minutes between retries. Specify a different delay period in the **Delay of Retries** field.
- 6 Enter your fax number in the **Fax Number** field.
- 7 Assign a comment to the resource, in the **Comment** field.
- 8 By default, LightningFAX ensures that faxes sent to the same fax number are sent on the same line. Uncheck this option, if you wish.

## Chapter 2 Configuring LightningFAX

- 9 Check the `This resource is available for LCR box`, to enable least-cost routing for the current resource.



- 10 Click `Fax Header` to generate a fax header for the resource (for more information about creating fax headers, consult `Introducing Fax Headers` on page 121 of the `LightningFAX User Guide`). All outgoing fax transmissions sent through the resource will use that fax header.

Click `Modification Table` to edit the modification table (see `Creating a Number Modification Rule` on page 25).

Click `Pause` to temporarily stop the resource from sending or receiving faxes.

OR

Click `Restart` to activate the resource, if it is paused.

**Note:** The `Pause` and `Restart` functionality will only work when the resource has been created and enabled. It will not work while adding a resource.

- 11 Click `OK`.

## Resource Status

Resource properties include the status of the resource. These displays include:

<b>State</b>	Started or Paused.
<b>Incoming Channels</b>	the number of incoming channels associated with the resource (declared resources only).
<b>Outgoing Channels</b>	the number of outgoing channels associated with the resource (declared resources only).
<b>Bidirectional Channels</b>	the number of channels configured to both send and receive associated with the resource (declared resources only).
<b>Number of Entries Ready</b>	the number of faxes with a status of Ready to Send on the resource.

All other status entries display information that might be requested by technical support.

## Chapter 2 Configuring LightningFAX

### Using Fax Boards

Using a fax board capable of direct inbound routing provides another example of associating fax board channels with resources. Some fax boards provide a single channel for inbound routing. When these are used, another fax board with an outgoing channel is usually also installed. A single resource might then be associated with both channels. An administrator might then associate the end-users, to enjoy direct inbound routing with the resource. Although it is transparent to them, these users effectively receive their inbound faxes through the first fax board and send outgoing faxes via the second one. Within the LightningFAX manager, of course, incoming and outgoing faxes are all displayed in the resource with which they are associated.

### Configuring the Driver

The LightningFAX monitor is used to configure the driver and resources.

Select Start → Programs → LightningFAX → Monitor.

The screenshot shows the LightningFAX Monitor application window. The title bar reads "LightningFAX Monitor" and the menu bar includes "Driver", "Setup!", and "Help". The main interface is divided into several sections:

- Sender:** ID : N/A
- Recipient:** Company : N/A, Name : N/A, Fax Number : N/A
- Transmission Information:** Page Number : N/A out of N/A, Start Time : N/A, Remote CSID : N/A, Routing : N/A, Callback Number : N/A
- Channel Settings:** Server : localhost, Resource : N/A, Setup : Receive
- Current Channel:** Channel #4
- Channel Status:** Four checkboxes, with the fourth one checked.

### The Driver Menu



Start re-starts the LightningFAX driver after it has been stopped.

Stop stops the driver.

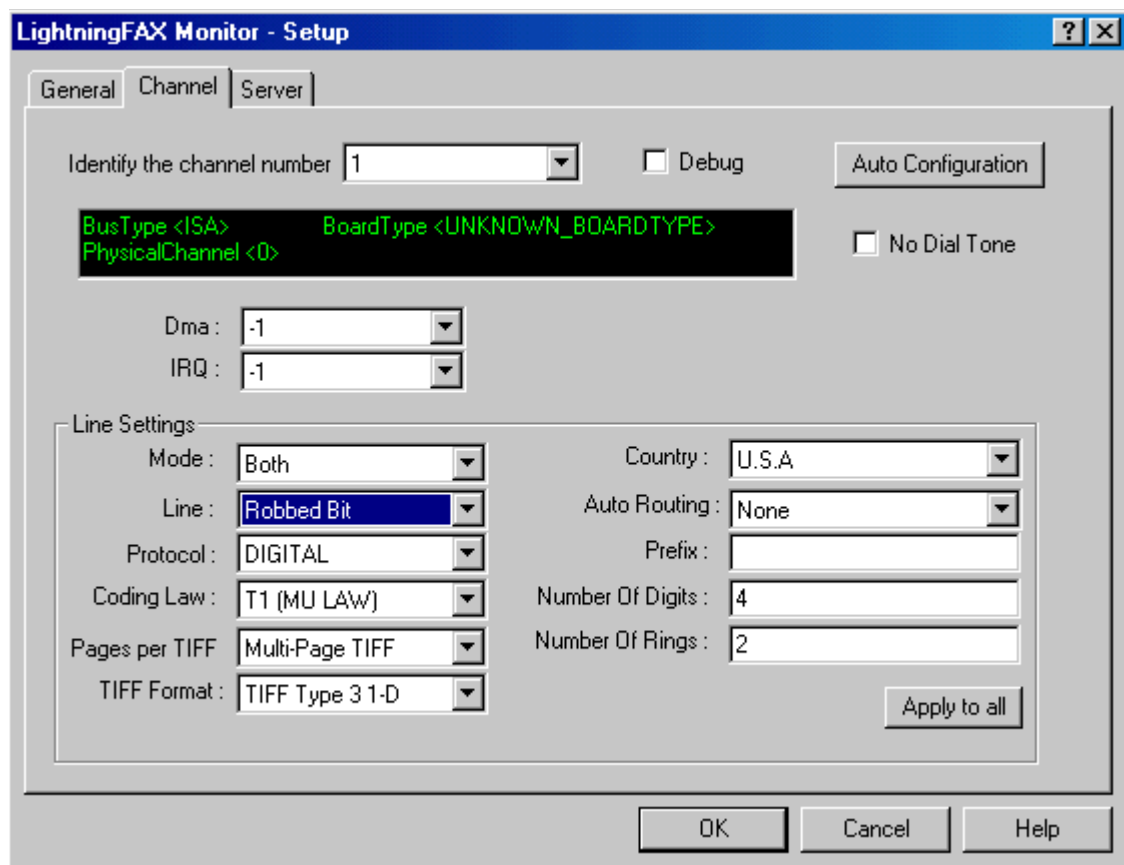
Exit terminates the monitor.

### The Setup Menu

Setup, which is available only when the driver is stopped, displays the Monitor Setup window.

### Channel Settings

This is the dialog that appears when you click on the Channel tab (default):



Choose the channel that you want to configure, by selecting it in the Identify the channel number box.

The fields displayed are as follows:

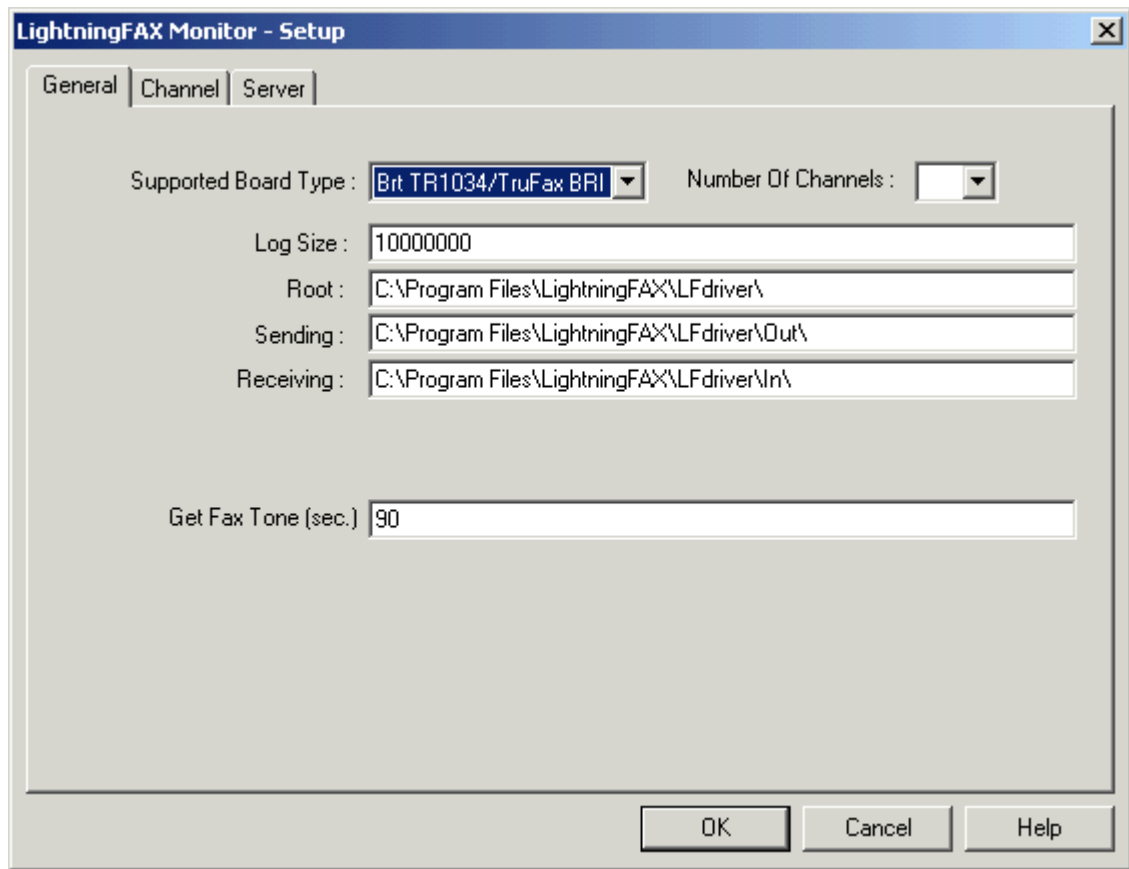
Field	Description
Debug	<p>Starts the debug process and instructs LightningFAX to place additional information in the driver log files.</p> <p>The debug file generated for Gammalink fax boards is <code>gfax.\$dl</code> and resides in the <code>LFdriver</code> folder.</p> <p><b>Note:</b> Information is automatically appended to this file. If the <code>Debug</code> check box is left selected, the file will become disproportionately large. <b>Gammalink</b> users should always de-select the check box after the debug process is complete.</p> <p>The debug file as well as the <b>ECC</b> log generated for <b>Brooktrout</b> fax boards are <code>BrooktroutDebug.log</code> and <code>BrooktroutEcc.log</code>, and both reside in the <code>\Trace</code> sub-folder of the LightningFAX root folder. The debug process overwrites these files.</p> <p>The <b>Dialogic</b> debug file is created in the <code>c:\fax</code> folder using the filename <code>n.\$dl</code>, where <code>n</code> is a number.</p>
Auto Configuration	<p>During installation, performs most of the configuration, including the IRQ and I/O address settings, for all supported types of fax boards.</p> <p>If the board type is set as <code>Televantage Plugin</code>, the <code>Auto Configuration</code> button is renamed to <code>Select Board(s)</code> and when it is clicked on, starts the <code>BoardInfo.exe</code> software, which lets you select the board(s) that you want to use for faxing.</p>
No Dial Tone	<p>Instructs the Dialogic driver not to wait for a dial tone. This option might be selected with systems that do not use dial tones.</p>
Dma	<p>Specifies the DMA setting for a Brooktrout TR114 or TruFAX Analog fax board. This value may be modified, if the board is reconfigured, moved to a different slot in the server or changed entirely.</p>

Field	Description
IRQ	Specifies the IRQ setting for a Brooktrout TR114 or TruFAX Analog fax board. This value may be modified, if the board is reconfigured, moved to a different slot in the server or changed entirely.
Mode	<p>Configures the selected channel to send, receive, or both send and receive faxes.</p> <p>To configure the channel to send and receive, select <code>Both</code>, which is the default value.</p> <p>To configure a channel to only send faxes, select <code>Send</code>.</p> <p>To configure a channel to only receive faxes, select <code>Receive</code>.</p>
Line	Indicates the type of line the system is set up on. Settings are <code>Analog</code> , <code>Robbed Bit</code> or <code>Digital ISDN</code> . Default is <code>Analog</code> .
Protocol	When using a <code>Robbed Bit</code> line only, this indicates the protocol used: <code>ANALOG</code> or <code>DIGITAL</code> . Default is <code>DIGITAL</code> .
Coding Law	When using a <code>Robbed Bit</code> line only, this indicates the coding law used: <code>T1 (MU LAW)</code> or <code>E1 (A LAW)</code> . Default is <code>T1 (MU LAW)</code> .
Pages per TIFF	Indicates whether all fax pages are stored in a single TIFF file ( <code>Single-Page TIFF</code> ) or as individual TIFF files ( <code>Multi-Page TIFF</code> ). <code>Multi-Page TIFF</code> is recommended.
TIFF Format	LightningFAX supports two types of TIFF format: <code>TIFF type 3 1-D(imensional)</code> , with sanitization or <code>TIFF type 4 (Dialogic or TeleVantage plugin only)</code> . The default is <code>Type 3 1-D</code> .
Country	The LightningFAX driver communicates the country code to the fax board. The correct protocol is selected for the country; each country having specific standards for telecommunications protocols.

Field	Description
Auto Routing	<p>If your fax board supports inbound auto-routing, you can select the appropriate routing method for the hardware you have installed.</p> <p>Inbound auto-routing options include: None, DID, DTMF (telco), DTMF (manual), VPS (DNIS, ANI), DNIS (ANI) or T.30 SUBADDRESSING.</p> <p>DID is provided by the phone company before the call is connected, DTMF (telco) is provided by the switch after the call is connected and DTMF (manual) is provided by the user after the call is connected. These methods are recorded the same way in the software and are transparent to LightningFAX.</p> <p>See Chapter 8 Introducing Inbound Auto-Routing, for further information on inbound auto-routing.</p>
Prefix	<p>When it is necessary to dial a prefix number to access an external line, that the prefix number can be entered in the Prefix field. In most cases, the prefix is 9.</p> <p>Prefixes can be set at other locations in LightningFAX. The prefix set in the driver, however, precedes any others.</p>
Number Of Digits	<p>Specifies the number of auto-routing digits for inbound faxes. The value entered is used to select the right-most digits of a string. If, for instance, a phone number is 555-1234 and if the Number Of Digits is set to 4, the portion used is 1234.</p>
Number Of Rings	<p>Number Of Rings specifies the number of times the line is allowed to ring before being answered by the LightningFAX server (does not apply to Brooktrout TR1034 or TruFAX BRi fax boards). You can enter a number between 1 and 10.</p>
Apply to all	<p>Applies the current channel settings to all fax board channels.</p>

**General Settings**

This is the dialog that appears when you click on the General tab:



The settings in the General tab remain the same for all installed channels.

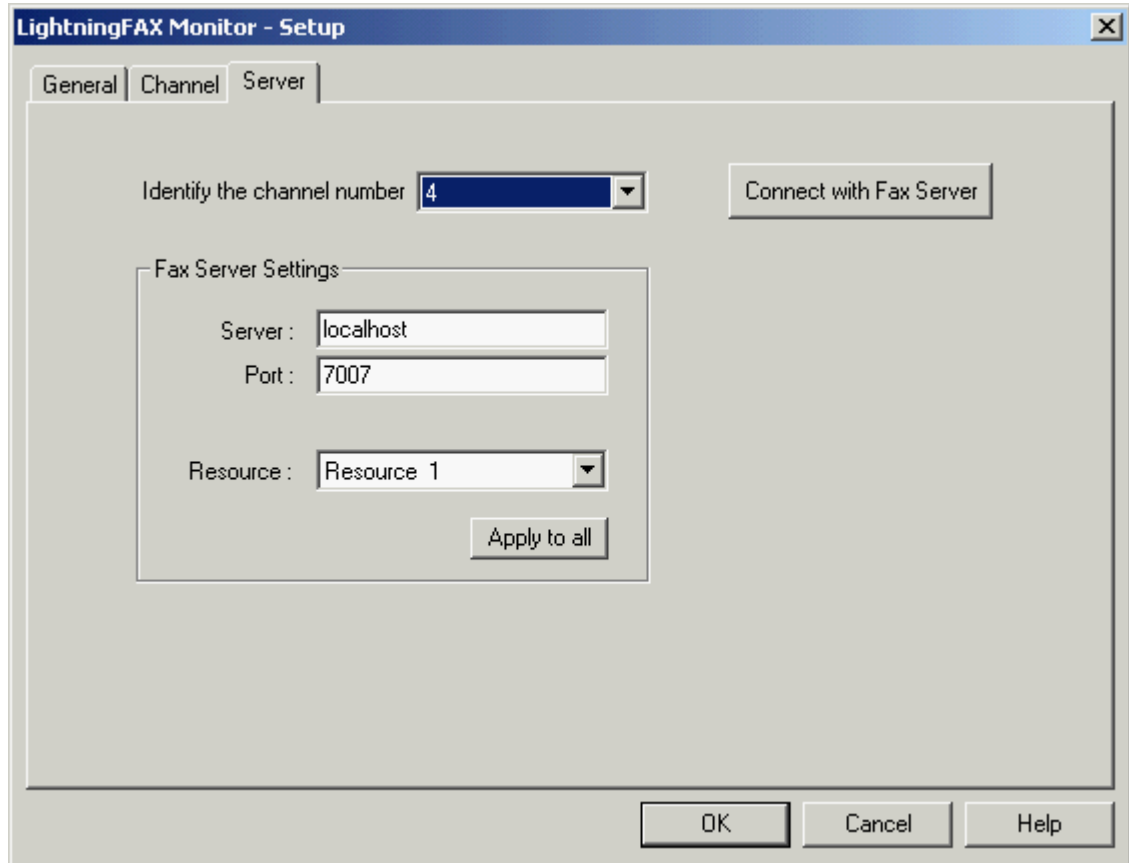
The fields displayed are as follows:

Field	Description
Supported Board Type	<p>If a new fax board is to be configured after the installation and configuration of LightningFAX, Supported Board Type can be used to select the new board without completely reinstalling the LightningFAX software.</p> <p>The Load Firmware option would be selected at the same time to load any third-party firmware required by the board.</p>
Number Of Channels	<p>Auto Configuration sets the number of channels for any fax board, up to the maximum allowed by the license.</p> <p>If the license covers more channels than are available on the fax board, the total number of channels on the fax board is configured. If it covers less, the extra channels are not visible.</p> <p>However, if you need fewer channels than your fax board offers, you can use Number Of Channels to manually reduce the number of operational fax board channels, for this driver.</p> <p>If you set this value higher than the total number of channels on the fax board or the number authorized by the license, the extra channels are disabled.</p> <p><b>Note:</b> This value overrides both the total number of channels available on the fax board and the maximum number of channels authorized by the license. If you get a new license that enables more channels, you need to change the Number Of Channels value to reflect this new amount, otherwise the extra channels are not enabled.</p>
Log Size	<p>By default, the maximum size of the LightningFAX driver's log file is 10 MB.</p> <p><b>Note:</b> The value displayed is in bytes.</p> <p>You can increase this by entering any number in the Log Size field.</p>
Root	<p>Specifies the path and directory where the LightningFAX driver resides.</p>

Field	Description
Sending	Specifies the path and directory where outgoing faxes are stored. When a fax is sent, the LightningFAX driver asks for a copy of the TIFF file and places it in the sending directory. When the transmission is complete, the driver sends the result of the transmission to the LightningFAX server and erases the TIFF file from the sending directory.
Receiving	Specifies the path and directory where incoming faxes are received before they are sent to the LightningFAX server.
Get Fax Tone (sec)	Specifies the time-out (in seconds) to receive a response tone from the destination.
Load Firmware	Starts dependent Windows NT services automatically, for Dialogic fax boards. If not selected, these services must be started beforehand, by another service.
Stop Dependent Services Afterward	Stops any third-party services (if necessary), for Dialogic fax boards or the TeleVantage plugin, after stopping the driver.

### Server Settings

This is the dialog that appears when you click on the Server tab. In a network with more than one LightningFAX server, you can assign any fax board channel to a different server.



Choose the channel that you want to configure, by selecting it in the Identify the channel number box.

The fields displayed are as follows:

Field	Description
Server	<p>When installing the T.38 driver, you must supply a server IP address or host name. After installation, this value appears in the <code>Server</code> field.</p> <p>To configure a channel to use a different server, enter the server's IP address in this field.</p>
Port	<p>Unless a different port was specified during the installation of LightningFAX server components, the default port of the server is 7007.</p>
Resource	<p>Lets you select any existing resource created through the LightningFAX manager, that is not assigned to another driver. The warning <code>No Resource Available</code> is displayed when all resources are assigned to other drivers.</p> <p>More than one channel can be associated with a single resource, however, no channel can be associated with more than one resource.</p>
Apply to all	<p>Use <code>Apply to all</code> to apply the selected settings to all available LightningFAX channels.</p>

**Note:** When you change any of the server settings and click `Connect with Fax Server`, the fax board driver attempts to establish a link with the server. When this link is established, the resource information is transferred immediately.

If the internet host name cannot be resolved to an IP address, the error message `Can't resolve the host name` is displayed. If the IP address cannot be reached, the error `Fax Server Not Available` appears in the `Resource` field.

### Associating a Channel and a Resource

More than one channel can be associated with a single resource. For example, channels 1, 2 and 3 can be associated with Resource 2. However, no channel can be associated with more than one resource; For example, channel 1 cannot be associated with both Resource 1 and Resource 2.

**Note:** If no resources have been added, only Resource 1 is available. It may therefore be necessary to first add other resources. To do so, consult Adding a Resource on page 5.

A site with six departments and eight channels might allocate resources as follows.

User	Resource	Channel
President/Vice-President	Resource 1	Channel 1
Marketing Manager	Resource 2	Channel 2
Sales Department	Resource 3	Channels 3 and 4
Purchasing Department	Resource 4	Channel 5
Shipping Department	Resource 5	Channel 6
Manufacturing	Resource 6	Channels 7 and 8

- 1 Select Start ➔ Programs ➔ LightningFAX ➔ Monitor. The LightningFAX Monitor dialog appears (see snapshot on page 8).
- 2 Select Driver ➔ Stop.
- 3 Select Setup.
- 4 Click on the Server tab (see snapshot on page 16).
- 5 Select the channel in the Identify the channel number box.
- 6 Click Connect with Fax Server.
- 7 Under Fax Server Settings, select a resource in the Resource box. Alternatively, click Apply to all, if all channels are to be associated with the same resource.
- 8 Repeat steps 5 to 7, for all channels that you want to associate with a resource.
- 9 Click OK.
- 10 Select Driver ➔ Start and exit the monitor.

### Configuring a Fax Board Channel

- 1 Select **Start** ➔ **Programs** ➔ **LightningFAX** ➔ **Monitor**. The LightningFAX Monitor dialog appears (see snapshot on page 8).
- 2 Select **Driver** ➔ **Stop**.
- 3 Select **Setup**.
- 4 Click on the **Channel** tab (default) (see snapshot on page 9).
- 5 Use **Identify** to select the channel number to select the fax board channel.
- 6 Select **Debug** if you wish to run the debugging software provided by the manufacturer of the fax board.
- 7 You may click **Auto Configuration** to automatically configure the fax board.
- 8 Under **Line Settings**, use **Mode** to indicate whether the channel is to send, receive or both send and receive transmissions.
- 9 Use **Line** to select the appropriate line type.
- 10 If the line type selected was **Robbed Bit**, select the **Protocol**, otherwise skip to step 12.
- 11 If the line type selected was **Robbed Bit**, select the **Coding Law**.
- 12 Use **Pages per TIFF** to indicate whether all fax pages are stored in a single TIFF file (**Single-Page TIFF**) or as individual TIFF files (**Multi-Page TIFF**). **Multi-Page TIFF** is recommended.
- 13 If you are configuring a Dialogic fax board or the TeleVantage plugin, select the **TIFF format**: **TIFF type 3 1-D(imensional)**, with **sanitization** or **TIFF type 4**.
- 14 Use **Country** to select the country.
- 15 If the fax board channel supports inbound routing, use **Auto Routing** to select the type. The types available include **Direct Inward Dialing (DID)**, **automatic Dual-Tone Multi-Frequency (DTMF Telco)**, **manual Dual-Tone Multi-Frequency (DTMF Manual)**, **VPS**, **Dialed Number Identification Service (DNIS)** and **T.30 Sub-addressing**.
- 16 Type an entry in the **Prefix** field, if necessary.
- 17 If inbound routing is configured, type the number of digits to be considered in **Number of Digits**. For example, among other possibilities, DID numbers could be three- or four-digit numbers.
- 18 Type an entry in **Number of Rings**, if applicable. You can enter a number between 1 and 10.
- 19 Click **Apply to all** if the settings chosen are to apply to all the fax board channels.
- 20 Click **OK**.
- 21 Select **Driver** ➔ **Start** and exit the monitor.

**Note:** If you modify gamma registry keys to customize the configuration of Dialogic boards, be aware that saving the Setup options in the monitor deletes all the gamma registry keys and re-creates them, based on the settings in the monitor. If you want to save these custom configurations, you need to export them to a registry file (name it `Dialogic.reg`), and put it in the `\lfdriver` sub-folder of the LightningFAX root folder, before saving your changes in the monitor. The latter will automatically re-apply these configurations to the registry when you click OK.

### Brooktrout Fax Board Channel Configuration Templates

To facilitate the configuration of channel settings for Brooktrout fax boards, a variety of template files are provided, in the `\LightningFAX\LFdriver\BRTcfg\Templates` sub-folder of the LightningFAX root folder.

To configure a new channel, using either of these templates:

- 1 Modify the template file (`.cfg`) specific to your type of fax board, to set the default values for all your channels. Values left with `$(VARIABLE_NAME)` are replaced by the values set in the monitor, or retrieved from other configuration files.

**Note:** The values you enter in a template file will not be displayed in the monitor.

### Managing Resources

The LightningFAX manager allows a variety of operations to manage resources. These include pausing and re-starting a resource; assigning a name and comment; specifying a call station ID (CSID), the delay between retries and a fax header.

- 1 Select **Start** ➔ **Programs** ➔ **LightningFAX** ➔ **LightningFAX Manager**. The LightningFAX Manager dialog appears (see snapshot on page 6).
- 2 Highlight a resource in the tree and select **Edit** ➔ **Properties** or right-click on the resource and choose **Resource Properties**. The **Resource Properties** dialog appears (see snapshot on page 7).
- 3 Click **Pause** to momentarily stop the resource from sending or receiving faxes.

OR

Click **Start** to restart a paused resource.

- 4 Enter a new name if the **Name** field, if desired.
- 5 Enter an alphanumeric string in the **CSID** field, if desired. Call station IDs can be no more than 20 characters.
- 6 Enter the period between sending retries (in minutes and seconds), in the **Delay of Retries** field, if desired.
- 7 Enter a comment in the **Comment** field, if desired.

- 8 If a fax header is required, click `Fax Header`, compose it and click `OK` (for more information about creating fax headers, consult *Introducing Fax Headers* on page 121 of the *LightningFAX User Guide*).
- 9 Click `OK`.

### Fax Number Modification

Number modification automatically alters the fax numbers entered by the users and can be applied to any single resource, including the `Common Resource`.

This would be necessary, for example, when a database or a user's phone book contains area codes, as well as the seven-digit fax numbers. When local calls are made, it would be necessary to strip the area code from the number. Other calls might require the addition of a prefix to obtain an outside line, or a code appended to the fax number to permit long-distance dialing. Should an external fax recipient change their fax number, modification can be used to ensure that the new number is dialed even when users have not yet updated their phone books.

### LCR and Number Modification

Number modification is generally necessary when least-cost routing (LCR) is used. It is quite likely that the administrator of a destination LCR server, needs to modify fax numbers in order complete calls sent by LCR. See Chapter 9 *Configuring Least-Cost Routing and Load Balancing* for further information about least-cost routing, as well as a brief example.

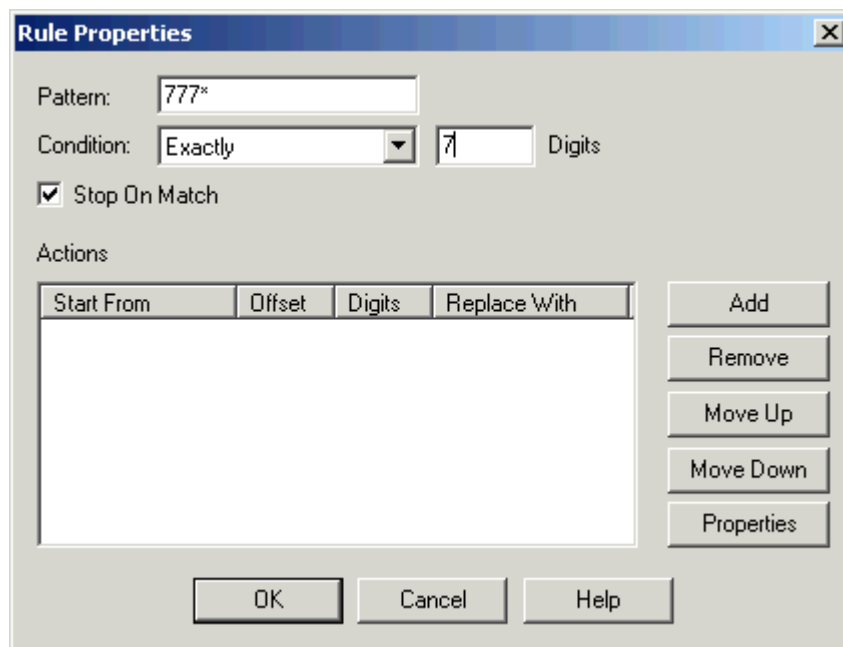
### Search Patterns

The first component of number modification is the **search pattern**. Search patterns specify a number pattern to be searched for, a condition and the number of digits to be entered by the fax sender. The conditions available are `Less Than`, `Exactly` and `More Than`.

The number pattern, which can include wildcards, represents the entire fax number to be searched for. Wildcards include the asterisk (\*) which represents any number of digits, and the question mark (?), which represents a single digit.

For example, suppose that a new area code (333) must be added to fax numbers that were formerly local calls. These fax numbers are those that begin with the city code 777. Assuming that some fax senders may not have updated their phone books, you may use number modification to search first for seven-digit fax numbers that begin with 777, using the \* wildcard to complete the number, in this case: 777\*.

Knowing that fax senders enter a seven-digit number (for example: 7771111, 7772222, 7773333 and so on...), you would specify 7 as the number of digits and choose the condition `Exactly`

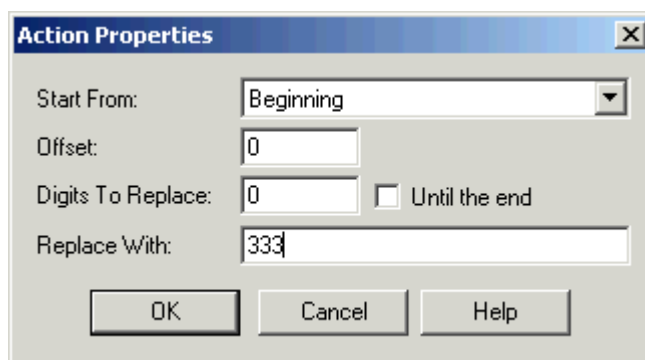


The search pattern works in combination with the condition and the number of digits the fax sender enters. For example, using 777\* as the search pattern, choosing the condition *More Than*, and entering 7 as the number of digits in the actual fax number, specifies that the number modification is to be applied to any number greater than seven digits, that begins with 777. The modification applies to numbers like 7771112222 and 7771112222333, while seven-digit numbers like 7771111 are not modified.

### Actions

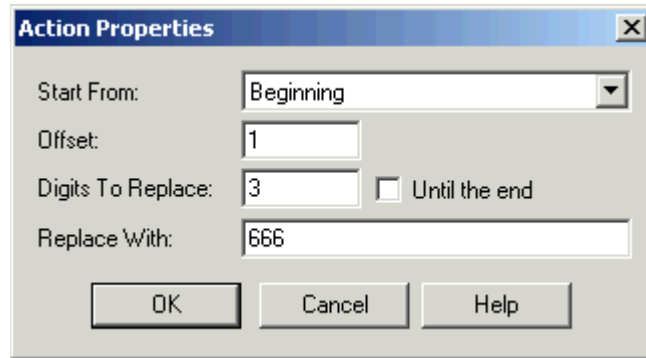
The second component is the **action** to be applied to a successful search. Continuing the previous example, 333 must be added to any seven-digit fax number that begins with 777.

The modification is to begin at the first number, not replace any digits, and simply prefix the fax number with 333.

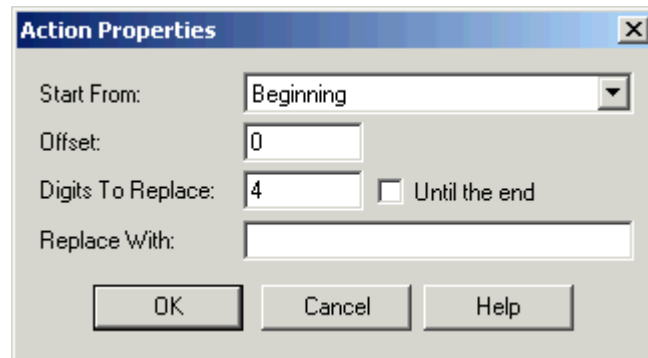


Another example is to change the area code. Suppose that a new area code (333) has been applied to long distance numbers that formerly used the area code 666. A number of search patterns can be used: `?666*`, `1666*` or `1666*`. These being long distance calls, you expect a fax number of 11 digits and use the condition `Exactly`.

The modification will specify that the single-digit long distance code is to be skipped (an offset of 1) and that the next three digits are to be replaced by 666.

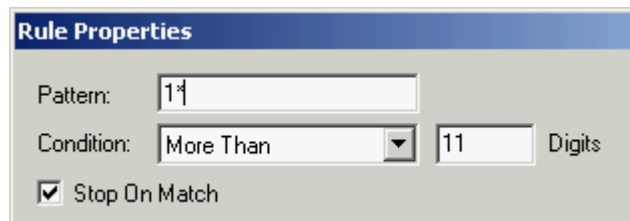


When required, numbers can be removed. For example, suppose that fax senders always include the long distance and area codes in their phone books, even when the potential recipient is local. Specifically, whatever the valid long distance number in their phone books, 666 is the local area code and therefore unnecessary. The same search pattern used in the previous example can be entered and the modification must strip the four unnecessary digits.



Number removal may also be used to accommodate organizational changes. For example, a company of several departments has consolidated the codes that authorize long distance fax calls. Previously, each department had its own code; furthermore, the codes were of different length. Some departments were assigned codes of four digits while others had codes of six. Now, the entire company uses a single four-digit authorization code.

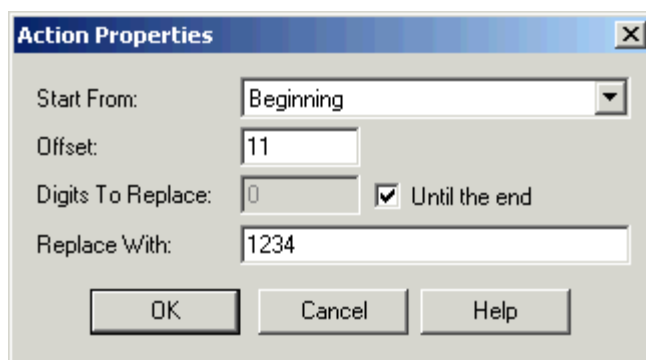
The search pattern would look for the long distance and area codes, fax number and authorization code.



The **Rule Properties** dialog box contains the following fields and options:

- Pattern:** A text box containing the value `1*`.
- Condition:** A dropdown menu set to `More Than`, followed by a text box containing `11` and the label `Digits`.
- Stop On Match**

The actual modification would specify an offset of 11 to accommodate the actual fax number, remove the four- or six-digit number that follows, and replace that number with the new authorization code.

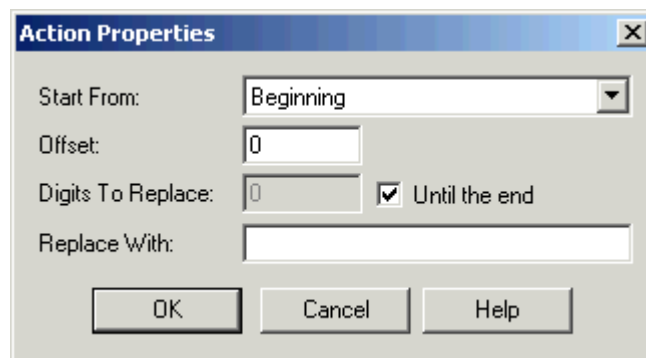


The **Action Properties** dialog box contains the following fields and options:

- Start From:** A dropdown menu set to `Beginning`.
- Offset:** A text box containing the value `11`.
- Digits To Replace:** A text box containing `0`, followed by a checked checkbox and the text `Until the end`.
- Replace With:** A text box containing the value `1234`.
- Buttons: `OK`, `Cancel`, and `Help`.

The `Until the End` option instructs LightningFAX to simply strip all numbers after the eleventh digit. Both four- and six-digit authorization codes are removed and replaced with the new code, 1234.

**Note:** Combining a search pattern, the `Until the End` option and no digit replacement can be used to prevent senders from faxing to a given number. However, it is recommended that you use the number restriction table instead, for this purpose (see Chapter 10 Number Restriction for more details).

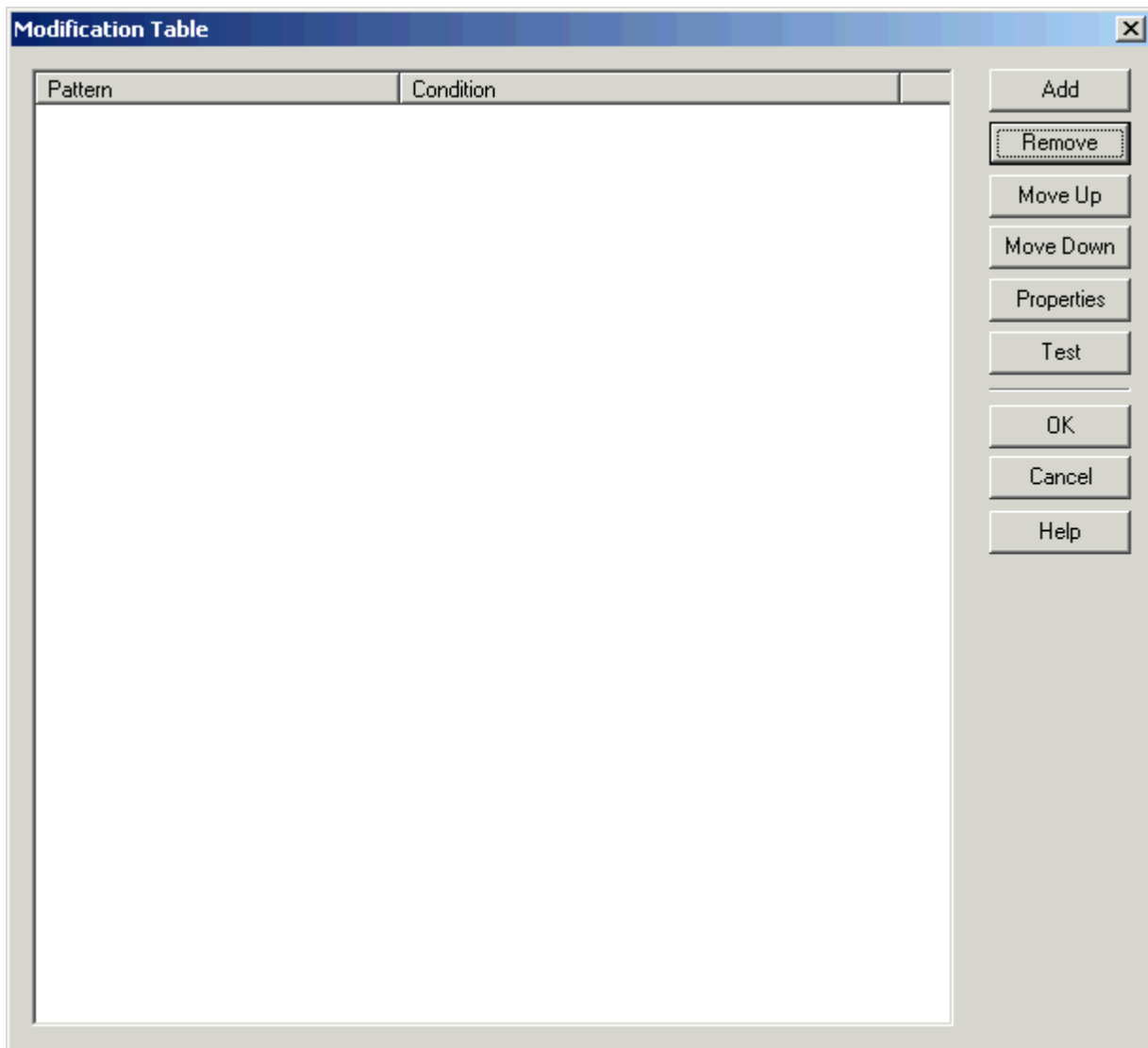


The **Action Properties** dialog box contains the following fields and options:

- Start From:** A dropdown menu set to `Beginning`.
- Offset:** A text box containing the value `0`.
- Digits To Replace:** A text box containing `0`, followed by a checked checkbox and the text `Until the end`.
- Replace With:** An empty text box.
- Buttons: `OK`, `Cancel`, and `Help`.

### Creating a Number Modification Rule

- 1 Select **Start** ➔ **Programs** ➔ **LightningFAX** ➔ **LightningFAX Manager**. The **LightningFAX Manager** dialog appears (see snapshot on page 6).
- 2 Highlight a resource in the tree and select **Edit** ➔ **Properties** or right-click on the resource and choose **Resource Properties**. The **Resource Properties** dialog appears (see snapshot on page 7).
- 3 Click **Modification Table**. The **Modification Table** dialog appears (see snapshot on next page).
- 4 Click **Add** to add a modification rule. The **Rule Properties** dialog appears (see snapshot on page 22).
- 5 Enter a fax number or a numeric pattern in the **Pattern** field. Wildcards can be specified. The asterisk (\*) represents any number of digits; the question mark (?) represents a single digit.
- 6 Select a **Condition** with the condition box. Conditions are: **Less Than**, **Exactly** and **More Than**.
- 7 Enter the number of digits in the **Digits** field.
- 8 The **Stop On Match** option instructs LightningFAX to stop searching the rules in the modification table, as soon as the condition is met. Occasionally, however, you may wish to apply a second condition, hence to disable the **Stop On Match** option. For example, a condition might add the long distance and area codes, whenever a certain city code is encountered; a second condition might add, this time at the end of the altered fax number, a numeric code required to authorize a long distance call.
- 9 Add **Actions** to the modification rule, as shown in the next section.
- 10 Click **OK**.



### Adding an Action

- 1 In the `Modification Table` dialog, click `Add`. The `Action Properties` dialog appears (see snapshot on the previous page).
- 2 In the `Start From` box, indicate if the modification is to apply from the first digit (`Beginning`) or the last digit (`End`), in the fax number.
- 3 If the modification is offset, enter a number in the `Offset` field. For example, if a fax number such as `7776666` is to be changed to `6776666`, you would enter an offset of `0`. If the change is to `7676666`, you would enter an offset of `1`.
- 4 Enter the number of digits to be replaced in the `Digits To Replace` field. If you are adding a prefix or a suffix, the entry is `0`.

- 5 Enter the modification in the `Replace With` field. Making no entry instructs to strip numbers in accordance with the replacement pattern.
- 6 If the modification is to continue to the last digit encountered, select the `Until the end` or the `Until the beginning` option, depending on the direction you selected in the `Start From` field.
- 7 Click `OK`.
- 8 Repeat steps 1 to 7 to add all the actions to perform on the fax numbers.
- 9 Click `OK`.

### Reordering Actions

- 1 In the `Rule Properties` dialog, highlight an existing action and click on `Move Up` or `Move Down` to move the action up or down (actions at the top are performed first).
- 2 Repeat for other actions, as needed.
- 3 Click `OK`.

### Editing an Action

- 1 In the `Rule Properties` dialog, highlight an existing action and click on `Properties`. The `Action Properties` dialog appears (see snapshot on page 24).
- 2 Perform the changes to the action, as desired.
- 3 Click `OK`.
- 4 Repeat steps 1 to 3 for other actions, as needed.
- 5 Click `OK`.

### Removing an Action

- 1 In the `Rule Properties` dialog, highlight an existing action and click on `Remove`.
- 2 Repeat for all the actions that you want to remove.
- 3 Click `OK`.

### Reordering Number Modification Rules

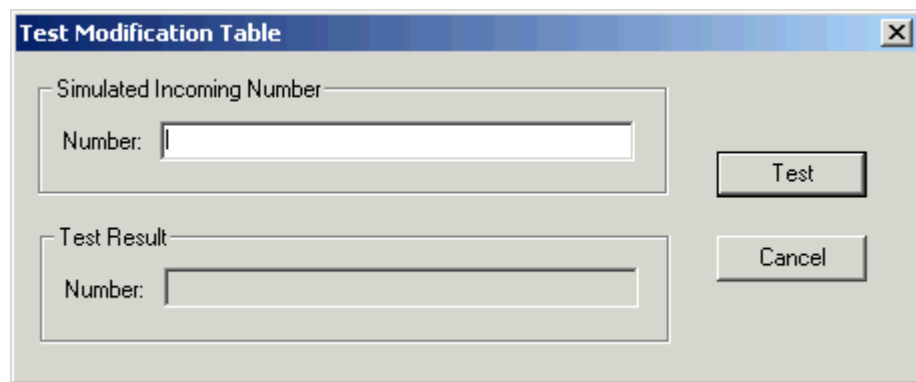
- 1 In the `Modification Table` dialog, highlight an existing rule and click on `Move Up` or `Move Down` to move the rule up or down (rules at the top are performed first).
- 2 Repeat for other rules, as needed.
- 3 Click `OK`.

### Editing a Number Modification Rule

- 1 In the Modification Table dialog, highlight an existing rule and click on Properties. The Rule Properties dialog appears (see snapshot on page 22).
- 2 Perform the changes to the rule, as desired.
- 3 Click OK.
- 4 Repeat steps 1 to 3 for other rules, as needed.
- 5 Click OK.

### Testing a Number Modification Rule

- 1 Click on Test to test the modification table on an actual number. The Test Modification Table dialog appears.



- 2 Enter a number in the Number field of the Simulated Incoming Number section, and click on Test. The number modified according to the modification table should appear in the Number field of the Test Result section.

### Removing a Number Modification Rule

- 1 In the Modification Table dialog, highlight an existing rule and click on Remove.
- 2 Repeat for all the rules that you want to remove.
- 3 Click OK.

### Changing the default T.30 Sub-addressing delimiter

By default the # character is used as the T.30 Sub-addressing delimiter. If this character appears in a fax number, LightningFAX does not read the subsequent numbers (which would of course adversely affect number modification).

To modify the default T.30 Sub-addressing delimiter, you need to change a registry key. For more details, contact Interstar technical support.

## 3

# Advanced Configuration and Maintenance

### Rasterization Server

#### Changing the Regional Settings

When the rasterization server service runs under the local system account, the Windows regional settings of that account are used. If you want to set the regional settings of the local system account to those of the current user, use the following procedure:

- 1 In Microsoft Windows Explorer, navigate to the `LFRS` sub-folder, in the LightningFAX root folder of the server.
- 2 Locate and run the file called `date_time_settings.vbs`.
- 3 Restart the rasterization service, in the `Services` window of the Control Panel.

#### Rasterizing Crystal Report 9.0 Documents

For the rasterization service to process Crystal Report 9.0 (not necessary with older versions) documents, the following procedure needs to be followed:

- 1 In Microsoft Windows Explorer, navigate to the `LFRS` sub-folder in the LightningFAX root folder of the server.
- 2 Right-click on the `printcr9.reg` file.
- 3 Select `Edit`.
- 4 Verify that the path to the `printcr9.exe` file is correct. If not, modify it to refer to the right location on the server hard drive.
- 5 Close the Registry Editor.
- 6 Double-click on the `printcr9.reg` file.
- 7 Navigate to the `WINDOWS` or `WINNT` directory on the server hard drive.
- 8 Locate and edit the `lfrasterizer.ini` file.

- 9 In the [Association] section, change the  
`rpt=lightningfax_installation_path\printcr.exe` entry to  
`rpt=lightningfax_installation_path\printcr9.exe`.
- 10 Close the editor.

The rasterizer should now be able to process Crystal Report 9.0 documents.

### Printer Driver Resolution

The printer resolution for the LightningFAX, Print-to-Mail and Print-to-Web drivers, can be configured after LightningFAX has already been installed:

- 1 Choose Start ➔ Settings ➔ Control Panel.
- 2 Double-click Printers.
- 3 Right-click LightningFAX and select Properties.
- 4 Click on the Printing Preferences button.
- 5 Click on the Advanced button.
- 6 In the tree, highlight Graphic ➔ Print Quality and choose your preferred resolution in the selection box at the right.

### Gateways

#### Internet Domain Name Mapping (SMTP)

You can map internet domain names to the appropriate hosts when the DNS is not available, or when your DNS table does not include the necessary entries.

Mapping is specified in the `domain.map` file, which resides in the `LFsmtp` sub-folder of the LightningFAX root folder. The gateway for SMTP automatically consults the file, applying the matches it finds; the gateway then performs a DNS lookup.

To map internet domain names:

- 1 Navigate to the `LFsmtp` sub-folder of the LightningFAX root folder, and open the `domain.map` file in any text editor.

You can specify the internet domain name in any of three manners.

- When internet domain name and host name are the same, you can specify that name alone.
  - Alternatively, you can specify the internet domain name and the host name or IP address.
  - Thirdly, you can change the default port by specifying the internet domain name, the host name or IP address, and the port number. By default, port 25 is used.
- 2 Save the file.
  - 3 Restart the gateway for SMTP.

Entries to the `domain.map` file might resemble the following.

```
# domain.map
#
# Mail to hosts listed in this file will be sent directly
# and will bypass the external mail server configuration
#
# ex:
#
# server1
# domain1 server2
# domain2 server3 port1
#
faxabc
abc.com orion
def.net libra 35
hij.com 132.103.99.12
```

### The `security.dat` File (SMTP and Microsoft Exchange)

To add an extra level of security, a file can be created by an administrator, to restrict fax sending to individual users, or users belonging to certain domains. This file, called `security.dat`, can be written using any text editor (for example **Notepad**), and must be located in the sub-directories of the gateways that use it, in the LightningFAX root folder (`LFExGateway` and `LFsmtp`).

When a gateway encounters the `security.dat` file, it only authorizes users whose SMTP address (or part of it) matches an entry in the file, to send faxes. Each entry must appear on a different line. If the file is empty or does not exist, all users can transmit.

Here are examples of entries that can appear in the file:

```
johnsmith@asiteinc.com
asiteinc.com
smith
```

In the first example, only a specific user with that SMTP address can be matched.

In the second example, any user belonging the `asiteinc.com` domain can send faxes.

Finally, in the third example, any user whose SMTP address contains the `smith` expression is a match.

### Web Access

#### Installing and Configuring Third-Party Software

If third-party software was not installed along with the web access, you must execute the following operations:

##### Installing and Configuring Jakarta-Tomcat

- 1 Copy all the files and folders from the `\3rd\webextensions\jakarta-tomcat-3.2.2` folder, on the LightningFAX installation CD, to the folder on the hard drive, where you want to install Tomcat.
- 2 Copy the following files from the `\3rd\webextensions\others` folder, on the LightningFAX installation CD, to the `C:\tomcat_installation\conf` folder, on the server hard drive:
  - `server.xml`
  - `tomcat.conf`
  - `uriwokermap.properties`
  - `wrapper.properties`
- 3 Edit the `C:\tomcat_installation\conf\wrapper.properties` file, replacing the value to the right of `wrapper.tomcat_home=` with the path on the hard drive, where Tomcat is installed.

**Note:** `tomcat_installation` is the folder where Tomcat is installed; by default `jakarta-tomcat`.

Paths included in the `wrapper.properties` file must not include spaces, or be in the short 8.3 file name format.

##### Registering Tomcat as a Service

- 1 In Microsoft Windows, open a Command Prompt window.
- 2 Type: `cd C:\tomcat_installation\bin` and press Enter.
- 3 Type: `jk_nt_service -i Tomcat`  
`C:\tomcat_installation\wrapper.properties` and press Enter.

##### Installing MySQL

For the web access phone book to work, MySQL must first be installed:

- 1 In Microsoft Windows Explorer, navigate to the `\3rd\webextensions\mysql-3.23.39-win` folder, on the LightningFAX installation CD.
- 2 Double-click on `Setup.exe` and follow the typical installation instructions.

##### Installing and Configuring the MySQL JDBC Driver

- 1 Install MySQL, as shown in the previous section (if this has not been done already).
- 2 Copy the `mysql-connector-java-3.0.8-stable-bin.jar` file from the `\3rd\webextensions\mysql-connector-java-3.0.8-stable` folder, on the LightningFAX installation CD, to the server hard drive.

- 3 Edit the `C:\tomcat_installation\conf\wrapper.properties` file, replacing the value to the right of `wrapper.jdbc_home=` with the path on the hard drive, where the `mysql-connector-java-3.0.8-stable-bin.jar` file is copied.

### Installing and Configuring JacORB

- 1 Copy the `jacorb.jar` and `jacorb.properties` files from the `\3rd\webextensions\JacORB1_3_30-full` folder, on the LightningFAX installation CD, to the server hard drive.
- 2 Edit the `C:\tomcat_installation\conf\wrapper.properties` file, replacing the value to the right of `wrapper.jacorb_home=` with the path on the hard drive, where the JacORB files are copied.

### Installing and Configuring the Java 2 SDK

- 1 In Microsoft Windows Explorer, navigate to the `\3rd\webextensions\j2sdk-1_3_0_3-win` folder, on the LightningFAX installation CD.
- 2 Double-click on `j2sdk-1_3_0_3-win.exe` and follow the typical installation instructions.
- 3 Edit the `C:\tomcat_installation\conf\wrapper.properties` file, replacing the value to the right of `wrapper.java_home=` with the path on the hard drive, where the Java 2 SDK files are copied.

### Moving the Web Pages

Moving the LightningFAX web pages from their default location is optional.

- 1 Move the `lightningfax` folder and the file `lightningfax.war` from the `\tomcat_installation\webapps` folder, to the `C:\webclient\` folder.
- 2 Modify the `server.xml` file as follows:

Original	Modification
<pre>&lt;Context path="/lightningfax"   docBase="C:/tomcat_installation/   webapps/lightningfax"   crossContext="true"   debug="0"   reloadable="true"&gt;</pre>	<pre>&lt;Context path="/lightningfax"   docBase="C:/webclient/lightningfax"   crossContext="true"   debug="0"   reloadable="true"&gt;</pre>

The `server.xml` file is found in the `\tomcat_installation\conf` folder.

### Populating a Web Access Phone Book

The web access includes a phone book for recipient addresses. Although users can freely add contact lists and contacts, an administrator may wish to populate the phone book after installing the web access.

You specify contact information in a `.csv` file and then execute a command file that automatically generates a contact list in the phone book and populates the list with information about each individual contact.

#### Writing the `.csv` File

The entries to the `.csv` file correspond to the fields in the phone book. Therefore, these entries must be entered in the order shown in the following table, each entry separated by a comma. You can omit an entry by entering only a comma.

The information for a single contact must occupy a single line of text.

1 Dear	2 LastName	3 FirstName
4 Company	5 JobTitle	6 Address1
7 Address2	8 Address3	9 City
10 State/Province	11 ZIP_PostalCode	12 Country
13 PhoneNumber	14 Extension	15 Cellular
16 FaxNumber	17 FaxNumber2	18 FaxNumber3
19 Pager	20 Email	21 Email2
22 Email3	23 BillingCode	24 Sub_BillingCode
25 Comment	26 UserDefined1	27 UserDefined2
28 UserDefined3	29 UserDefined4	30 PreferredAddress

**Note:** The `PreferredAddress` entry is used when a contact has both a fax number and an email address and indicates which is to be used when faxing. The entry in the `.csv` file for `PreferredAddress` can be `Fax` (default), `Fax2`, `Fax3`, `E-mail`, `E-mail2` or `E-mail3`.

A sample `.csv` file (called `Import_phonebook_sample.csv`) is available, in the `\3rd\webextensions\databasefiles` folder, on the `LightningFAX` installation CD. You can copy it to the server hard drive, in the `C:\MySQL\bin` folder and modify it, to create your own contact information file.

### Loading Contact Information Into a Phone Book

Once the `.csv` file is created, you can load the data it contains into a web access phone book (which must already exist), using the following procedure:

- 1 Copy the `Import_phonebook.cmd` file, from the `\3rd\webextensions\databasefiles` folder, on the LightningFAX installation CD, to the `C:\MySQL\bin` folder on the server hard drive.
- 1 In Microsoft Windows, open a Command Prompt window.
- 2 Type: `Import_phonebook "csv_file_name" "phone_book_name"`, where `csv_file_name` is the name of your personal contact information file and `phone_book_name` is the name of a phone book already created in the web access.

### Sending Faxes using Internet Explorer

Users can enable the web access by launching Internet Explorer and entering the following URL:

```
server/lightningfax
```

where `server` is the host name of the computer where the web access is installed.

They must already be LightningFAX users, that is, they must already have an account created in the LightningFAX manager. If auto-creation of LDAP or Active Directory users is enabled, they may also log in with their email address and create their LightningFAX account by auto-enrollment.

### Viewing or Updating the License

A tool is provided in the LightningFAX manager to view and update the software license.

- 1 Log into the LightningFAX manager as an administrator.
- 2 The `License` window appears, displaying the complete information contained in your `To update the license, click on the Update the server with a new license` button.
- 3 In the dialog that opens, browse until you find the `new license.txt` file and click `Open`.
- 4 Click `Close`.

### Making a Snapshot of the System for Troubleshooting

A tool is provided with LightningFAX to gather all available information (a snapshot basically) about the fax system, in a .zip file that you can send to Interstar technical support, for troubleshooting.

The information it contains includes:

- The product and version;
- All registry information pertaining to the product;
- A copy of the license (if present; demo license is not saved);
- A listing of all files, versions and dates within the installation directories;
- All log files pertaining to the product;
- Various other system information pertaining to the product;
- A copy of the database, without the message files (Optional).

To use the snapshot tool:

- 1 Select Start ➔ Programs ➔ ➔ ➔ Diagnostic Tool. The
- 2 In the Location to save report field, browse until you find the correct location on the hard drive, where you want to save the snapshot file.
- 3 Check the Include database backup box, if desired.
- 4 Click Run. You can observe the evolution of the data gathering in the progress bar.
- 5 In the message box that pops up when the operation is completed, click OK. A Windows Explorer window opens showing the content of the directory where the .zip file has been saved.

### Performing Backups

LightningFAX administrators should perform a backup as follows:

#### Server

**Note:** Before making the backup, the following services must be stopped:

- LFserver;
- LFslave;
- LFDriver;
- Any running email gateways.

- 1 Make a backup of the `license.txt` file.
- 2 Make a backup of the following sub-folders of the LightningFAX root folder:
  - `\Lfserver\Archive;`
  - `\Lfserver\Attachement;`
  - `\Lfserver\Cover;`
  - `\Lfserver\Current;`
  - `\Lfserver\LCRFeedback;`
  - `\Lfserver\Message;`
  - `\Lfserver\User.`
- 3 Make a backup of the `HKEY_LOCAL_MACHINE\SOFTWARE\Interstar Technologies` registry key.
- 4 Make a backup of the following files:
  - In the LightningFAX root folder:
    - `\lfcommon\ErrorMessages.txt;`
    - All the `.wtx` files for the gateway for SMTP, in the `\LFsmtp` sub-folder;
    - All the `.wtx` files for the gateway for Microsoft Exchange, in the `\LFExGateway` sub-folder;
    - All the `.wtx` files for the gateway for R/3 (SAP), in the `\LFsap` sub-folder.
  - In the `C:/tomcat_installation/webapps` folder:
    - `oem.properties.`
  - In the Windows or WinNT folder:
    - `lfrasterizer.ini.`

### Client

- 1 Make a backup of the `HKEY_LOCAL_MACHINE\SOFTWARE\Interstar Technologies` registry key.
- 2 Make a backup of the `HKEY_CURRENT_USER\SOFTWARE\Interstar Technologies` registry key.
- 3 Make a backup of the LightningFAX root folder.
- 4 To preserve their phone books and cover sheets, individual users on Windows 95/98/ME/NT should backup the following folder, in the Windows root folder:
  - `Profiles\user_name\Application Data\Interstar Technologies\LightningFAX\LFClient.`Individuals using Windows XP, 2000 or 2003 should backup the following folder:
  - `Documents and Settings\user_name\Application Data\Interstar Technologies\LightningFAX\LFClient.`

### Upgrading

The LightningFAX server and clients can be upgraded directly, without having to remove the previous version. The necessary updates will be made automatically and with notification.

### Server Considerations

**Note:** It is important that the outgoing fax queues be emptied before upgrading, especially for least-cost routing (LCR).

All the administrator editable configuration files are saved during an upgrade, in the `\Backup\Installation\YYYYMMDD-HHhMM\` sub-folder of the LightningFAX root folder, where `YYYYMMDD-HHhMM` is the date and time of the upgrade. Once the upgrade completed, the administrator can merge the custom configurations into the new files.

The files saved are:

In the LightningFAX root folder:

- `\lcommon\ErrorMessages.txt`;
- All the `.wtx` files for the gateway for SMTP, in the `\LFsmtp` sub-folder;
- All the `.wtx` files for the gateway for Microsoft Exchange, in the `\LFExGateway` sub-folder;
- All the `.wtx` files for the gateway for R/3 (SAP), in the `\LFsap` sub-folder.

In the `C:/tomcat_installation/webapps` folder:

- `oem.properties`.

In the Windows or WinNT folder:

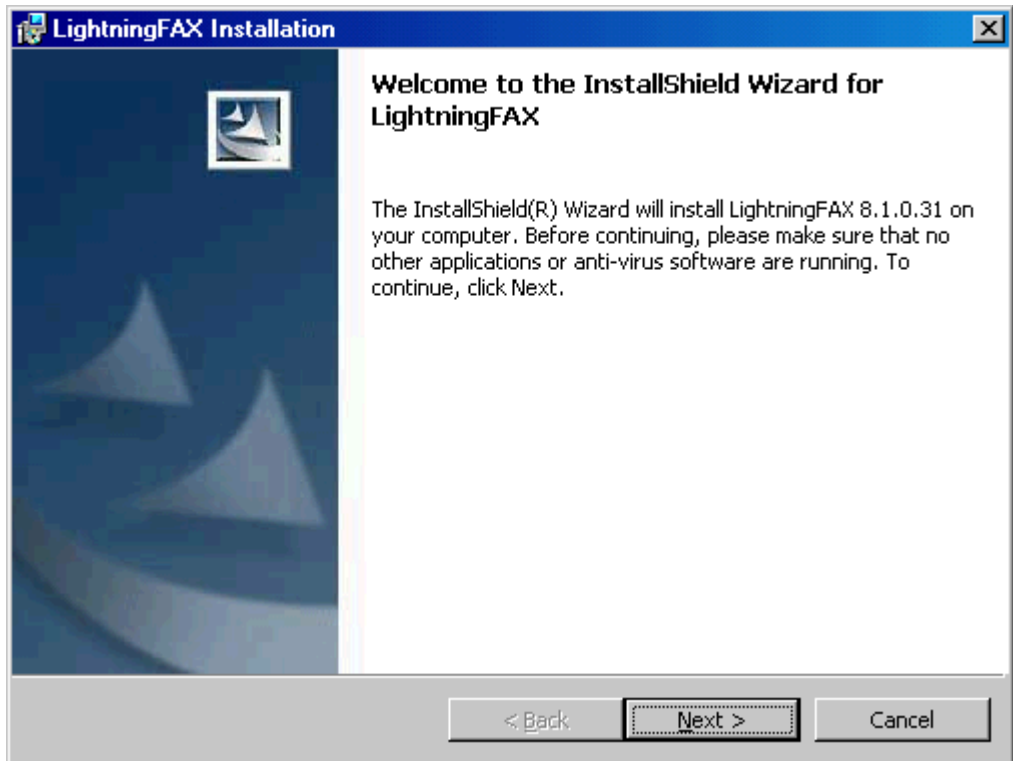
- `lfrasterizer.ini`.

### Upgrade Procedure

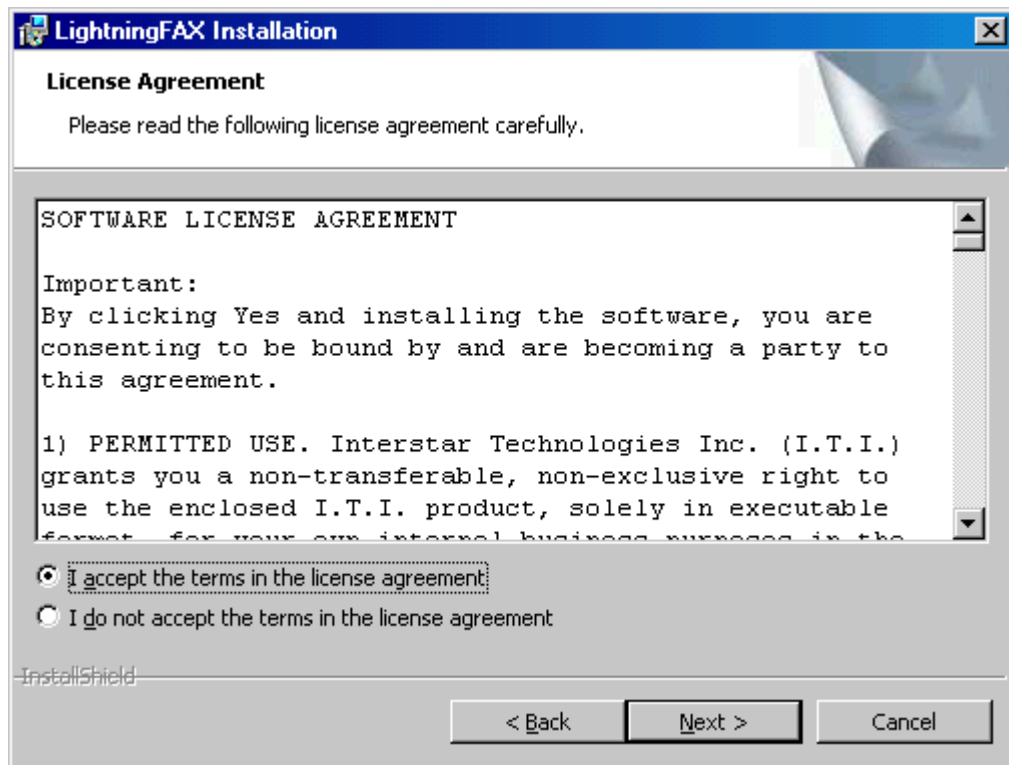
- 1 Insert the LightningFAX installation CD for the new version, in the appropriate drive.
- 2 If the **Autorun** feature is enabled on the computer you are installing to, the LightningFAX splash screen appears (see snapshot on next page). Otherwise, browse to the root folder of the installation CD and double-click `Setup.exe`.
- 3 Click `View release notes`, if you wish to display and review the software release notes before installing.
- 4 In the splash screen, click either `server` or `client`, depending on the type of machine you are upgrading.



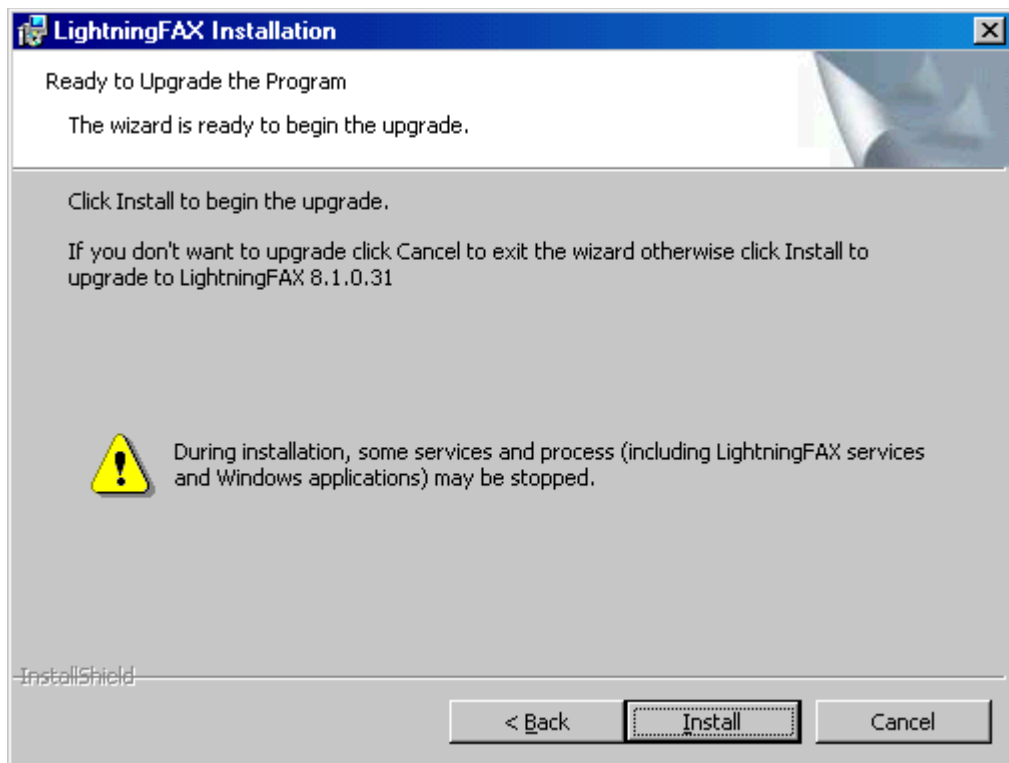
5 After a few seconds, the following dialog appears:



Wait until the button is enabled, and click Next.

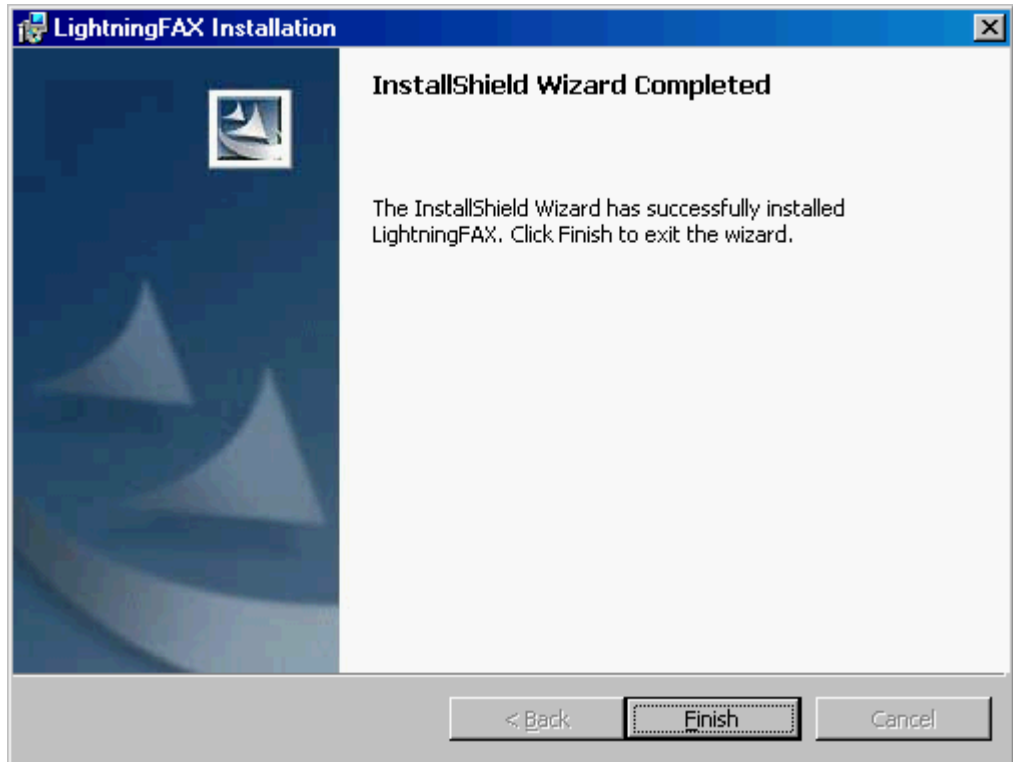


- 6 Select the I Accept the terms in the license agreement option.
- 7 Click Next.



- 8 Click `Install`.

It will take a few minutes for the installation to complete. You can observe the progress, however, with the status bar that is displayed.



- 9 Click `Finish` when the installation is completed.

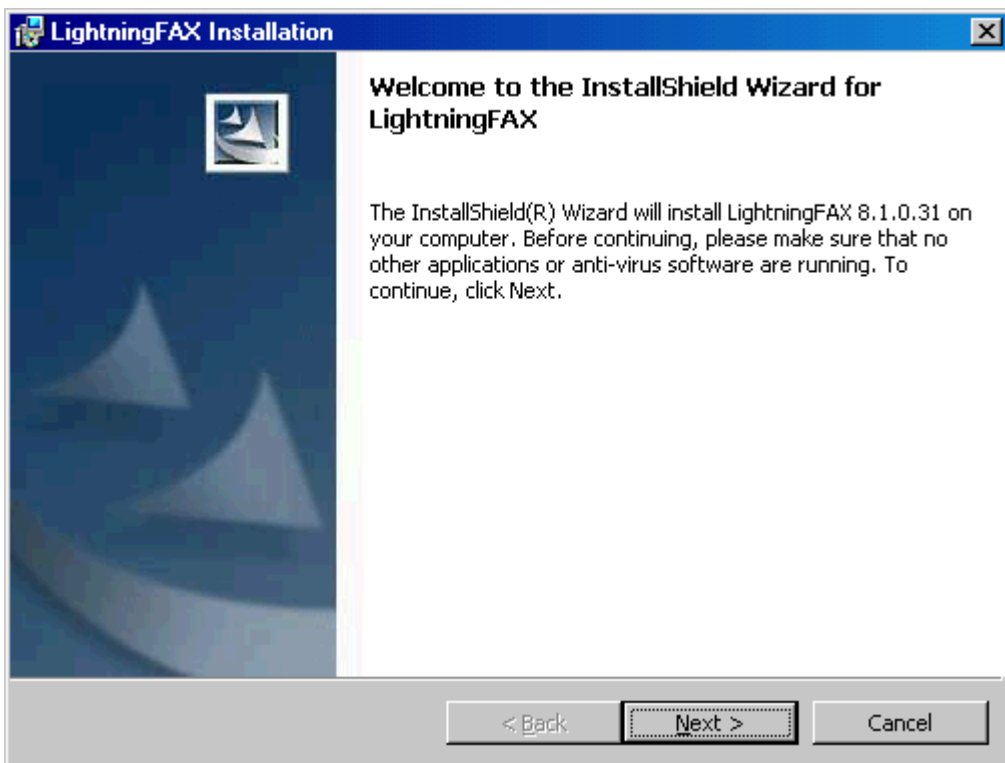
### Adding Components

If you need to add a component (or components) not previously installed on the server or on a client:

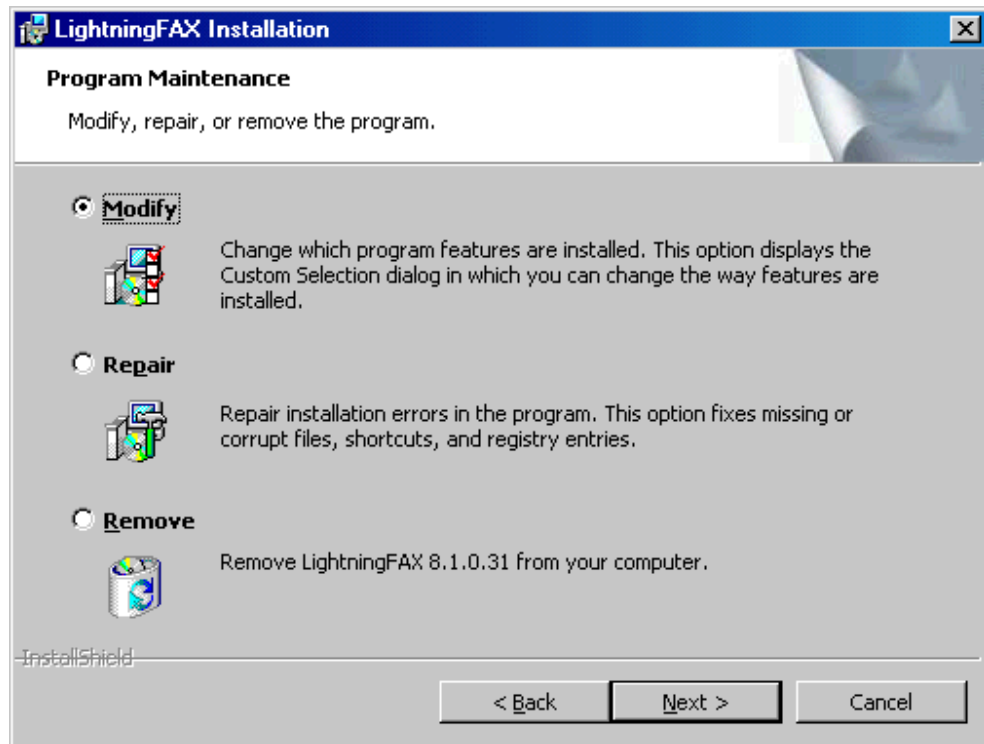
- 1 Insert the LightningFAX installation CD in the appropriate drive, on the computer where you want to add components.
- 2 If the **Autorun** feature is enabled on the computer you are installing to, the LightningFAX splash screen appears (see snapshot on next page). Otherwise, browse to the root directory of the installation CD and double-click `Setup.exe`.
- 3 In the splash screen, click either `server` or `client`, depending on the type of machine you are modifying.



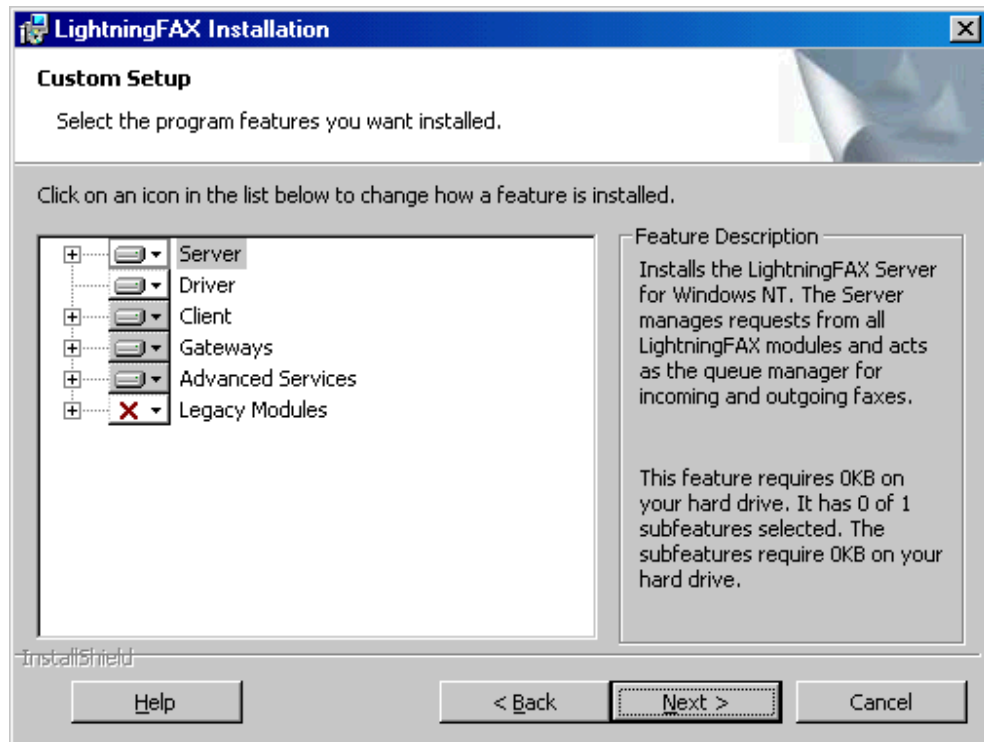
4 After a few seconds, the following dialog appears:

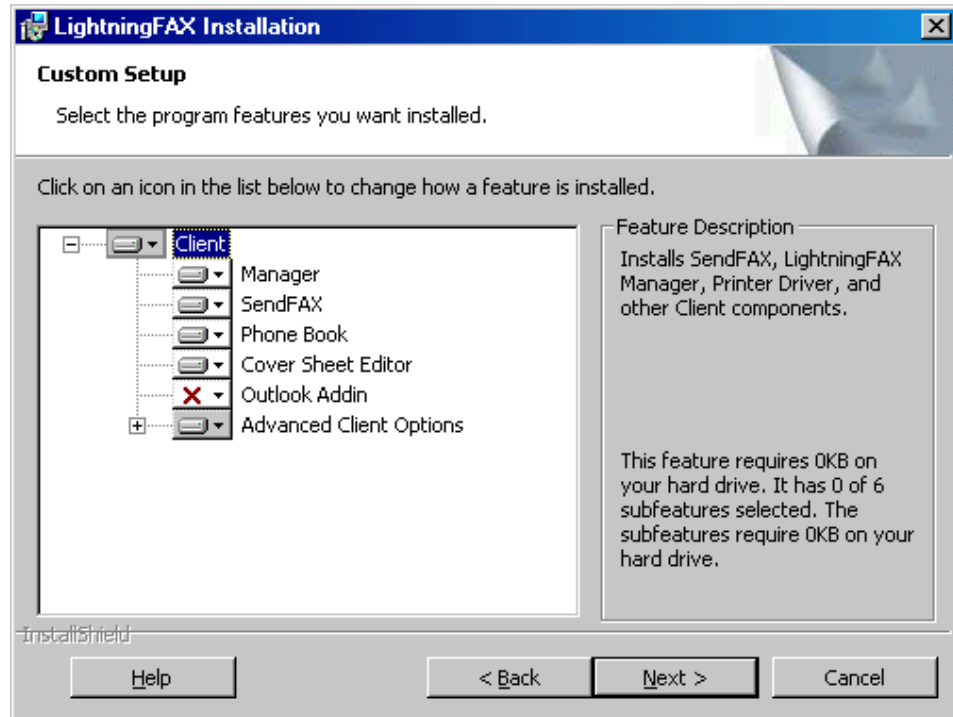


Wait until the button is enabled, and click Next.

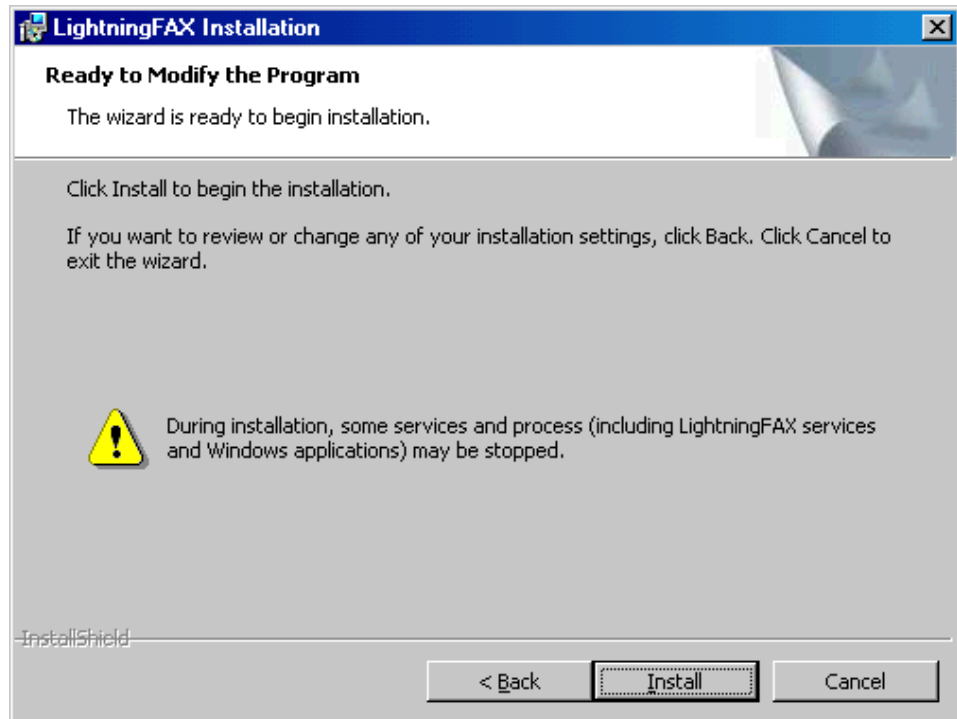


- 5 In the Program Maintenance dialog, select the Modify option.
- 6 Click Next. Depending if you selected server or client modification, either of the following dialogs appear:

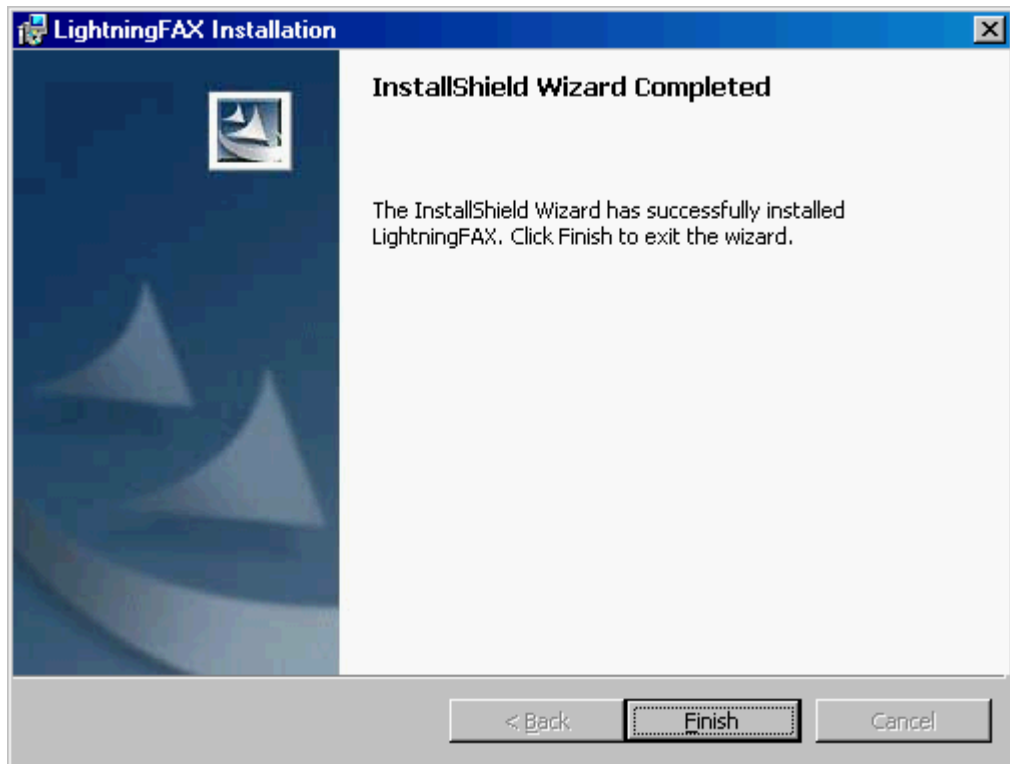




- 7 In whichever Custom Setup dialog, click on the component(s) that you want to install (it/they should be marked with a red X indicating that they are not currently installed; expand the tree branch if need be), and select either This feature will be installed on local hard drive or This feature, and all subfeatures, will be installed on local hard drive.
- 8 Click Next.



- 9 Click `Install`. It will take a few minutes for the modification to complete. You can observe the progress, however, with the status bar that is displayed.



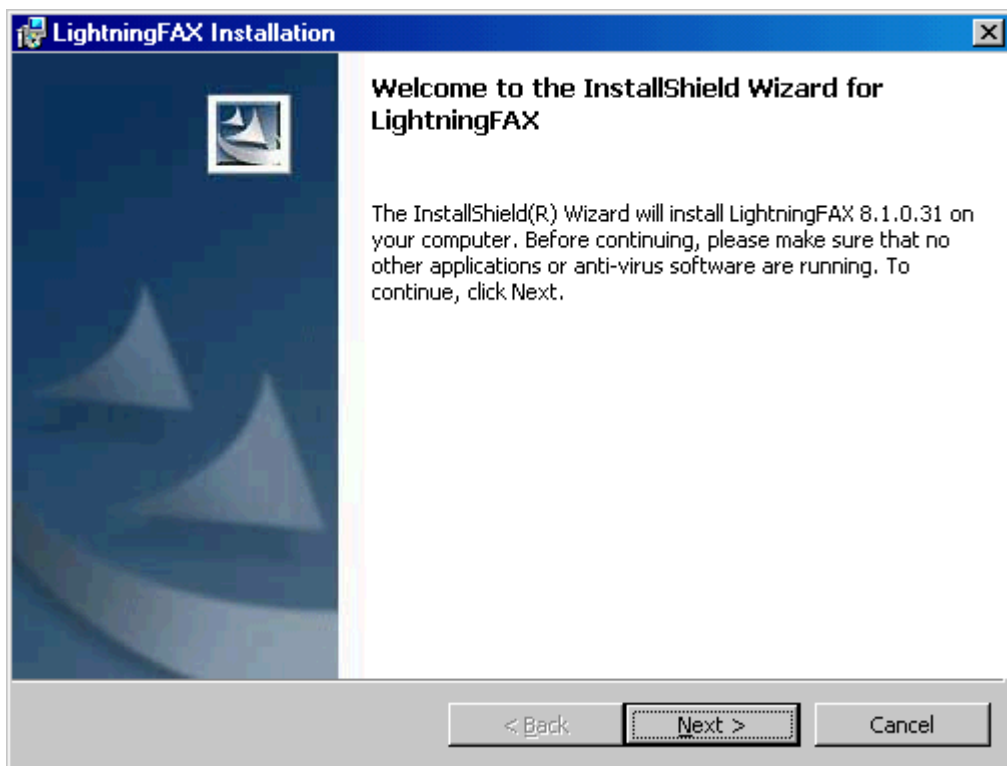
- 10 Click `Finish` when the installation is completed.

### Removing Components

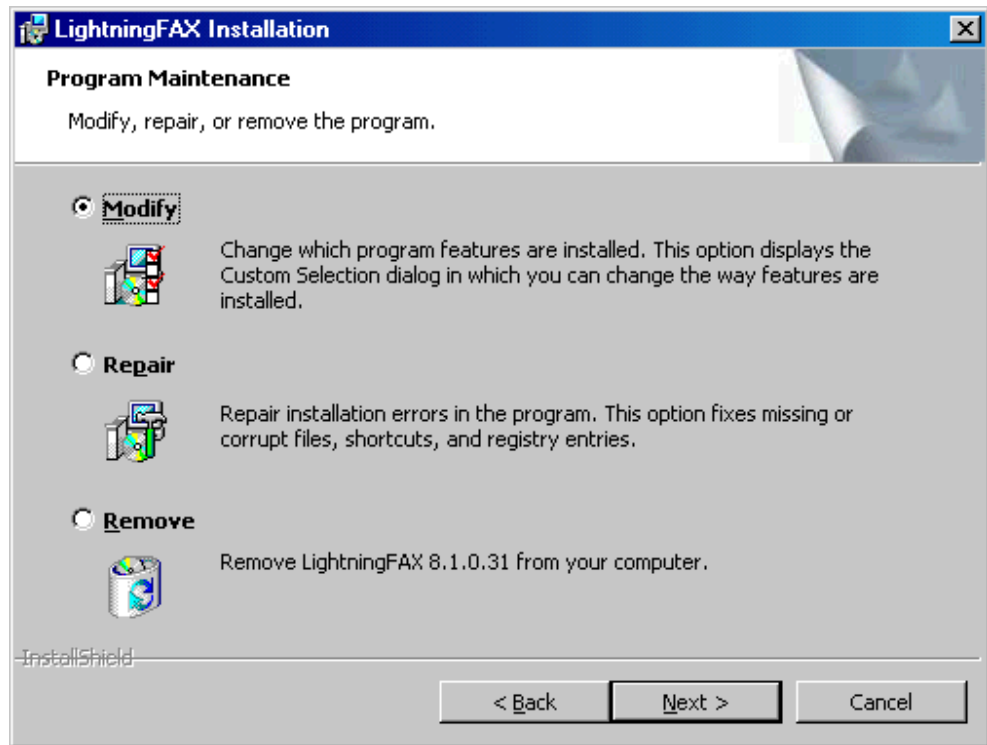
- 1 Insert the LightningFAX installation CD in the appropriate drive, on the computer where you want to remove components.
- 2 If the **Autorun** feature is enabled on the computer, the LightningFAX splash screen appears (see snapshot on next page).  
Otherwise, browse to the root directory of the installation CD and double-click `Setup.exe`.
- 3 In the splash screen, click either `server` or `client`, depending on the type of machine you are configuring.



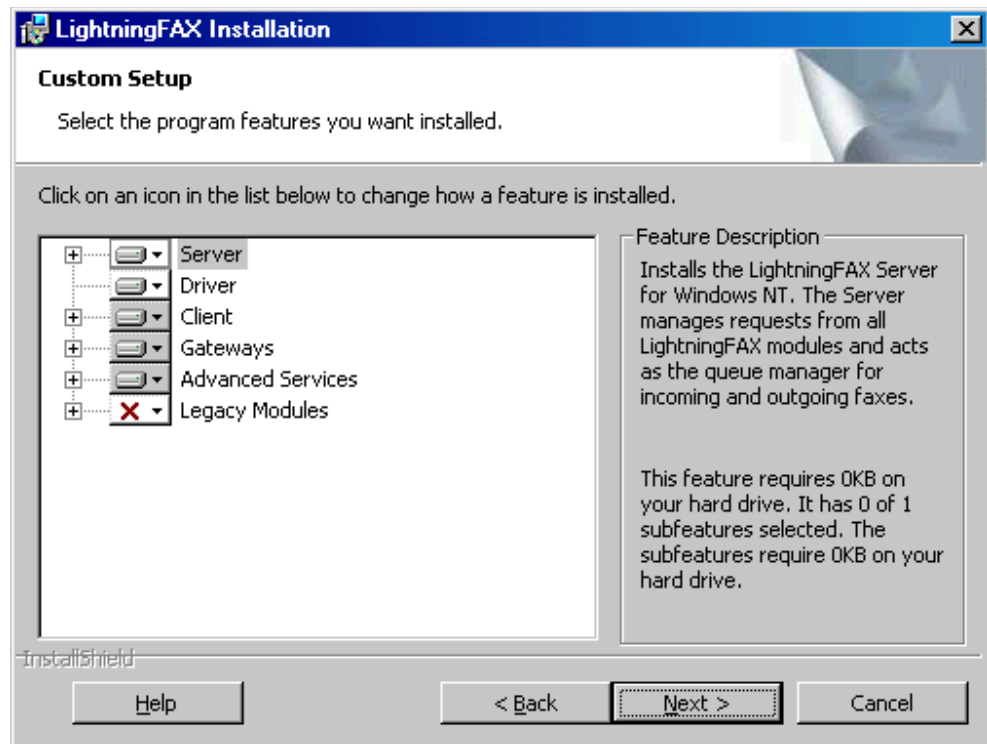
4 After a few seconds, the following dialog appears:

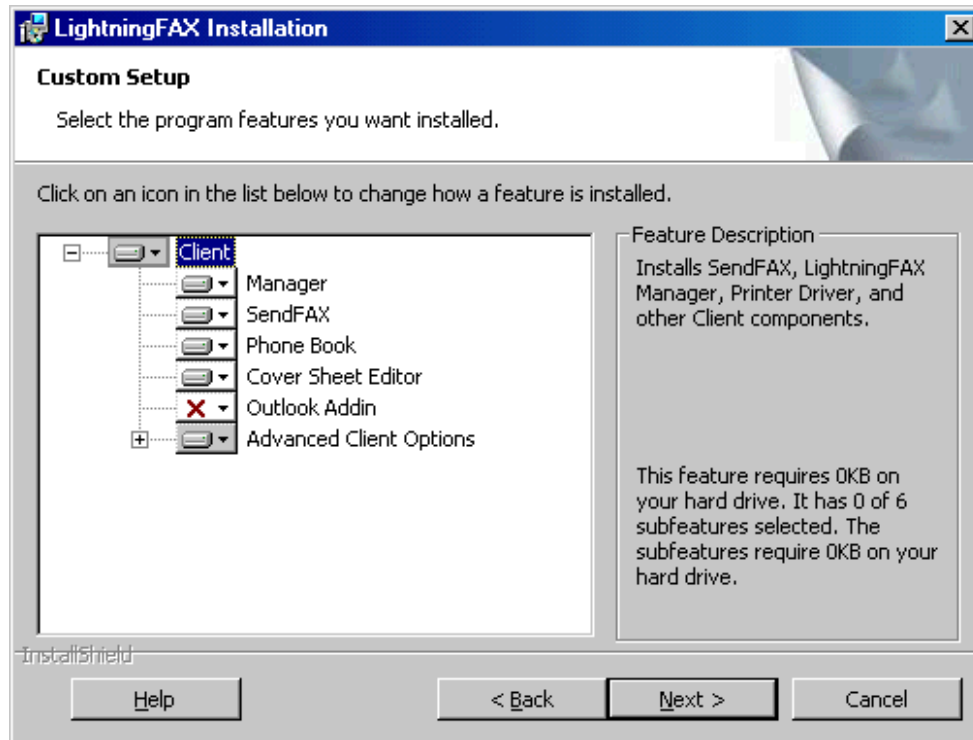


Wait until the button is enabled, and click **Next**.



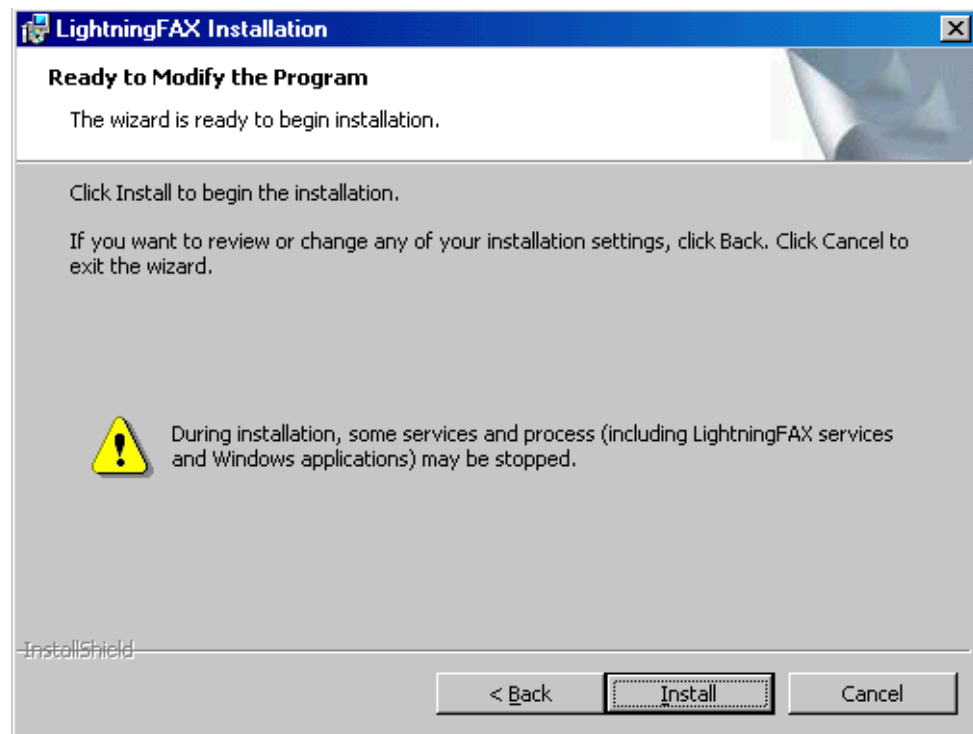
- 5 In the Program Maintenance dialog, select the Modify option.
- 6 Click Next. Depending if you selected server or client modification, either of the following dialogs appear:



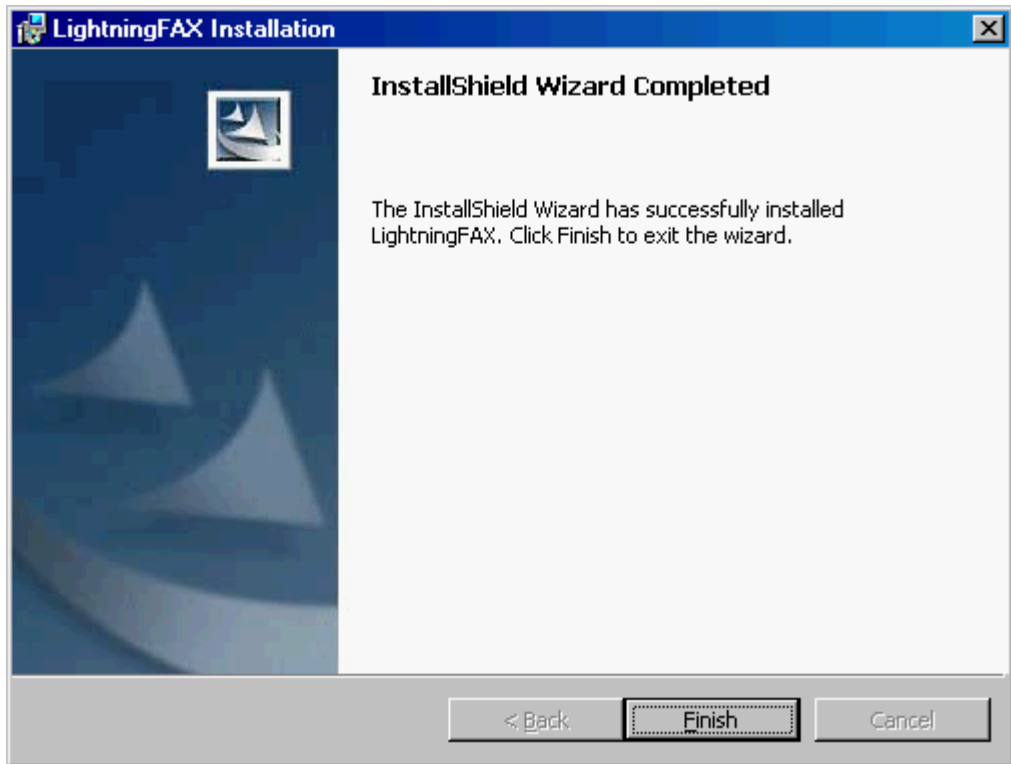


7 In the Custom Setup dialog, click on the component(s) that you want to remove (it/they should not be marked with a red X indicating that they are not currently installed; expand the tree branch if need be), and select This feature will not be available.

8 Click Next.



- 9 Click `Install`. It will take a few minutes for the component(s) to be removed. You can observe the progress, however, with the status bar that is displayed.



- 10 Click `Finish` when the process is complete.

### Removing Mail Merge for Word

Remove Mail Merge for Word as you would any Microsoft Word macro, by using Word's `Tools` ➔ `Macro` menu selection.

**Note:** The `Fax Print` and `Mail Merge` buttons remain, even after deleting the macro. Use Word's `Tools` ➔ `Customize` menu selection to remove the LightningFAX toolbar.

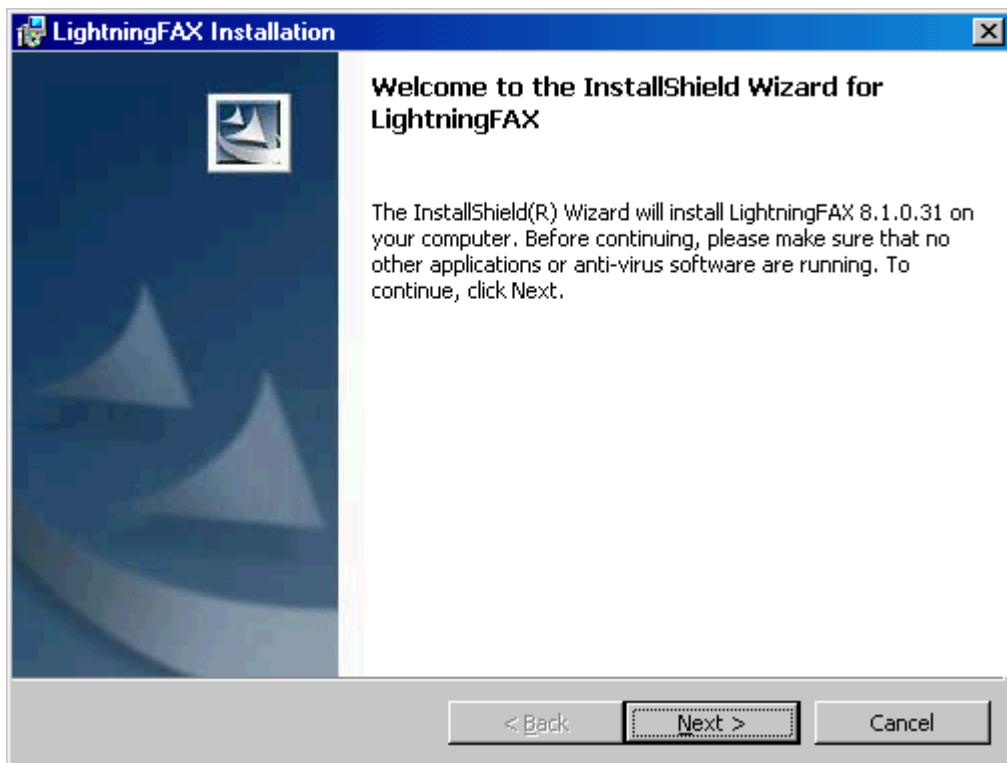
### Repairing an installation

If you suspect that part of a server or client installation has become corrupt, you may repair it using this procedure:

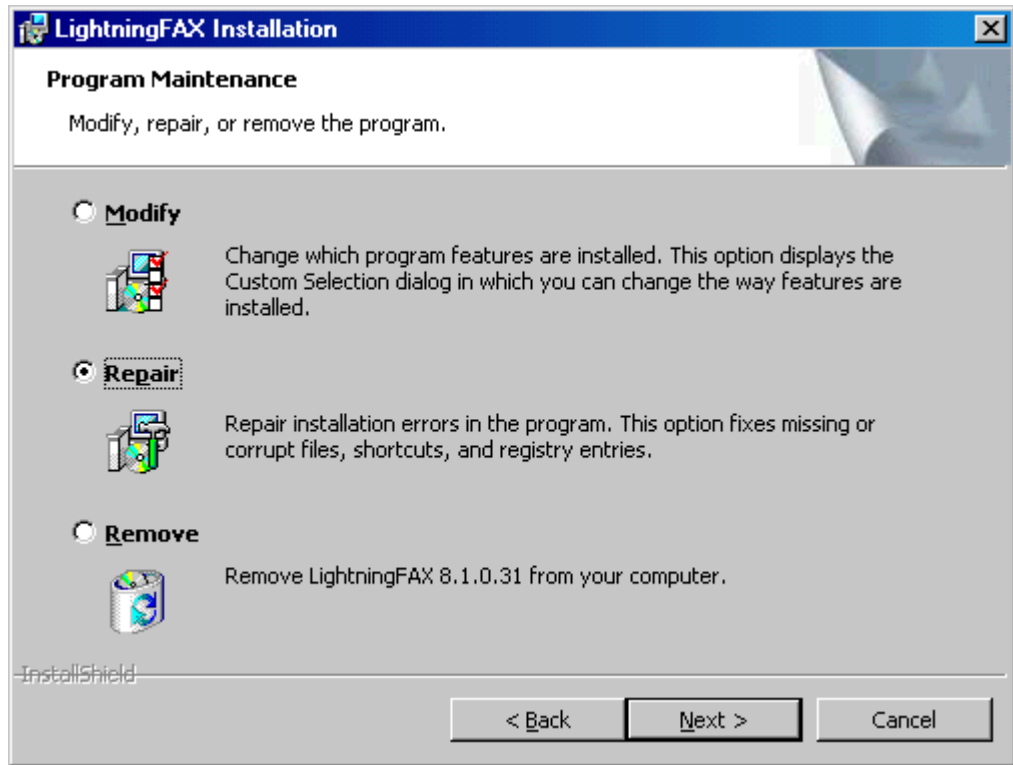
- 1 Insert the LightningFAX installation CD in the appropriate drive, on the server or client whose installation needs to be repaired.
- 2 If the **Autorun** feature is enabled on the computer, the LightningFAX splash screen appears (see snapshot on next page).  
Otherwise, browse to the root directory of the installation CD and double-click `Setup.exe`.
- 3 In the splash screen, click either `server` or `client`, depending on the type of machine you are repairing.



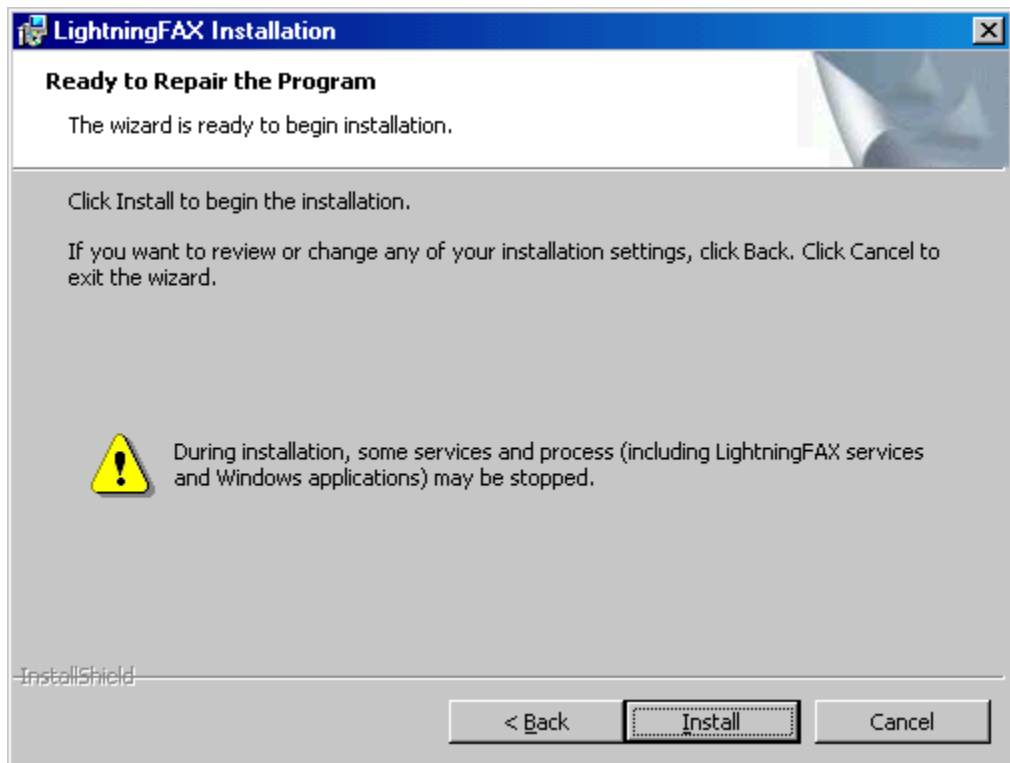
4 After a few seconds, the following dialog appears:



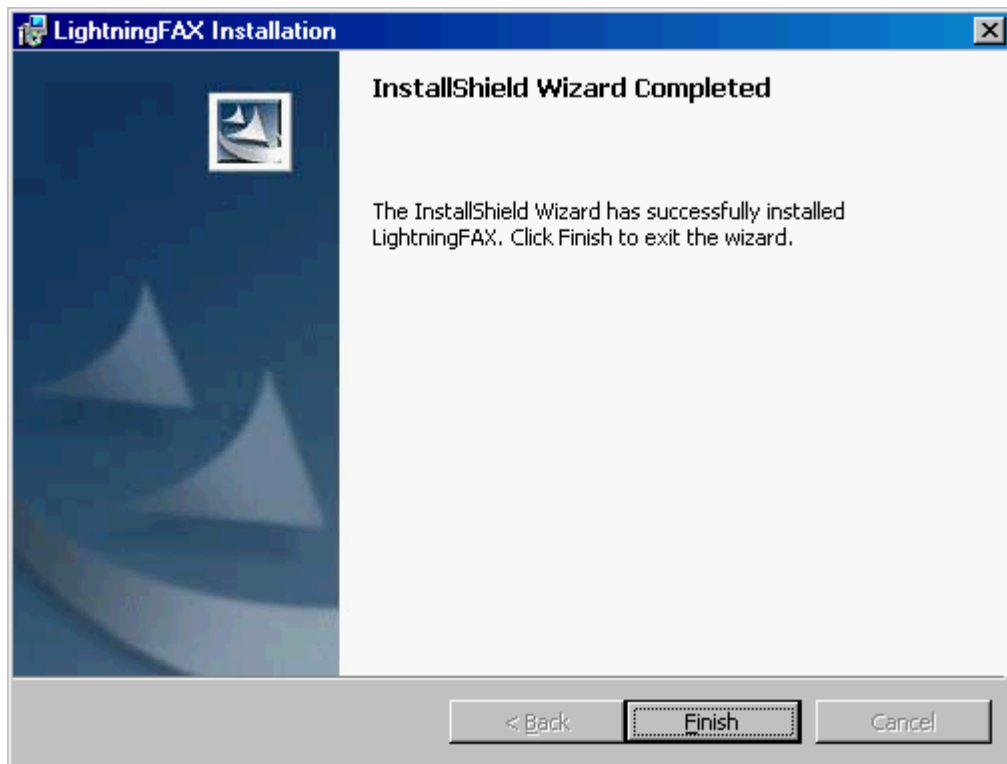
Wait until the button is enabled, and click Next.



- 5 In the Program Maintenance dialog, select the Repair option.
- 6 Click Next.



- 7 Click `Install`. It will take a few minutes for the component(s) to be removed. You can observe the progress, however, with the status bar that is displayed.



- 8 Click `Finish` when the process is complete.

### Uninstalling Completely

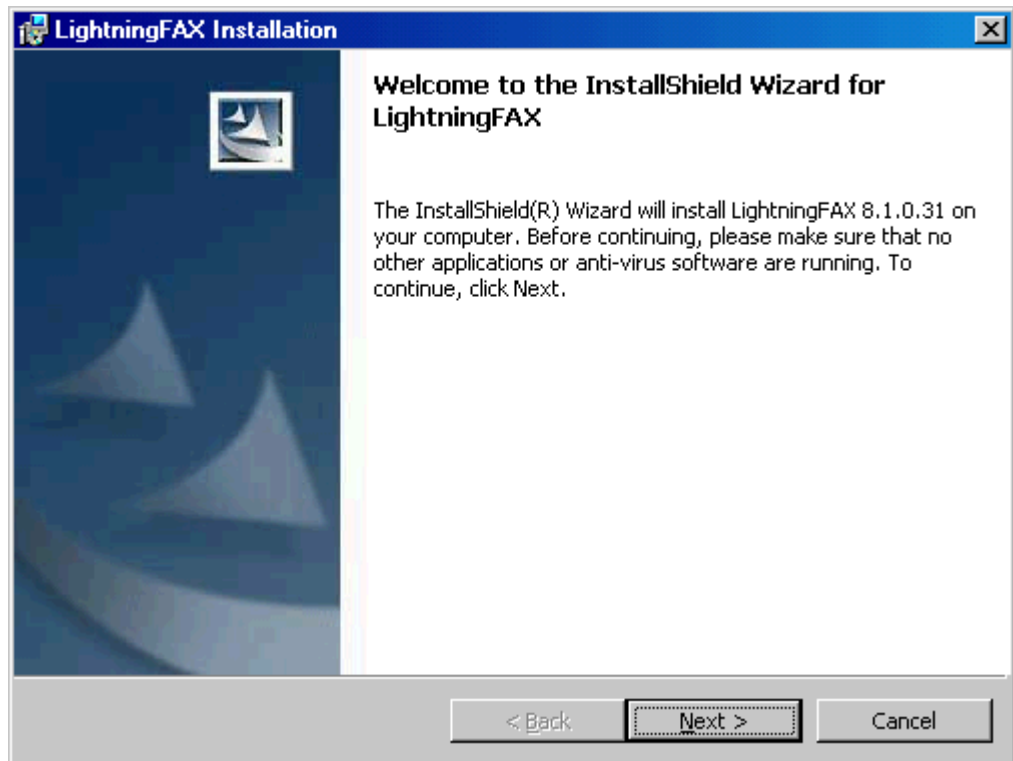
There are two ways to completely remove a server or client installation from a computer. In the case of a server installation, these procedures remove the LightningFAX software, but leave the database information and the third-party software installations intact. You can then re-install LightningFAX (same or newer version) and recover the database. If, however, you need to completely remove any trace of the fax server from the computer, execute either of the procedures then follow the instructions in *Final Clean-up (Server)* on page 56.

#### First Method

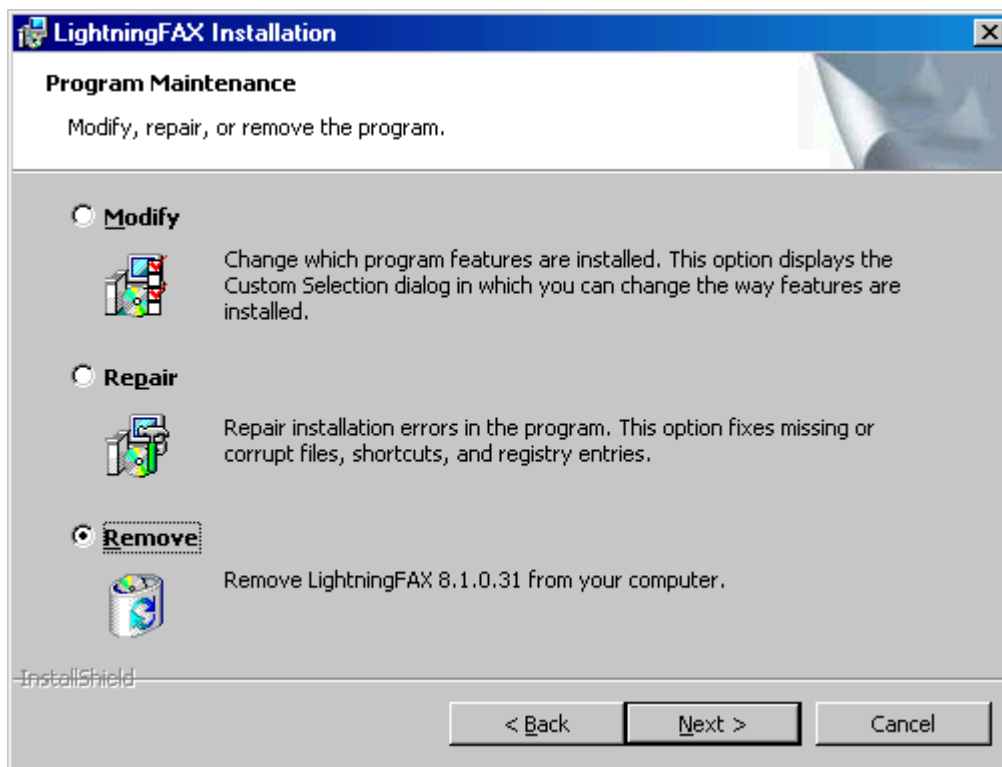
- 1 Insert the LightningFAX installation CD in the appropriate drive, on the server or client where you want to completely remove the software.
- 2 If the **Autorun** feature is enabled on the computer, the LightningFAX splash screen appears (see snapshot on next page).  
Otherwise, browse to the root directory of the installation CD and double-click `Setup.exe`.
- 3 In the splash screen, click either `server` or `client`, depending on the type of installation you are removing.



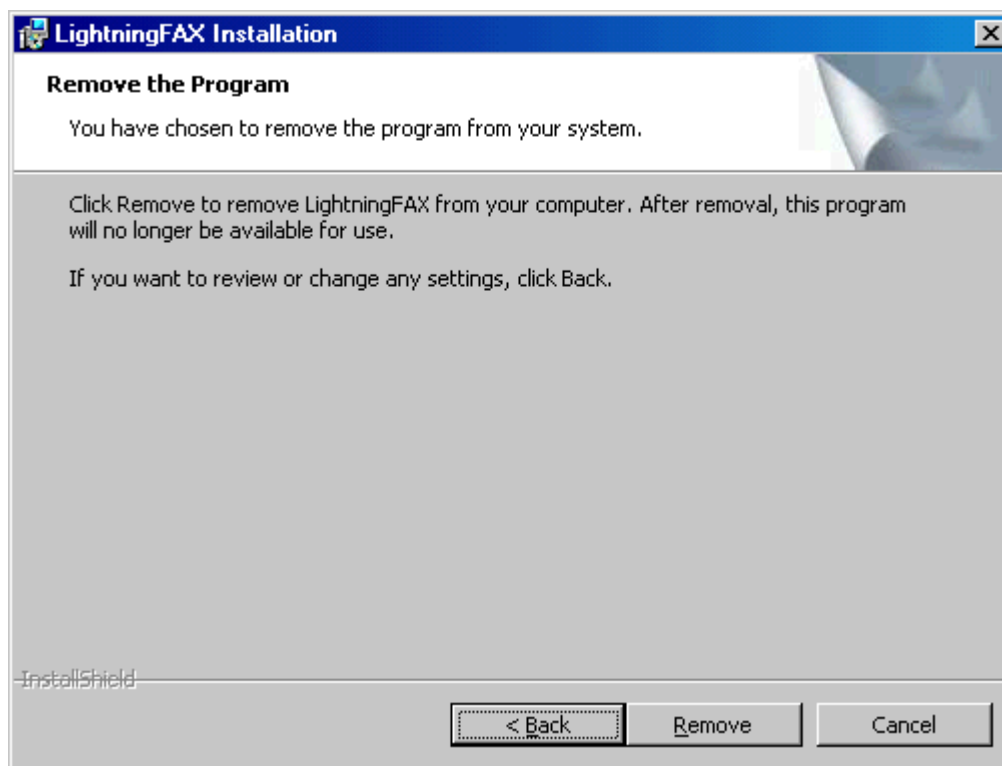
4 After a few seconds, the following dialog appears:



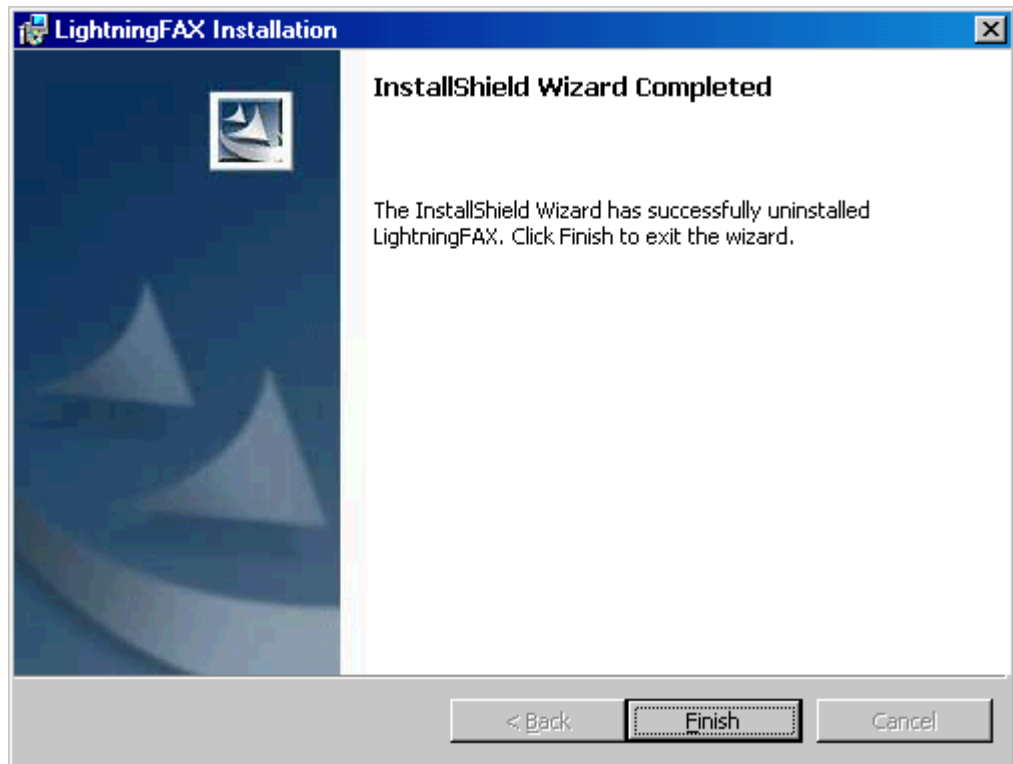
Wait until the button is enabled, and click Next.



- 5 In the Program Maintenance dialog, select the Remove option.
- 6 Click Next.



- 7 Click **Remove**. It will take a few minutes for the software to be removed. You can observe the progress, however, with the status bar that is displayed.



- 8 Click **Finish** when the process is complete.

### Second Method

- 1 In Windows, click **Start** → **Settings** → **Control Panel**.
- 2 In the **Control Panel**, double-click **Add/Remove Programs**.
- 3 In the **Add-Remove Programs** dialog, click on the **LightningFAX Version\_Number** item.
- 4 Click **Remove**.
- 5 In the confirm dialog that appears, click **Yes**. It will take a few minutes for the uninstallation to complete. You can observe the progress, however, with the status bar that is displayed.
- 6 Close the **Add-Remove Programs** dialog, when the uninstallation is over.
- 7 Click **Yes** if asked to reboot the computer.

### Final Clean-up (Server)

If you intend to completely remove any trace of the LightningFAX server from a computer, the following steps should be performed, after uninstalling the software:

- 1 If you didn't reboot the computer after uninstalling LightningFAX, please do so before continuing any further.
- 2 In Windows Explorer, browse to and delete the LightningFAX root directory.

#### **These steps only apply if the web access is installed:**

- 1 In Windows, click Start ➔ Settings ➔ Control Panel.
- 2 Double-click Services.
- 3 In the Services window, stop the following services, by right-clicking on them and selecting Stop: Tomcat, MySQL, IIS Admin Service.
- 4 On the hard drive of the computer, delete the Tomcat (by default C:\jakarta-tomcat) and JacORB (by default C:\JacORB1\_3\_30) installation folders.
- 5 In the Control Panel, double-click Add/Remove Programs.
- 6 In the Add-Remove Programs dialog, click on the Java 2 Runtime Environment Standard Edition v1.3.1\_o3 item.
- 7 Click Remove.
- 8 In the confirm dialog that appears, click Yes. It will take a few minutes for the uninstallation to complete. You can observe the progress, however, with the status bar that is displayed.
- 9 Click OK in the message box that may appear.
- 10 Repeat steps 3 to 6 for Java 2 SDK Standard Edition v1.3.1\_o3.
- 11 Repeat steps 3 to 6 for MySQL Servers and Clients 3.23.
- 12 Close the Add-Remove Programs dialog.
- 13 On the hard drive of the computer, delete the Java SDK (by default C:\jdk1.3.1\_o3) and C:\MySQL installation folders.
- 14 Close the Add-Remove Programs dialog.
- 15 In the Services window, restart the IIS Admin Service, by right-clicking on it and selecting Start.
- 16 Close the Services window.
- 17 Close the Control Panel.

#### **This step only applies if you installed the HP scanner service:**

- 1 Browse to, and delete the \HPFSCAN directory.

### **These steps only apply if you installed the software for a Brooktrout fax board:**

- 1 In Windows, click `Start` ➔ `Settings` ➔ `Control Panel`.
- 2 Double-click `Services`.
- 3 Double-click `Add/Remove Programs`.
- 4 If applicable, in the `Add-Remove Programs` dialog, click on `Brooktrout ECC v1.75` or on `Brooktrout Boston SDK`.
- 5 Click `Remove`.
- 6 In the confirm dialog that appears, click `Yes`. It will take a few minutes for the uninstallation to complete. You can observe the progress, however, with the status bar that is displayed.
- 7 Close the `Add-Remove Programs` dialog.
- 8 Close the `Control Panel`.
- 9 If applicable, in `Windows Explorer`, browse to and delete the `NetAccess ECC` software folder (by default, `C:\bfax`).

### **These steps only apply if you installed the software for a Dialogic fax board:**

- 1 In Windows, click `Start` ➔ `Settings` ➔ `Control Panel`.
- 2 Double-click `Services`.
- 3 Double-click `Add/Remove Programs`.
- 4 If applicable, in the `Add-Remove Programs` dialog, click on the `Dialogic System Software` item.
- 5 Click `Remove`.
- 6 In the confirm dialogs that appears, click `Yes`. It will take a few minutes for the uninstallation to complete. You can observe the progress, however, with the status bar that is displayed.
- 7 Click `Yes` if asked to reboot the computer.
- 8 When the computer has rebooted, close the `Add-Remove Programs` dialog.
- 9 Close the `Control Panel`.



## 4 Gateway Notification Templates

Notifications are received as email by the fax sender. Default templates that select and format the information displayed, for incoming and outgoing faxes, as well as banners that appears on the first page of these notifications, are available for the following gateways: Microsoft Exchange and SMTP.

There are fourteen templates, each contained in a separate file. These files are automatically stored in each gateway sub-folder of the root LightningFAX folder, during installation. Their names indicate the event that occurred to trigger them. Some templates are in text, while others are in HTML format.

<b>Template</b>	<b>Type</b>	<b>Event</b>
failbann.wtx	text	Banner of a notification for an outgoing fax that failed to send;
failed.wtx	text	Notification for an outgoing fax that failed to send;
failedHtml.wtx	HTML	Notification for an outgoing fax that failed to send;
new.wtx	text	Notification for an incoming fax that was received successfully;
newbann.wtx	text	Banner of a notification for an incoming fax that was received successfully;
newfailed.wtx	text	Notification for an incoming fax that was not received successfully;
newFailedHtml.wtx	HTML	Notification for an incoming fax that was not received successfully;
newfbann.wtx	text	Banner of a notification for an incoming fax that was not received successfully;
newHtml.wtx	text	Notification for an incoming fax that was received successfully;
preview.wtx	text	Notification that displays a preview of an outgoing fax;
previewHtml.wtx	HTML	Notification that displays a preview of an outgoing fax;
sent.wtx	text	Notification for an outgoing fax that was sent successfully;
sentbann.wtx	text	Banner of a notification for an outgoing fax that was sent successfully;
sentHtml.wtx	HTML	Notification for an outgoing fax that was sent successfully;

## Chapter 4 Gateway Notification Templates

Each template is composed of text headings and corresponding variables arranged in columns. The variables have the following syntax: @@*variable\_name*. For example, the `sent.wtx` file contains the following:

```
Fax Sent to @@RecipientFirstName @@RecipientLastName at
➤ @@StatusFaxNumber
Status           : @@MsgStatus
MessageID        : @@MessageID
Time Submitted   : @@TimeSubmitted
Time Sent        : @@TimeSent
Pages Sent       : @@PagesSent
Duration         : @@Duration
Remote CSID      : @@RemoteCSID
Subject          : @@StatusSubject
Fax Number       : @@StatusFaxNumber
```

Text sections that do not begin with @@ are headings that help identify the values contained in the variable.

Because notification templates are text files and can be edited in Notepad, you can add any of the notification variables to them.

The notification variables available are listed here. Their names should indicate their contents, corresponding to the equivalent fax details displayed in the LightningFAX manager. Consult Chapter 4 Fax Details Information of the LightningFAX User Guide, for more information.

---

@@APITag	@@PagesReceived	@@RoutingString
@@APITag2	@@PagesSent	@@SenderBillingCode
@@CallBackNumber	@@PageSubmitted	@@SenderSubBillingCode
@@ChannelNumber	@@Priority	@@Speed
@@Duration	@@RecipientBillingCode	@@StatusFaxNumber
@@ErrorCode	@@RecipientCompany	@@StatusSubject
@@ErrorMessage	@@RecipientFirstName	@@TimeReceived
@@GatewayReturnString	@@RecipientLastName	@@TimeScheduled
@@LocalCSID	@@RecipientSubBillingCode	@@TimeSent
@@MessageID	@@RemoteCSID	@@TimeSubmitted
@@MsgStatus	@@RetriesLeft	@@UserID

---

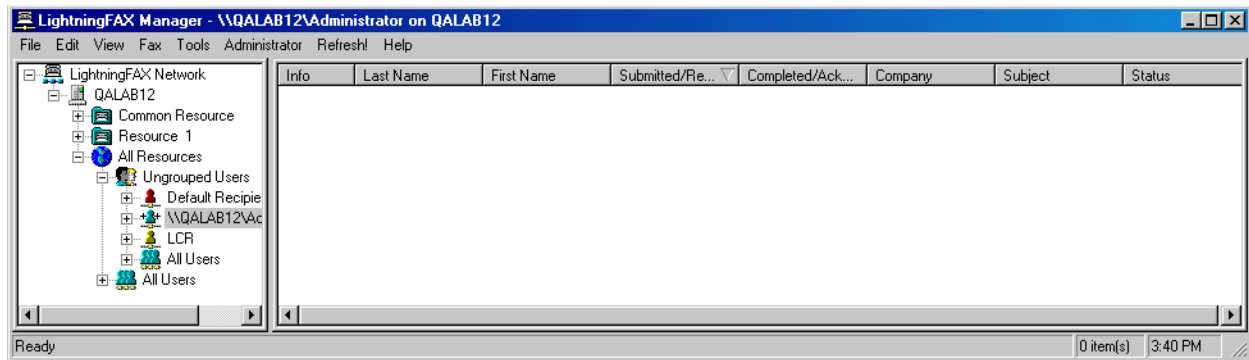
## 5

## Introducing Users

This chapter describes users included in, created within or imported to LightningFAX. It also describes groups and the relationship between them, the users and the resources. Also described are user and group properties. Finally, procedures for auto-archiving and auto-deletion of faxes are described.

### Launching the Manager

Choose Start ➔ Programs ➔ LightningFAX ➔ LightningFAX Manager.



### About Users

After initial installation, the manager displays the LightningFAX network, including the server, the resources and the users associated with each resource.

Assuming that no resources or users have been added, the manager displays the users under Common Resource, All Resources and Resource 1. Within these are two folders: Ungrouped Users and All Users, that display three default users:

User	Function
Default Recipient	<p>Receives the incoming faxes of all users associated with the resource, who do not have automatic inbound routing to their desktops. A super-user or administrator accesses the <code>Default Recipient</code> and distributes faxes to those users.</p> <p><code>Default Recipient</code> appears under every resource.</p>
LCR	<p>Receives faxes sent using least-cost routing and load balancing. These faxes are then forwarded to their final destination.</p> <p>Least-cost routing and load balancing must first be configured; the current server must be part of the network of LightningFAX servers using least-cost routing and load balancing.</p> <p>The status of faxes — <code>Sent</code> or <code>Failed</code>, for example — is communicated to the sending server. When the sending server acknowledges either status, the fax item is removed from the LCR user's list of faxes.</p> <p>An administrator can monitor the activity of the LCR user. However no modifications can be made, except to outgoing fax messages with a status of <code>Waiting for Retry</code>. These can be re-submitted immediately or re-scheduled for transmission at a later time.</p> <p>LCR appears under every resource. No user properties are associated it, however.</p>
Administrator	<p>Administrator privileges can be granted to other users; however, they must have a different user ID.</p> <p>The LightningFAX administrator user ID, or his/her Windows domain user ID, appears under every resource.</p>

`All Users` is a repository under which all users are listed individually. It appears under every resource.

## Optional Users

The following LightningFAX users appear in the manager when the component they represent is first used:

User	Function
<b>LFapi</b>	Represents the API ToolKit. Faxes sent by the API ToolKit are listed as the LFapi user's outgoing faxes.
<b>LFScanner</b>	Represents the <b>Hewlett Packard Digital Sender</b> . Faxes sent by means of the scanner service are listed as the LFScanner user's outgoing faxes.
<b>MAILGTWY</b>	MAILGTWY represents a gateway. If the <code>Default ID</code> configuration (in the Control Panel) of the gateway permits it, faxes sent by email through this gateway are listed as the MAILGTWY user's outgoing faxes.

**Note:** These users can be made members of a LightningFAX group. Only administrators can access and modify the optional user properties.

## User Types

LightningFAX users, that is, the individuals sending and receiving faxes, can belong to any of the following types:

<b>Active Directory and LDAP Users</b>	These users can be imported or matched to Windows NT Domain accounts.
<b>LightningFAX Account User</b>	These users are created within LightningFAX by an administrator. When logging on to the manager and SendFAX, they instruct LightningFAX to authenticate their user IDs and passwords.
<b>Windows NT Domain Account User</b>	<p>Window NT Domain account users belong to an already established Windows NT domain. They can be imported as such into LightningFAX by an administrator.</p> <p>If the Windows NT Domain account of a user is deleted, and he/she still has to access LightningFAX, an administrator must make that user a LightningFAX account user.</p>

### User Status

A LightningFAX user can be granted one of three statuses:

---

<b>Administrator</b>	Users with this status enjoy the same privileges as the main LightningFAX administrator. Depending on the extent of the network, administrator status might be assigned to several users, allowing them to create and manage users, groups and even LightningFAX itself.
<b>Super User</b>	Users with this status can access faxes listed for the Default Recipient on the Common Resource, and forward them to those users whose incoming faxes are not automatically routed to their desktops. This is the only purpose for this status. Options for super-users include: <ul style="list-style-type: none"><li><input type="checkbox"/> Setting notification options on the Default Recipient;</li><li><input type="checkbox"/> Setting the super-user notification options to receive notifications from the Default Recipient.</li></ul>
<b>User</b>	An administrator sets the initial properties of ordinary users and their groups, if they are primary members of one. Users can then modify many of their own properties, either left undefined or already configured by an administrator. An administrator lock is available, to prevent the modification of some properties by the user. This documentation indicates when users can define their user properties, and if an administrator can lock any of them.

### Managing Users

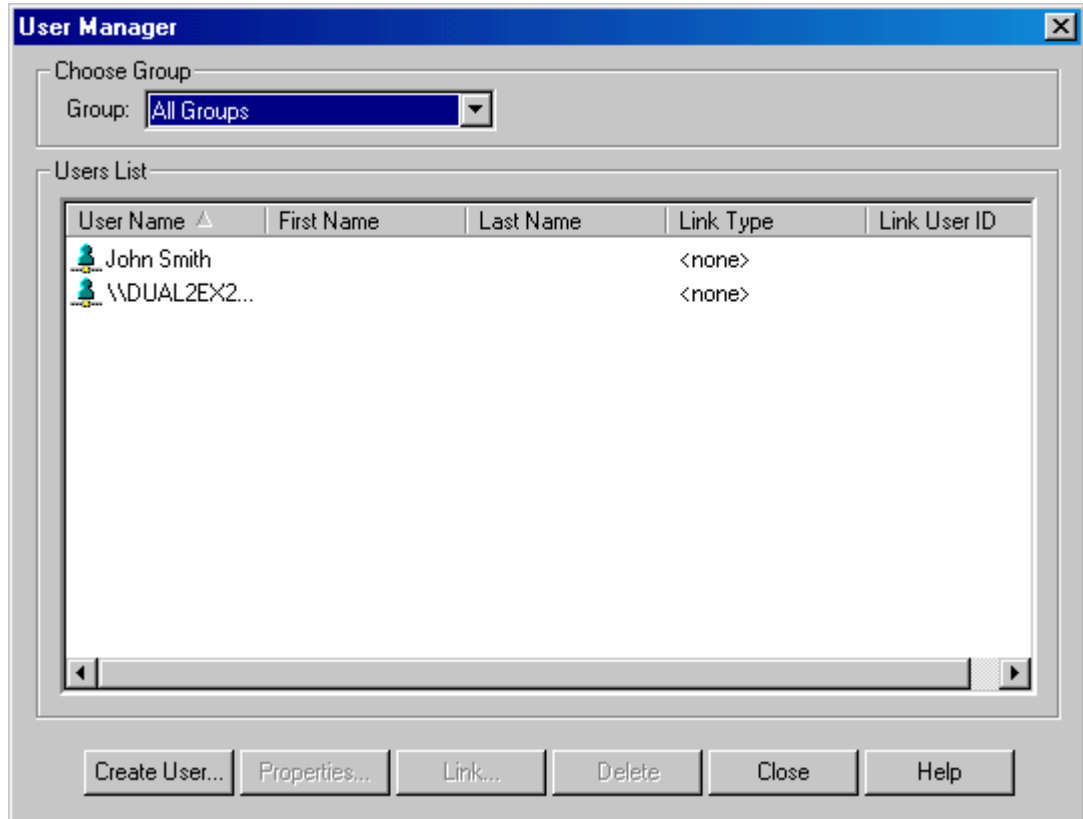
A user of any type can be added directly in LightningFAX.

- A LightningFAX account is exclusive to the program. A user of this type must select `Authenticate with LightningFAX`, when logging into the manager or SendFAX.
- A Windows NT Domain account user logs into the manager or SendFAX by selecting `Use my Windows NT domain account`. There is no actual entry to make, LightningFAX automatically uses the user's Windows NT account and password to grant access. A user of this type can later be matched to an Active Directory or an LDAP source, when logging in.

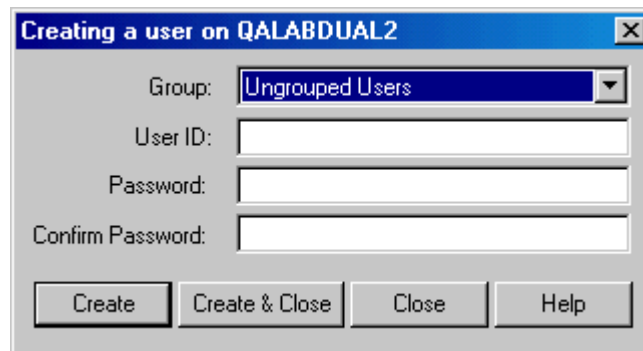
Only administrators can create, import or delete users.

### Creating a LightningFAX Account User

- 1 In the manager, select Administrator ➔ User Manager. The User Manager window appears.



- 2 Click Create User. The Creating a user dialog appears.



- 3 If the user is to be a member of a group, select it in the Group box. When no group is selected, the imported user appears under Ungrouped Users in the manager.
- 4 Enter a User ID.
- 5 Assigning a Password is recommended, but not mandatory.

- 6 If you do enter a password, re-enter it in the `Confirm Password` field.
- 7 Click `Create`. If there are no further users to add, click `Create & Close`.

### Deleting a User

- 1 In the manager, select `Administrator` ➔ `User Manager`. The `User Manager` window appears (see snapshot on previous page).
- 2 Click on the user to delete.
- 3 Click `Delete`.
- 4 When prompted, click `Yes`.
- 5 If there are faxes in the database belonging to the user, `LightningFAX` displays a warning that they will all be deleted.
- 6 Click `Yes` or `Yes To All`.

### Enabling User Auto-Creation at Login

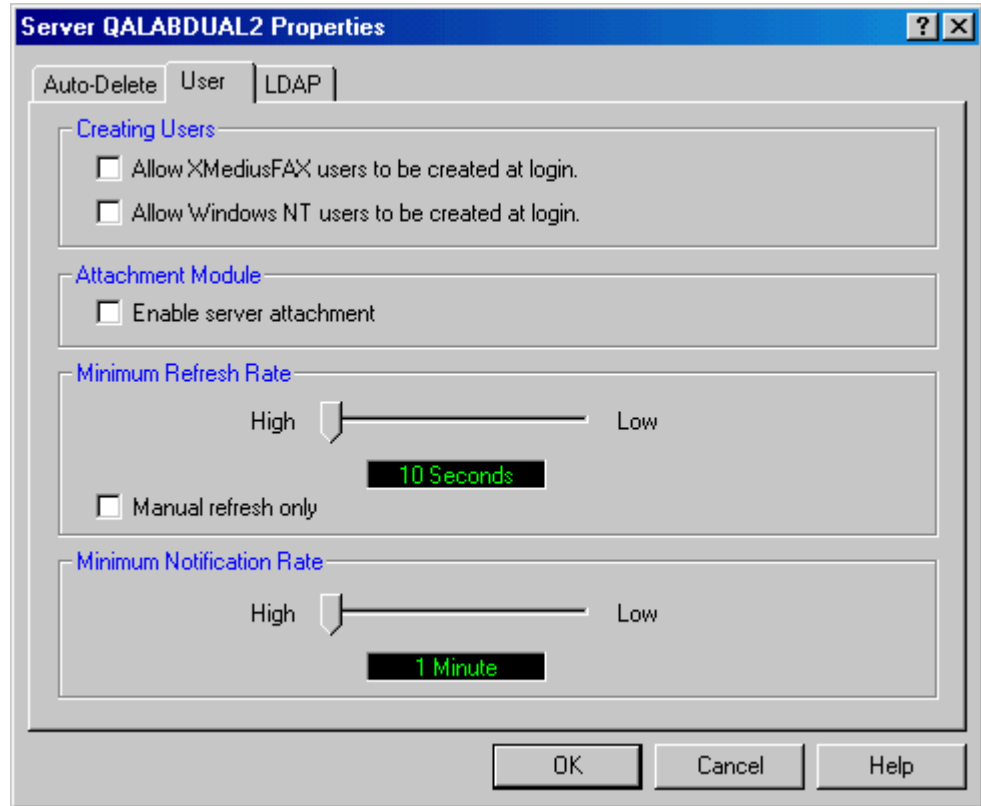
By default, `LightningFAX` rejects unknown user IDs at login. It can however be configured to create a temporary account for such users, when they log into the manager or `SendFAX`.

**Note:** To auto-create Active Directory or LDAP users, the LDAP server must be enabled, as described further on.

This functionality should be used with caution. If it is enabled, typographic errors and misspellings entered at login will become valid users.

- 1 In the manager, select a server in the tree and choose `Edit` ➔ `Properties`, or right-click on it and choose `Server Properties`. The `Server Properties` dialog appears.
- 2 Click on the `User` tab (see snapshot on next page).
- 3 Under `Creating Users`, select `Allow LightningFAX users to be created at login`, if applicable.
- 4 Select `Allow Windows NT users to be created at login`, if applicable.
- 5 Click `OK`.

**Note:** If you have matched users to an external LDAP source, auto-creation will generate unknown users who exist in the LDAP source and reject unknown users who do not.



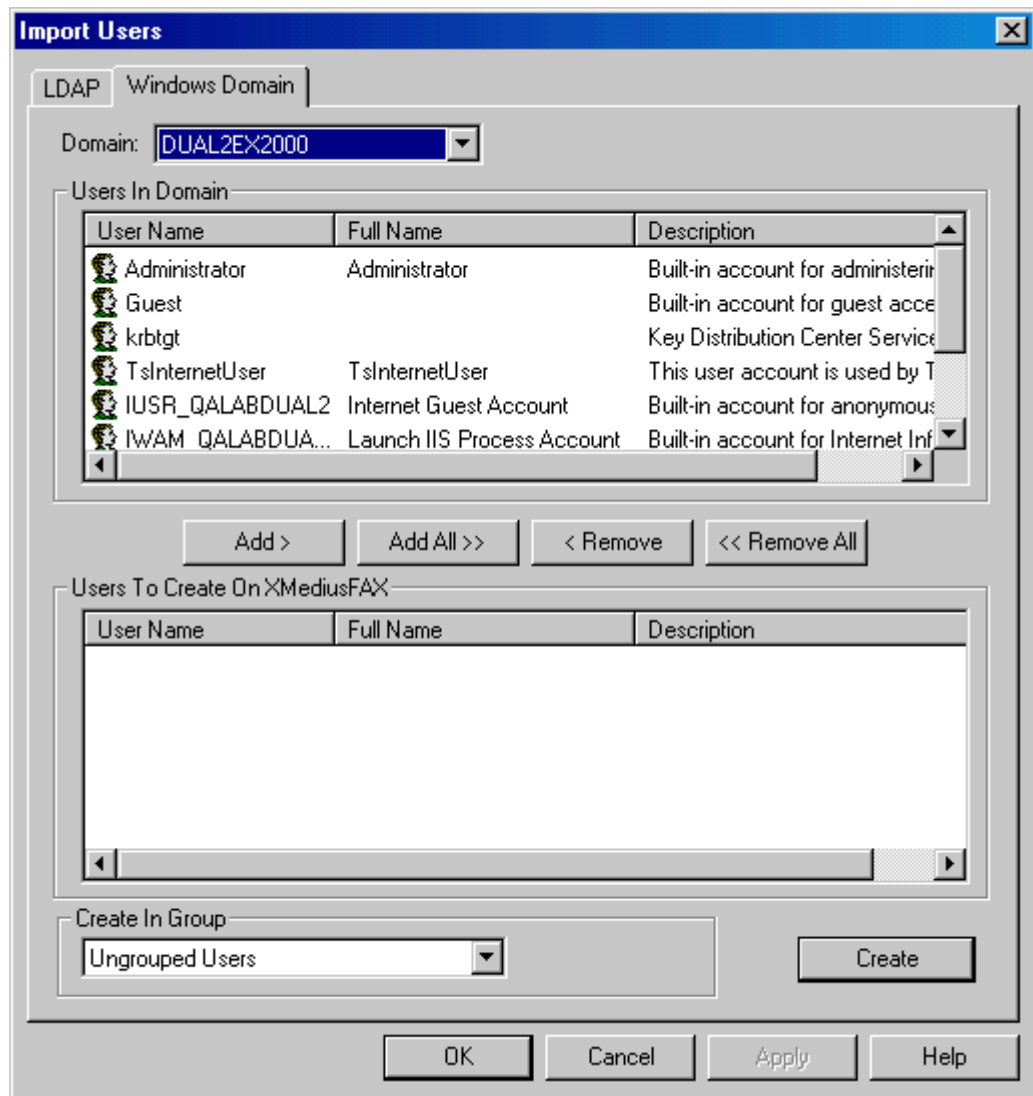
## Importing Users

An alternative to repeatedly creating users in LightningFAX is to import users from an external source. That source can be a Windows NT Domain account, an Active Directory or another type of LDAP source. To update in LightningFAX any properties changed in the external source, you can instruct the program to match these users with the external source. You can also instruct it to automatically create, when they log in, users who exist in the external source but have not been imported.

**Note:** When specifying distinguished names or accessing an LDAP source, you must use the **LDAP URL** syntax. LightningFAX does not support **X.500** syntax.

### From a Windows NT Domain

- 1 In the manager, choose Administrator ➔ Import Users. The Import Users window appears.
- 2 Click on the Windows Domain tab (see snapshot on next page).



- 3 Select a domain in the Domain box, if several exist.
- 4 If the user must belong to a group, select which one in the Create in Group box. When no group is selected, the imported user appears under Ungrouped Users in the manager.
- 5 Select a user in the Users In Domain section. Several users can be selected by combining the cursor with either the Shift or Ctrl key.
- 6 Click Add to import one or several users.  
Click Add All to import all users listed.  
Click Remove or Remove All to make any corrections.
- 7 Click OK or select Create → OK, in the menu.

### From Active Directory or Another LDAP Source

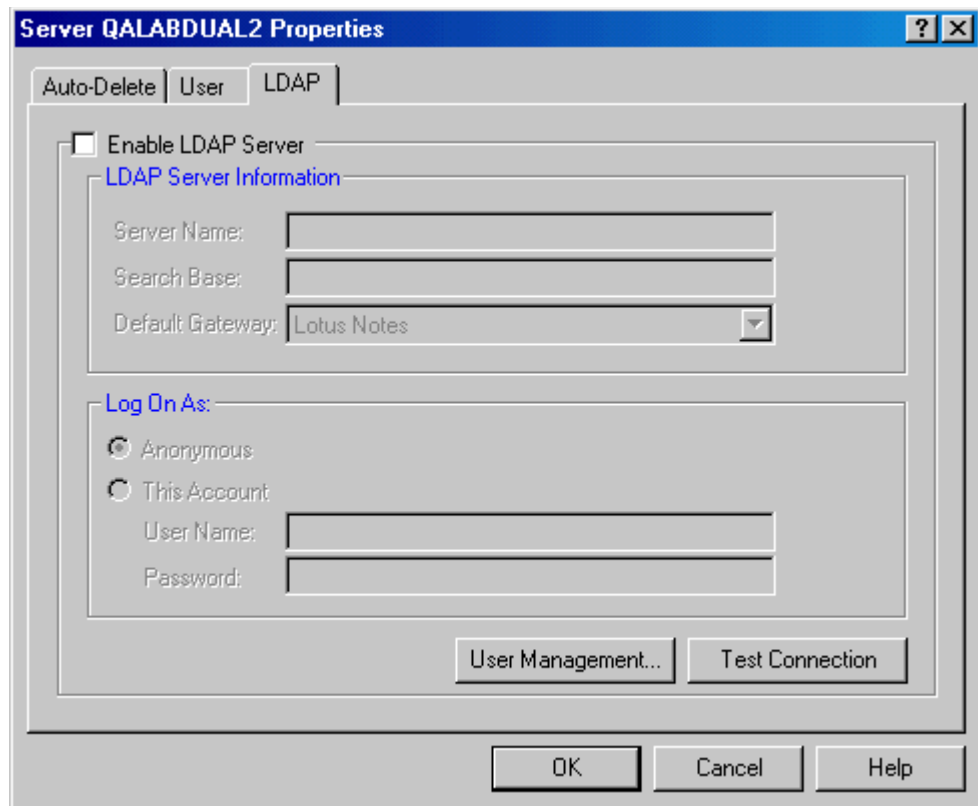
Users imported in this fashion must log to LightningFAX by selecting *Authenticate with LightningFAX*. They can then enter their LDAP distinguished name or their SMTP email address.

**Note:** When logging into the fax manager or the web access as an LDAP user, a password is mandatory. Trying to login with a blank password fails. Other types of users are logged in as anonymous users, when the password is left blank.

### Enabling the LDAP Server

LDAP services must be enabled before LDAP or Active Directory users can be imported.

- 1 In the manager, select a server in the tree and choose *Edit* → *Properties*, or right-click on it and choose *Server Properties*. The *Server Properties* dialog appears.
- 2 Click on the *LDAP* tab.



- 3 Select *Enable LDAP Server*.
- 4 If you are using Active Directory, enter the name of the Active Directory server in the *Server Name* field.

If you are using Microsoft Exchange 5.5, enter the name of the server on which it is installed.

- 5 In the `Search Base` field, enter the name of the organization or organization unit that contains specifications for users. For example, if you are using Active Directory, the FQDN (Field Qualified Domain Name) is required.

Note: For MS Exchange 5.5 in an NT4 domain, you may enter:

`o=organization_name` or `organization_unit`

For MS Exchange 2000 or 2003, enter:

`cn=users,dc=FQDN,dc=com`

For Lotus Notes, enter:

`o=organisation`

`cn=user_name/o=organisation`

- 6 If users are faxing through a gateway, use the `Default Gateway` option to select the gateway that is installed on the system.
- 7 If the server has been configured to allow anonymous connections, select `Anonymous`.

If anonymous connections to the server have been disabled, select `This Account` and enter the `User Name` and `Password` of an account with sufficient rights.

Note: If automatic matching of the NT account to an Active Directory or LDAP source is enabled (see `Matching Active Directory or LDAP Users with Windows NT Domain Users` on page 72), the user name must be in the `domain\user_name` format.

For MS Exchange 5.5 in an NT4 domain, enter `cn=user_name` in the `User Name` field, and the NT domain password in the `Password` field.

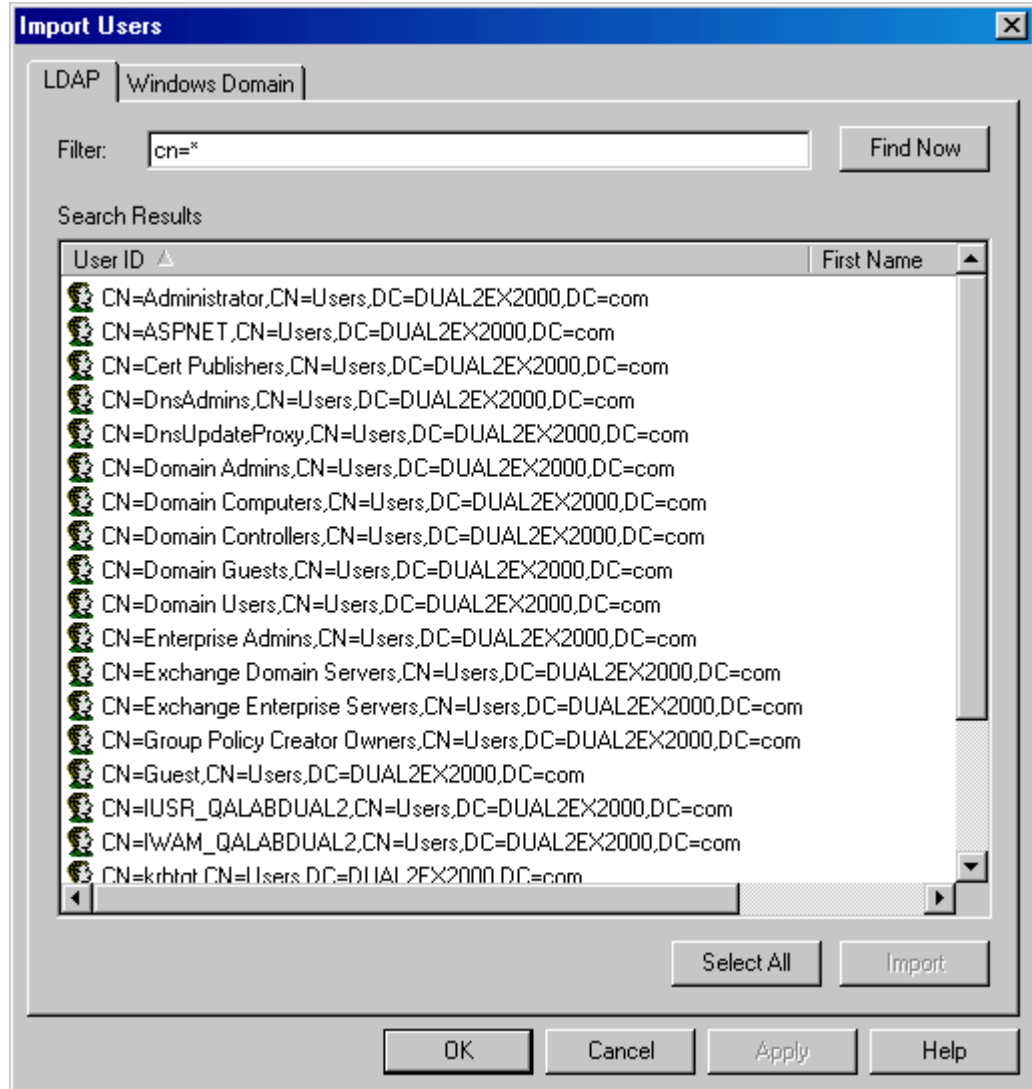
- 8 Click `Test Connection` to test the connection. If it fails, make sure the server name, the user name (in the proper format) and the password are entered correctly, since these are the most common sources of errors.
- 9 Click `OK`.

### Importing

- 1 In the manager, choose `Administrator` ➔ `Import Users`. The `Import Users` window appears.
- 2 Click on the `LDAP` tab (see snapshot on next page).

By default, LightningFAX selects all common names, importing all LDAP users. Replace the asterisk with a different value to filter users.

Note: If the results of the query exceeds the display limit set in the LDAP server settings, nothing is displayed. It is recommended that you use filters to limit the number of results per query (for example: `cn=a*`, `cn=b*`, etc...).



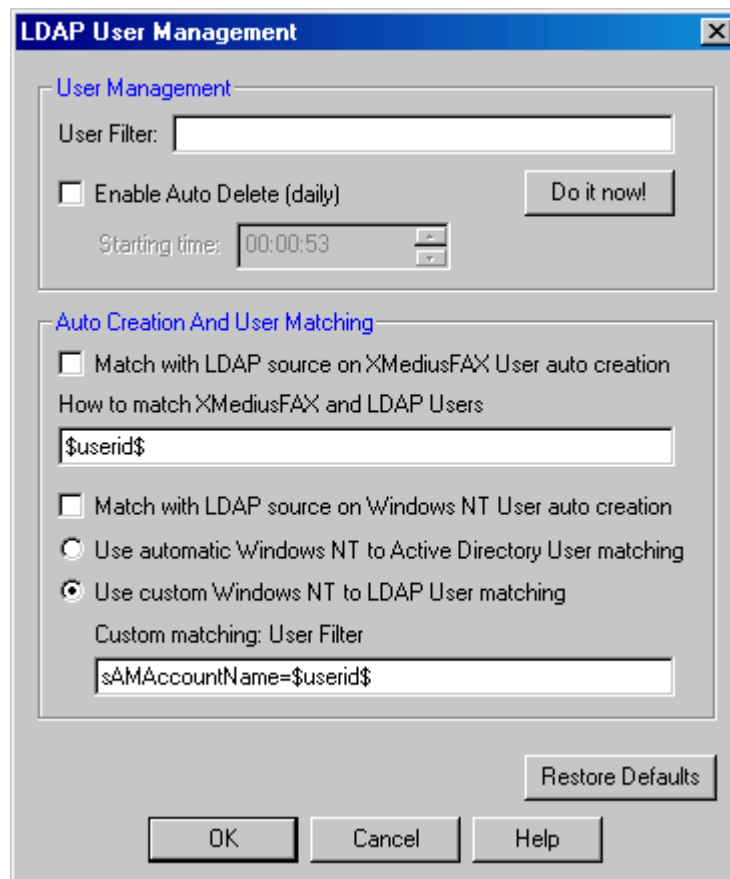
- 3 Click Find Now.
- 4 Select a user ID. Several users can be selected by combining the cursor with either the Shift or the Ctrl key.  
Click Select All to select all users.
- 5 Click Import.

### Matching Active Directory or LDAP Users with Windows NT Domain Users

The method used to match Active Directory or other LDAP users with their Windows NT Domain accounts, depends on the type of source being matched.

Users imported in this fashion can login by selecting either Use my Windows NT domain account and/or Authenticate with LightningFAX, according the configuration specified.

- 1 LDAP services must be enabled, as shown in Enabling the LDAP Server on page 69 (do not click OK when done, however).
- 2 Click User Management. The LDAP User Management dialog appears.



- 3 If you want to automatically match, at login, newly created LightningFAX account users with an LDAP source, choose the Match with LDAP source on LightningFAX User auto creation option, in the Auto-Creation And User Matching section.

**Note:** If you leave \$userid\$ as the match string, the user will be forced to login in the format *domain\user\_name*. You could use a string of the form: *cn=\$userid\$, cn=users, dc=domain, dc=com* (where *domain* is replaced by the actual

domain name), to ensure that the user only has to enter his/her user name.

- 4 In the `How to match LightningFAX and LDAP Users` field, specify the search value by which to perform the match. Default is `$userid$`.
- 5 If you want to automatically match, at login, newly created Windows NT Domain users with an LDAP source, choose the option `Match with LDAP source on Window NT User auto creation`, in the `Auto-Creation And User Matching` section.
- 6 If you are using Active Directory and the login is in the format `domain\user_name`, select the `Use automatic Windows NT to Active Directory matching` option. To filter users, enter an LDAP attribute and value in the `User Filter` field, under `User Management`. Only those users that meet this criteria will be matched at login.
- 7 Check the `Enable Auto Delete (daily)` box and enter a time in the `Starting Time` field, to ensure that users automatically created at login are removed from the system, at a precise time every day.
- 8 Click on the `Do it now!` button to immediately delete all the automatically created users of the current day.
- 9 Alternatively, if you are using another type of LDAP source, choose the option `Use custom Windows NT to LDAP User matching`.
- 10 In the `Custom matching: User Filter` field, you must specify the user ID and the domain, in the format:
 

```
sAMAccountName=$userid$,dc=$domain$
```
- 11 Click the `Restore` button to restore all the parameters of the current dialog, to what they were when you opened it.
- 12 Click `OK`.

### Accessing the User Properties

- 1 In the manager, click on a user ID and select `Edit` ➔ `Properties` or right-click on it and choose `User Properties`.

OR

If you are an administrator:

- 1 In the manager, select `Administrator` ➔ `User Manager`. The `User Manager` window appears (see snapshot on page 65).
- 2 Click on a user ID.
- 3 Click `Properties`. The user's `Properties` dialog appears (see snapshot on next page).

The screenshot shows a window titled "John Smith Properties" with a standard Windows-style title bar (minimize, maximize, close buttons). Below the title bar is a tabbed interface with the following tabs: "E-mail", "Group", "List Settings", "Security", "Information", "Routing", "User Settings", "Frequency", "Fax Settings", and "Preference". The "Information" tab is currently selected. The form is organized into three main sections:

- Personal Name:** Includes input fields for "Salutation:", "First Name:", "Last Name:", and "Job Title:".
- Company:** Includes input fields for "Name:", "Address:", "City:", "State/Province:", "Country:", and "Zip Code:".
- Contact Numbers:** Includes input fields for "Phone:", "Pager:", "Fax:", "Cellular:", and "E-mail:".

At the bottom of the dialog are four buttons: "OK", "Cancel", "Apply", and "Help".

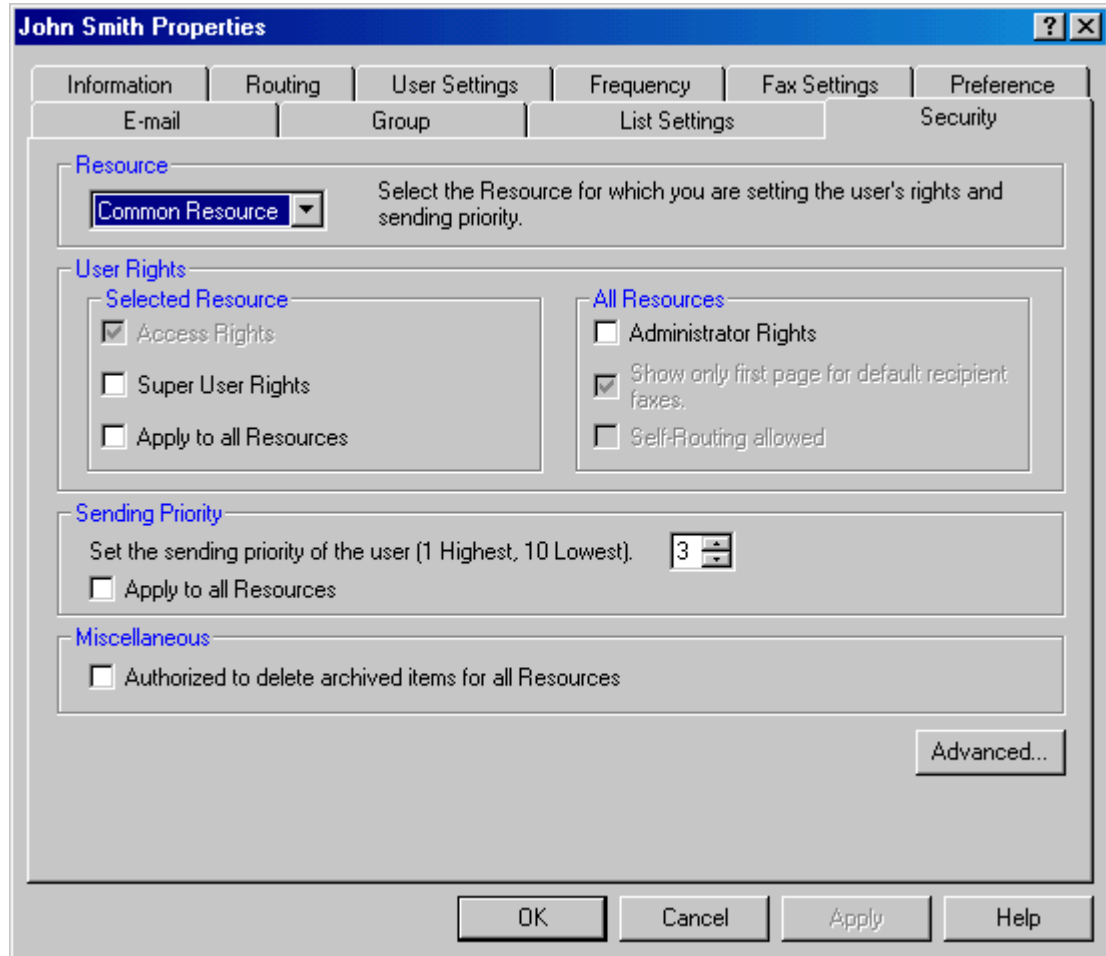
**Note:** Users who are not administrators can only select their own user ID.

The Group, List Settings and Security tabs, as well as the Enter DID, DTMF, or DNIS number setting of the Routing tab and the Show Me a Restricted View option in the Preference tab, are not available to ordinary users when they access their own properties.

## Enabling an Administrator

Only administrators can enable or disable other administrators. Administrator rights can only be applied to individual users, granting them access to all resources and operations.

- 1 In the manager, access the properties of a user.
- 2 Click on the Security tab.



- 3 In the All Resources section, select Administrator Rights. Since administrators have full privileges, other user rights options are grayed-out.
- 4 Click OK.

### Enabling a Super User

Only an administrator can enable or disable a super-user.

- 1 In the manager, access the properties of a user or a group's primary users.
- 2 Click on the `Security` tab (see snapshot on previous page).
- 3 If applicable, in the `Resource` section, select a single resource to which the user or the group is associated, or check the `Applies to All Resources` box.
- 4 In the `Selected Resource` section, select `Super User Rights`.
- 5 Select `Apply to all Resources` if super-user rights are to apply to all resources the user or group can use.
- 6 In the `All Resources` section, check the `Show only first page for default recipient faxes` box, if the super-user can only view the fax cover sheets.  
Deselect it if the super-user is allowed to view the entire fax.  
**Note:** If a super-user can only view the cover sheet of a fax, he/she will not be able to save the fax to the server.
- 7 Select `Self-Routing allowed` if the super-user is allowed to route faxes to him/herself.
- 8 Click `OK`.

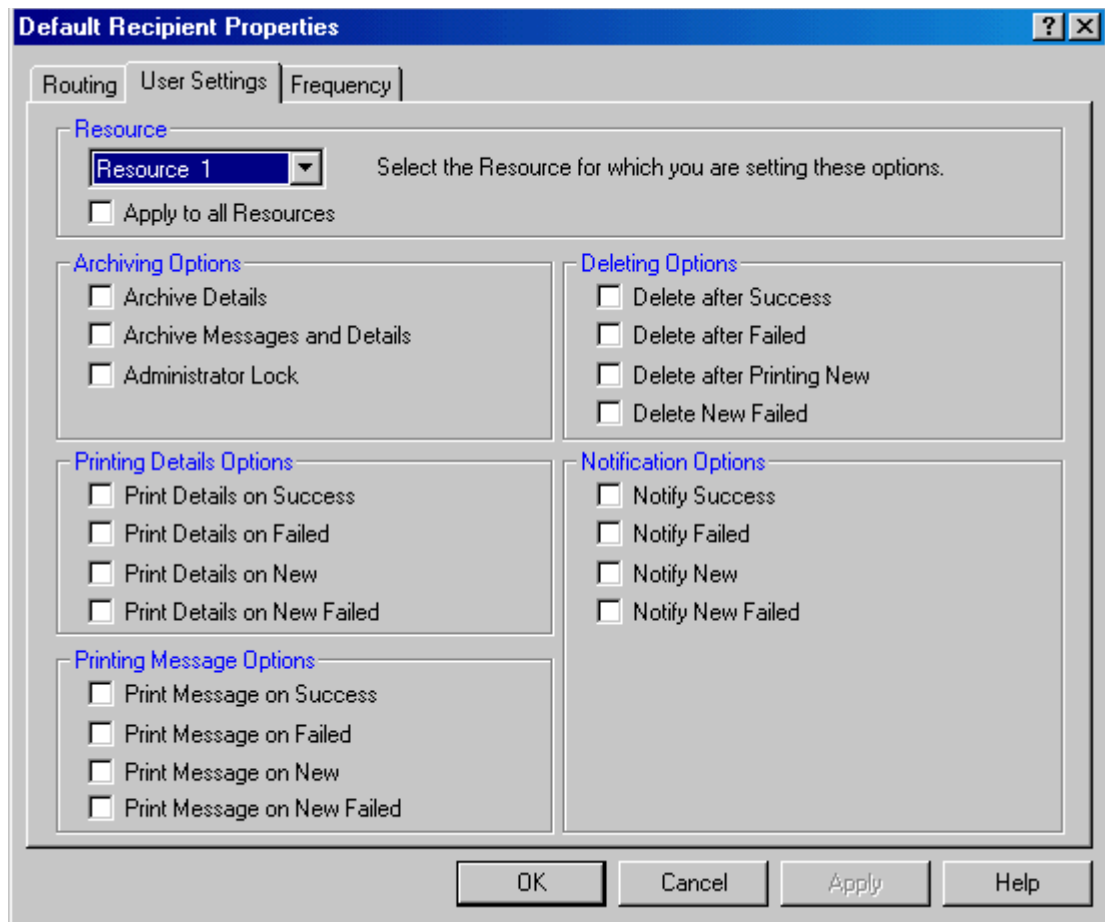
### Assigning Notification Options

Super-users access the `Default Recipient` to route incoming faxes to their recipients. If a super-user is to receive notifications, when the `Default Recipient` receives faxes, notification options must be set. This includes:

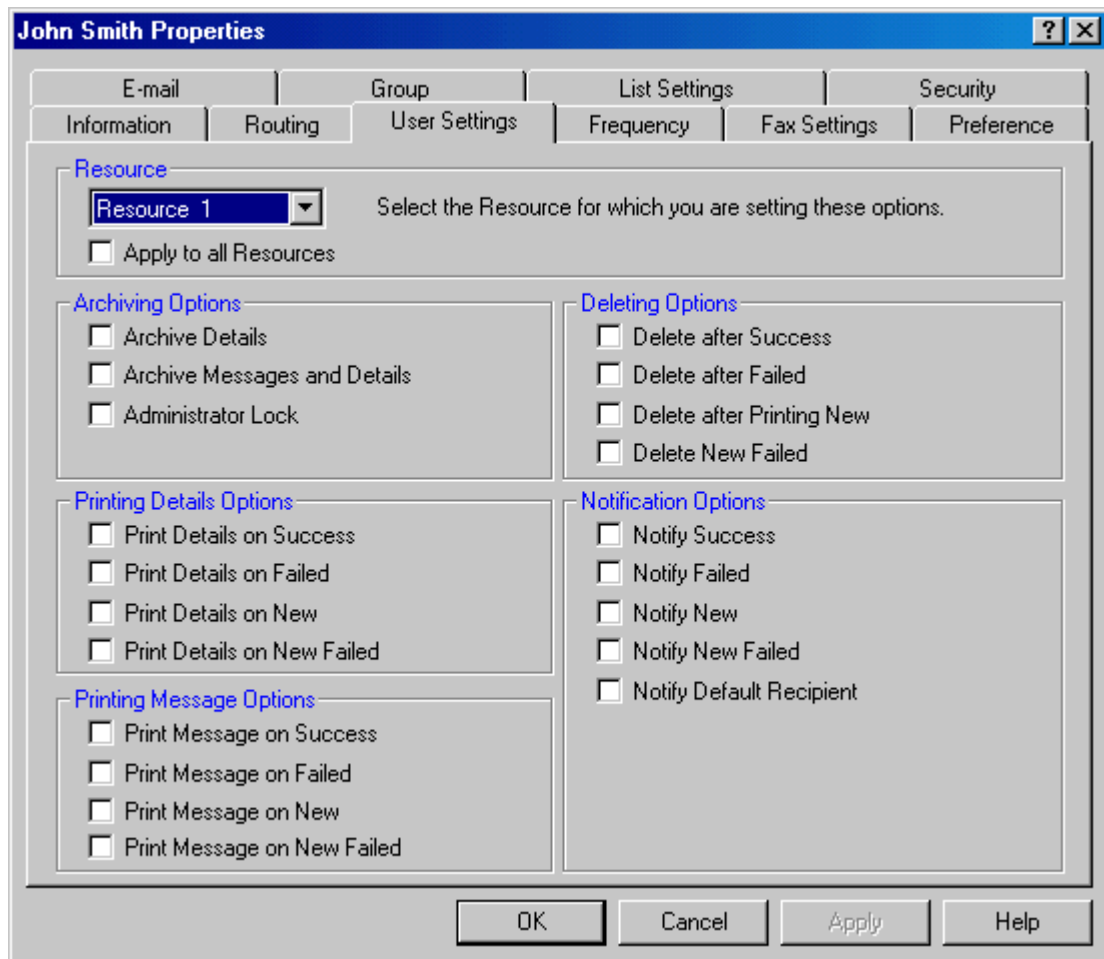
- Setting notification options on the `Default Recipient`;
- Setting the super-user notification options to receive notifications from the `Default Recipient`.

**Note:** Although super-users can specify their own notifications options, only administrators can set notification options for the `Default Recipient`.

- 1 In the manager, select the `Default Recipient` under the appropriate resource and choose `Edit` ➔ `Properties` or right-click on it and choose `User Properties`. The `Default Recipient Properties` dialog appears.
- 2 Click on the `User Settings` tab (see snapshot on next page).
- 3 If applicable, in the `Resource` section, select a single resource to which the `Default Recipient` is associated, or check the `Applies to All Resources` box.



- 4 In the Notification Options section:
  - To issue a notification after a fax is sent successfully, select Notify Success;
  - To issue a notification after an outgoing fax fails, select Notify Failed;
  - To issue a notification after a fax is received successfully, select Notify New;
  - To issue a notification after an incoming fax fails, select Notify New Failed.
- 5 Click OK.
- 6 In the manager, access the properties of a super-user or a super-user group's primary users.
- 7 Click on the User Settings tab (see snapshot on next page).
- 8 If applicable, in the Resource section, select a single resource to which the super-user or the group of super-users is associated, or check the Applies to All Resources box.
- 9 Select Notify Default Recipient.
- 10 Click OK.



### About Groups

Groups provide a means of defining similar properties only once for a group of users, rather than repeatedly for each of them.

Usually, the administrator creates a group to reflect a department, work group or physical location. Groups might also be based on privileges. For example, an administrator might create a group with super-user privileges and assign several users as its members, thereby making them surper-users.

Once a group is created, an administrator can create users to populate them, either individually or by importing them from an already existing Windows NT Domain. Groups can be populated by selecting one or more user at a time.

Groups are listed under `Common Resource` and `All Resources`, in the LightningFAX manager. The members of a group are listed under the group ID.

Groups are not mandatory. By default, users who do not belong to any group are listed in `Ungrouped Users`, under `Common Resource` and `All Resources`, in the manager.

**Note:** Only administrators can create, manage or delete groups.

User properties override group properties.

## Group Membership

Group members can either be primary users or guests.

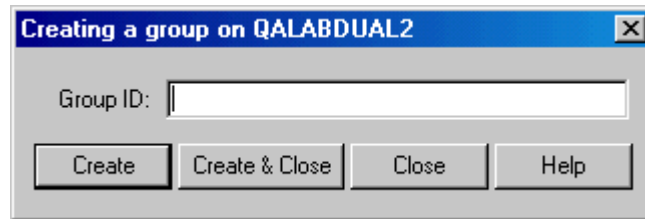
<b>Primary User</b>	<p>Primary users share the property settings assigned to the group. Changes made to these settings are applied to all primary users.</p> <p>In the manager, primary group users are listed under the group ID.</p> <p>A LightningFAX user can be a member of more than one group. However, there can be only one group in which the user is a primary user.</p> <p>There is nothing mandatory about primary user status. A user may be a guest in every group they belong to.</p>
<b>Guest</b>	<p>Users can be guests of a group, to receive faxes routed to that group. Group property settings are not applied to guests. Guest users are listed both under the group ID and under <code>Ungrouped Users</code>, in the manager.</p> <p>The properties of a guest member are:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> their user property settings, if they belong to no other group or are guests in every group they belong to;</li> </ul> <p>OR</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> the property settings of the group in which they are a primary user;</li> </ul>

User status is independent of group membership. That is, a user of any status— administrator, super-user or ordinary user — can also be a primary user or a guest in a group, without affecting his/her status as administrator, super-user or ordinary user.

### Managing Groups

#### Creating a Group

- 1 In the manager, select Administrator ➔ New Group. The Creating a group dialog appears.



- 2 Enter a Group ID.
- 3 Click Create. If there are no further groups to create, click Create & Close.

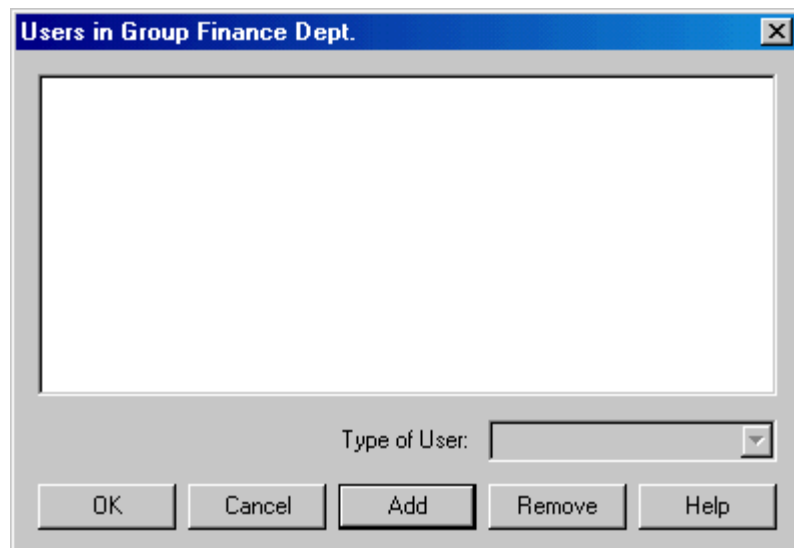
The All Users repository is automatically added to the group. It provides a means of viewing simultaneously the faxes of all users in the group.

#### Deleting a Group

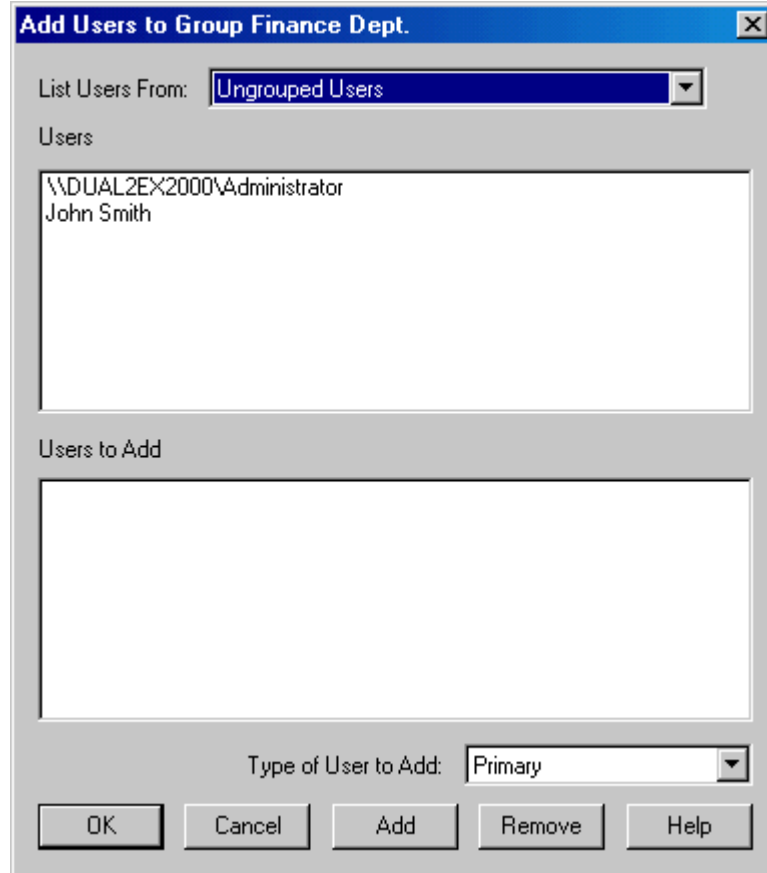
- 1 In the manager, click on the group ID and select Edit ➔ Delete or right-click on it and choose Delete Group.
- 2 Confirm deletion. All primary users are transferred to the Ungrouped Users folder, in the manager.

#### Adding Group Members

- 1 In the manager, click on a group ID and select Administrator ➔ Group Membership or right-click on it and choose Add/Remove Users. The Users in Group window appears.



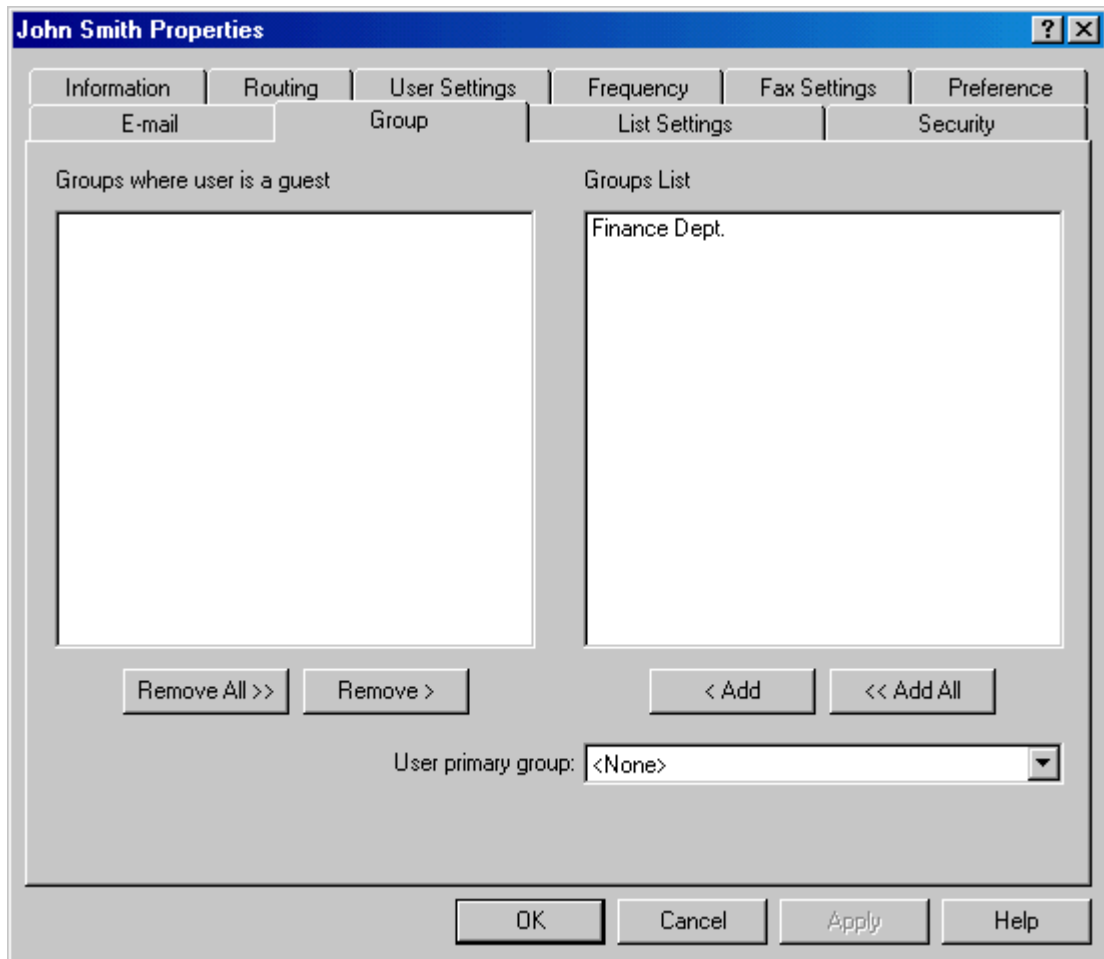
- 2 Click Add. The Add Users to Group window appears.



- 3 By default, LightningFAX displays all ungrouped users. Select among these users or select an existing group from the List Users From box.
- 4 If the user is to be a primary user in the group, select Primary in the Type of User to Add box. If the user is to be a guest, select Guest.  
If a user is already a primary user in an existing group and is added to another group as a primary user, his/her status in the original group is changed automatically to guest, in the group he/she was selected from.  
If a user is to remain a primary user in his/her original group, set Type of User to Add to Guest.
- 5 Select one or more user IDs.
- 6 Click Add.
- 7 Click OK.
- 8 Click OK.

**Through the User Properties**

- 1 In the manager, access the properties of a user.
- 2 Click on the Group tab. Existing groups are listed in the Groups List panel.



- 3 If the user is to be a primary user of the group, select the group ID in the User primary group box.  
If the user is to be a guest, select the group ID in the Groups List panel and click Add.  
Click Add All to make the user a guest in all groups. If the user is already a primary user in any group, that group will not appear under Groups where user is a guest.
- 4 Click OK.

### Deleting Group Members

- 1 In the manager, select a group ID and choose Administrator ➔ Group Membership or right-click on it and choose Add/Remove Users. The Users in Group window appears (see snapshot on page 80).
- 2 Select one or more user IDs.
- 3 Click Remove.
- 4 Click OK.

### Changing the Type of Group Membership

- 1 In the manager, select a group ID and choose Administrator ➔ Group Membership or right-click on it and choose Add/Remove Users. The Users in Group window appears (see snapshot on page 80).
- 2 Select one or more user IDs.
- 3 Select Primary or Guest in the Type of User box.
- 4 Click OK.

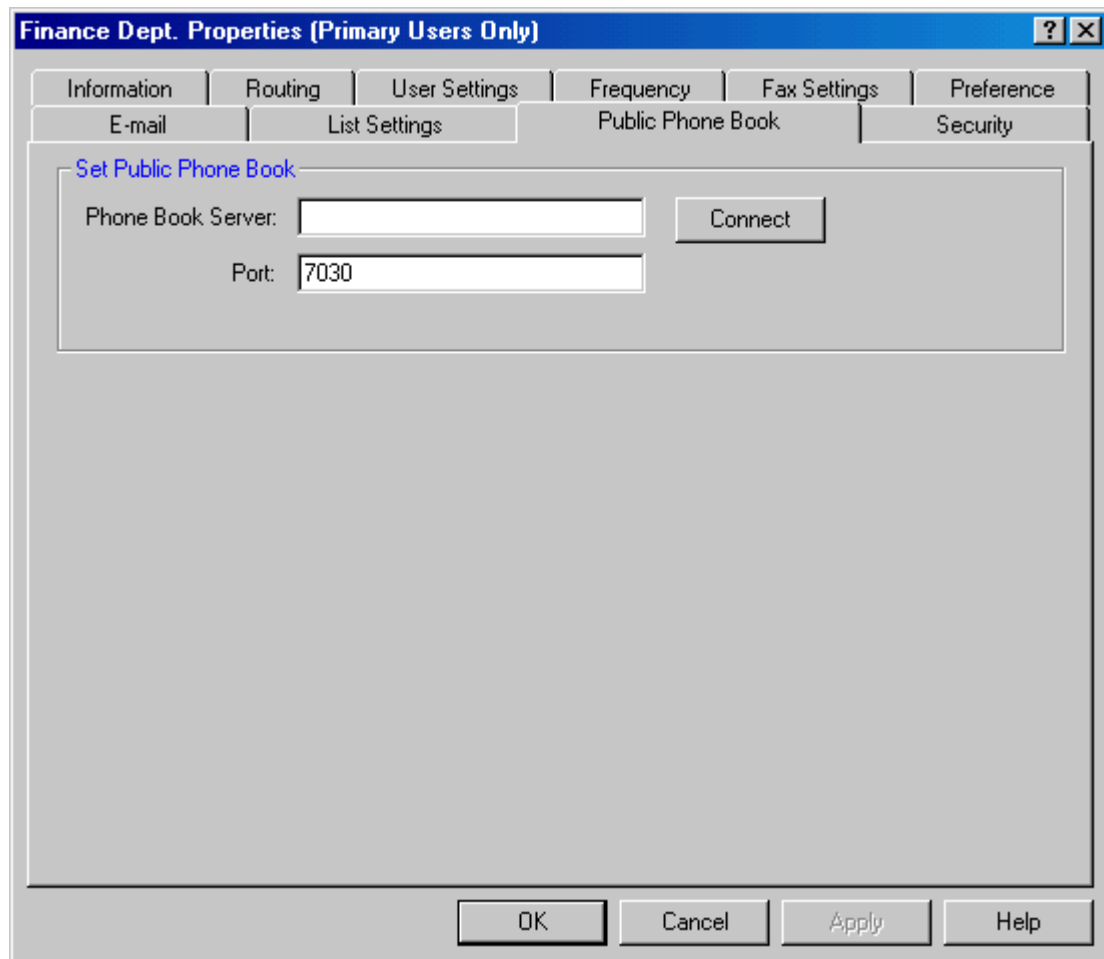
### Assigning a Public Phone Book to a Group

The Phone Book service is a public phone book assigned to a group by an administrator. The primary members of the group are automatically granted access to the phone book. The same menus and operations used to manage private phone books are used to manage public phone books. However, the contents are read-only for all users except administrators.

**Note:** Only administrators can assign a public phone book to a group.

The Phone Book service must already be installed, the name or IP address, as well as the port number having been specified, and a public phone book must already be created.

- 1 In the manager, right-click on a group ID and choose Primary Users Properties.
- 2 Click on the Public Phone Book tab (see snapshot on next page).
- 3 Enter the name or IP address of the phone book server, in the Phone Book Server field.
- 4 The default port number is 7030. A different port number is used only when another service already uses that port.
- 5 If it is necessary to test the connection, click Connect.
- 6 Click OK.



### Users, Groups and Resources

By default, all users are associated with Resource 1; that is, they can access their faxes and user properties, by selecting their ID under Resource 1, in the manager.

Associating groups and users with a specific resource is never mandatory. As many as 15 resources can be declared, with one or more channels associated to each. Both groups and individual users can then be associated to one or more resources. When a group or individual is associated with a resource, the group and user IDs appear under the name of that resource, in the manager.

Organizations with a large volume of fax traffic may find a single resource inadequate for both incoming and outgoing fax transmission. Such associations can provide more efficient delivery, when the volume of fax traffic is large.

For example, a department that sends and receives a large number of faxes can be associated with a specific resource to ensure the most efficient message delivery. For the same reason, a particular individual — an executive or sales manager — might also be associated with the same resource.

Also, some fax boards reserve a single channel for inbound routing; during LightningFAX configuration, this channel is associated with a single resource. If inbound routing is being used, it usually becomes necessary to grant a user access to two resources; the first, a resource linked to the inbound fax channel; the second, a resource configured for outgoing fax traffic.

If any type of inbound routing is configured, the recipients can be associated with the resource to which incoming faxes are directed.

### User and Group Properties with Multiple Resources

By default, user and group property settings are specific to a resource. For example, if a user or group is associated with Resource 1 and Resource 2, its property settings under Resource 1 need not necessarily match its settings under Resource 2. However, in general, property settings should match.

Since unintentional contradictions may occur, the `Apply to all Resources` option, in the individual user properties as well as the primary users properties of a group, instructs LightningFAX to apply the configured settings to all the resources that the user or group is associated to.

### Associating a User or a Group with a Resource

Only administrators can associate users and groups with resources. Users and groups can be associated with more than one resource. A resource must be created before a user or group can be associated to it (see `Adding a Resource` on page 5).

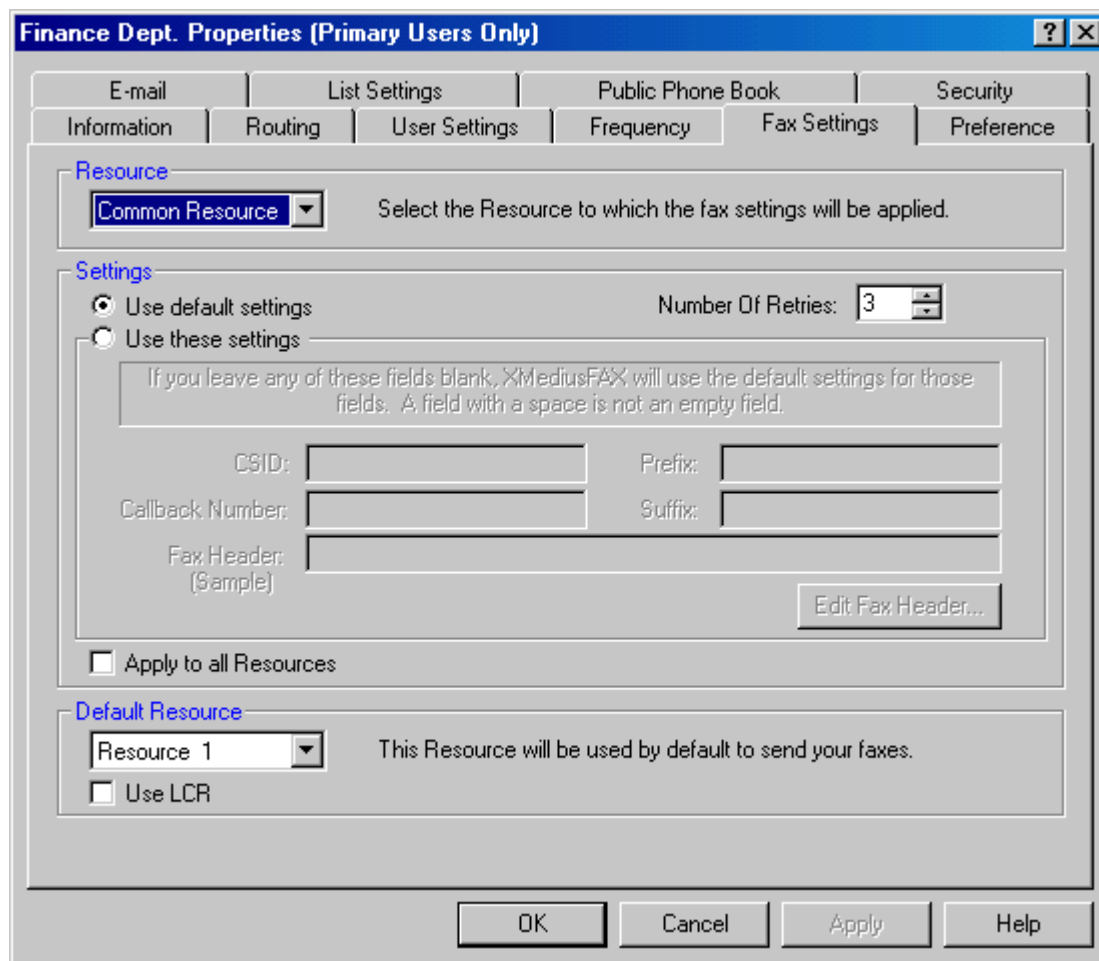
**Note:** By default, all users can access `Common Resource` and `All Resources` in the manager. Changes made here do not affect that capability.

- 1 In the manager, access the properties of a user or a group's primary users.
- 2 Click on the `Security` tab (see snapshot on page 75).
- 3 Under `Resource`, select the resource. The user or group ID appears under the selected resource in the manager.
- 4 Under `User Rights`, ensure that `Access Rights` is selected.
- 5 Click `OK`.

**Specifying the Default Resource for Outgoing Faxes**

A user can specify and change his/her default resource for outgoing faxes, with the following procedure:

- 1 In the manager, access the properties of a user or a group's primary users.
- 2 Click on the Fax Settings tab.



- 3 Select a resource in the Default Resource box. Only the resources the user or group is associated with are available.
- 4 Click OK.

**Note:** Disabling a user's access to its default resource may cause unexpected behavior when sending a fax. Hence, un-checking the Access Rights box in the Security tab dialog, for any resource, triggers the following warning:

Access rights to the default resource were removed.  
 You could encounter some problems while sending faxes.  
 Do you wish to continue with these changes?

## Configuring the User or Group Primary Users Properties

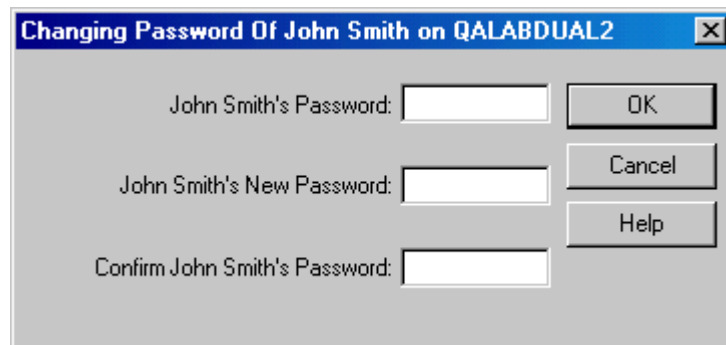
Individual users and groups share many properties. Group properties apply to all primary group members. User properties apply to users whether or not they belong to any group. They override group primary user properties.

**Note:** Individual users can specify or modify their own properties (at least those that they are allowed to access). However, only administrators can modify group primary user properties.

## Changing a Password

A user's password can be changed, with the following procedure:

- 1 In the manager, click on a user and select File ➔ Change Password or right-click on it and choose Change Password. The Changing Password dialog appears.



- 2 Enter the current password.
- 3 Enter and confirm the new password.
- 4 Click OK.

## Specifying Personal Information

**Note:** Personal information can also be specified in a private profile. If this is the case, the personal information entered through the user or group primary user properties is overridden.

A user's personal information can be changed, with the following procedure:

- 1 In the manager, access the properties of a user or a group's primary users.
- 2 Click on the Information tab (default) (see snapshot on next page).
- 3 Enter a Salutation, First Name, Last Name and Job Title, if applicable.

**Note:** First Name and Last Name should not be confused with the user ID. By default, users are identified in the manager by their user ID. First and last names appear after the user ID, only if they are added here.

- 4 Click OK.

### Specifying the Company Information

- 1 In the manager, access the properties of a user or a group's primary users.
- 2 Click on the *Information* tab (default).
- 3 In the *Company* section, enter the name and address information for the company or organization, in the appropriate fields.
- 4 In the *Contact Numbers* section, enter the applicable numbers and email address.

**Note:** *Pager*, *Cellular* and *E-mail* address are not part of the group primary user properties.

- 5 Click *OK*.

**Note:** Company information can also be specified in a private profile. If this is the case, the company information entered through the user or group primary user properties is overridden.

### Specifying a Sending Priority

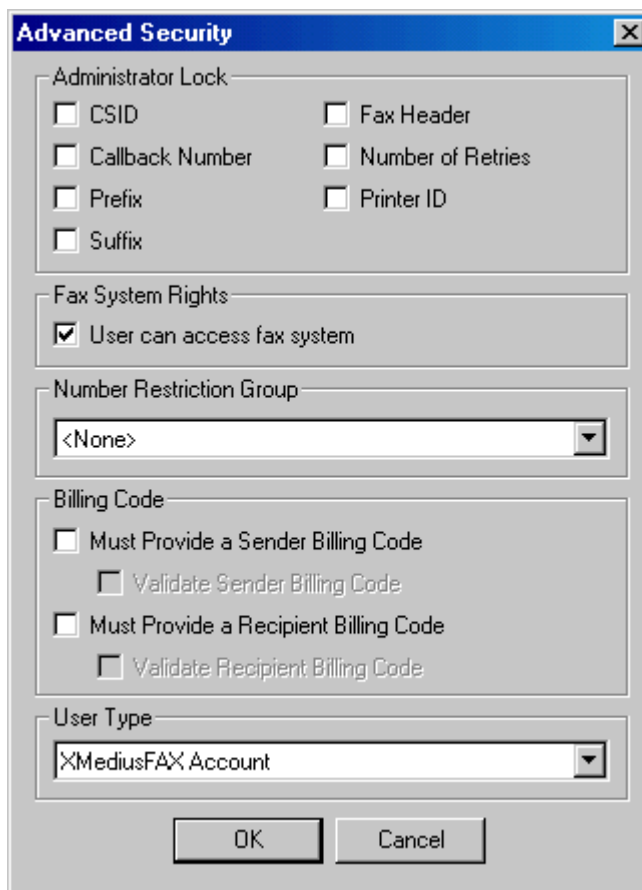
Only administrators can specify a user or a group's sending priority.

- 1 In the manager, access the properties of a user or a group's primary users.
- 2 Click on the `Security` tab (see snapshot on page 75).
- 3 If applicable, in the `Resource` section, select a single resource to which the user or the group is associated, or check the `Applies to All Resources` box.
- 4 In the `Sending Priority` section, set the priority. 1 is the highest, 10 the lowest.
- 5 Select `Apply to all Resources` if this priority is to apply to all resources the user or group is associated with.
- 6 Click `OK`.

### Locking User Settings

Only administrators can lock user settings, to prevent users from changing these entries in their account properties or in any profiles that they may create.

- 1 In the manager, access the properties of a user or a group's primary users.
- 2 Click on the `Security` tab (see snapshot on page 75).
- 3 Click `Advanced`. The `Advanced Security` dialog appears (see snapshot on next page).
- 4 In the `Administrator Lock` section, if needed:
  - Select `CSID` to lock the Call Station ID;
  - Select `Callback Number` to lock the callback number;
  - Select `Prefix` to lock the prefix;
  - Select `Suffix` to lock the suffix;
  - Select `Fax Header` to lock the fax header;
  - Select `Number of Retries` to lock the number of retries;
  - Select `Printer ID` to lock the printer ID assigned to the user or group.
- 5 Click `OK`.



### Suspending Fax System Access Rights

Only administrators can suspend the access rights to the fax system, for a user or a group's primary users.

- 1 In the manager, access the properties of a user or a group's primary users.
- 2 Click on the *Security* tab (see snapshot on page 75).
- 3 Click *Advanced*. The *Advanced Security* dialog appears (see snapshot on page 90).
- 4 In the *Fax System Rights* section, de-select the *User can access fax system* box, to disallow the sending or receiving of faxes.
- 5 Click *OK*.

### Associating a Number Restriction Group to a User or a Group

Only administrators can associate a number restriction group to a user or a group. By default, users have the right to dial any number. However, a number restriction group can deny them any combination of digits.

- 1 In the manager, access the properties of a user or a group's primary users.
- 2 Click on the `Security` tab (see snapshot on page 75).
- 3 Click `Advanced`. The `Advanced Security` dialog appears (see snapshot on page 90).
- 4 In the `Number Restriction Group` field, select a group that you want to associate with the user. Number restriction groups are created in the `Number Restriction Table` as shown in Chapter 10 `Number Restriction`.
- 5 Click `OK`.
- 6 Click `OK`.

### Billing Codes

Administrative procedures sometimes require that billing information be associated with a fax transmission. For example, long distance costs may be charged to specific departments within a company. A sender billing code can therefore be specified to identify the department. Similarly, a recipient billing code might be assigned when clients are to be charged for such costs.

Billing information, for either sender and recipient, consists of a billing and a sub-billing code, to provide a greater degree of precision. For example, a billing code might identify a particular department in a national corporation; several different sub-billing codes might each identify that department's regional offices.

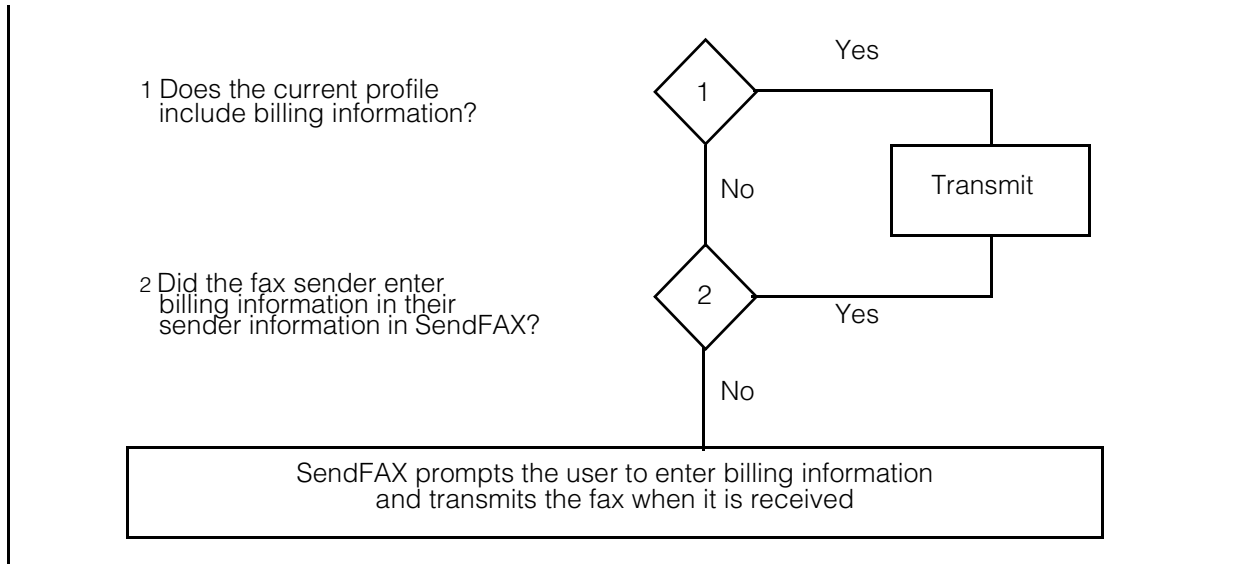
Sender billing information is usually specified in a profile (see `Introducing Profiles` on page 127 for more details), although this is not mandatory. If no profile is being used, or if the profile being used does not contain billing information, the fax sender can enter it by accessing his/ her sender information.

Recipient billing information is usually specified as part the recipient entry in the `LightningFAX` phone book. Again, it is not mandatory. Fax senders can enter recipient billing information, by accessing the fax recipient properties within their fax transmission program.

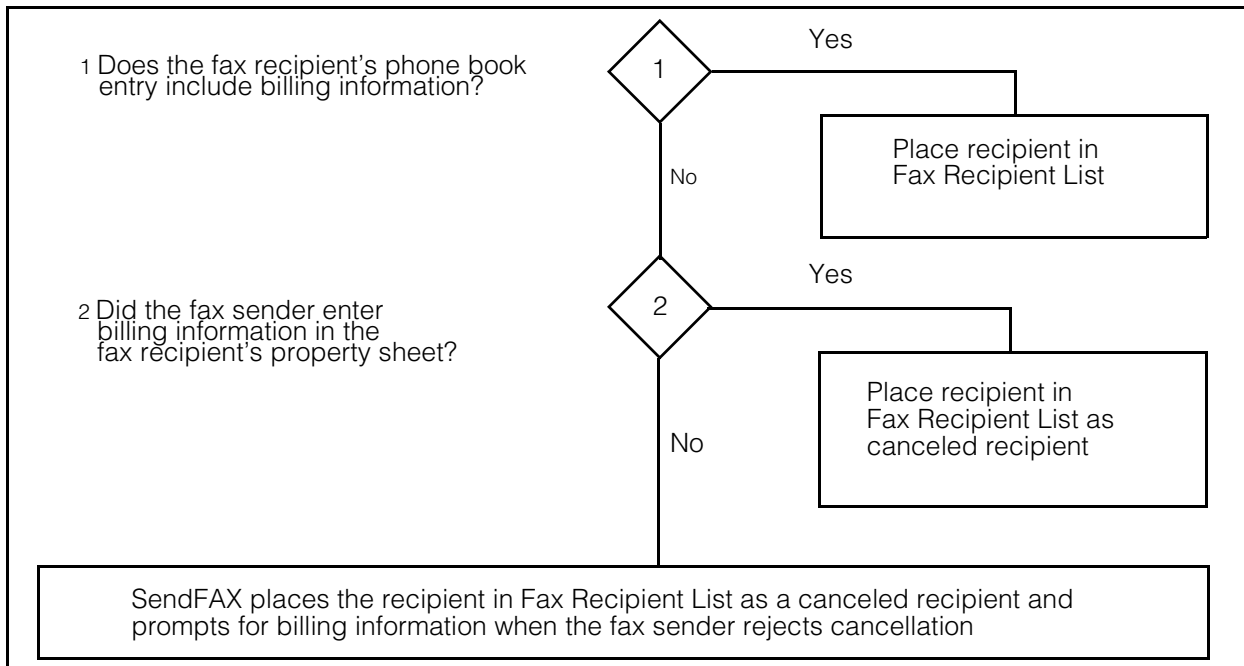
**Enforcing Billing Code Entry**

Fax senders can enter billing information, whether sender or recipient, at their discretion. However, administrators can enforce the entry of billing codes.

The following diagram outlines SendFAX operation, when the entry of **sender** billing information is enforced:



The following diagram outlines SendFAX operation, when the entry of **recipient** billing information is enforced:



Only administrators can enforce billing code entry.

- 1 In the manager, access the properties of a user or a group's primary users.
- 2 Click on the `Security` tab (see snapshot on page 75).
- 3 Click `Advanced`. The `Advanced Security` dialog appears (see snapshot on page 90).
- 4 To enforce the entry of a sender billing code, in the `Billing Code` section, select `Must Provide a Sender Billing Code`.
- 5 Select `Validate Sender Billing Code`, if it is to be validated (see the next section for more details).
- 6 To enforce the entry of a recipient Billing Code, select `Must Provide a Recipient Billing Code`.
- 7 Select `Validate Recipient Billing Code`, if it is to be validated (see the next section for more details).
- 8 Click `OK`.

### Billing Code Validation

Sender or recipient billing code information is validated by entries made to two files: `sbilling.dat` and `rbilling.dat` respectively. Both files must be stored in the `\Program Files\LightningFAX\LFServer` folder. Both are text files that can be composed with any ASCII text editor, such as Notepad.

The syntax of any entry in these files is:

```
billingcode, [sub-billingcode]
```

where *billingcode* and *sub-billingcode* are alpha-numeric strings.

For example, `abcindustries`, represents the billing code alone; `abcindustries,dept12` represents a billing and a sub-billing code. Wildcards are not accepted, however, the validation is not case-sensitive.

**Note:** Although a sub-billing code is optional, the comma is mandatory.

### Changing the User Type

This operation is meant to change a user's account between LightningFAX, Windows NT Domain or LDAP types. For example, it could be used to provide access to LightningFAX, to former Windows NT Domain account users who were removed or deleted from that domain.

**Note:** If a LightningFAX account user is changed to a Windows NT Domain or an LDAP account user, and is not actually a member of the NT domain or the Active Directory, he/she loses access to LightningFAX.

Only administrators can change a user's type.

- 1 In the manager, access the properties of a user or a group's primary users.
- 2 Click on the `Security` tab (see snapshot on page 75).
- 3 Click `Advanced`. The `Advanced Security` dialog appears (see snapshot on page 90).
- 4 In the `User Type` section, select the type of account desired.
- 5 Click `OK`.
- 6 Click `OK`.

### Specifying Fax Settings

By default, users can change their own fax settings. However, administrators can deny that privilege by applying an administrator lock.

- 1 In the manager, access the properties of a user or a group's primary users.
- 2 Click on the `Fax Settings` tab (see snapshot on page 86).
- 3 Select a resource in the `Default Resource` box. Only the resources the user or group is associated with are available.
- 4 Select the `Use these settings` option.
- 5 Enter a `Call Station ID` in the `CSID` field, if desired. A `CSID` can have a maximum of 23 digits.
- 6 Enter a `Callback Number`, if desired.
- 7 Enter a `Prefix`, if necessary. For example, some fax machines require that the number 9 be dialed to acquire an outgoing line.  
  
A comma can be used to specify a pause of one second. Whether such pauses are necessary is determined by the requirements of the telephone company or the PBX.
- 8 Enter a `Suffix`, if necessary. For example, some telephone or PBX networks require the user to enter a code immediately after dialing a long distance number.
- 9 If a fax header is to be included, click `Edit Fax Header` and define the header (for more information about creating fax headers, consult `Introducing Fax Headers` on page 121 of the `LightningFAX User Guide`).
- 10 Select `Apply to all Resources` if these settings are to be applied for all the resources the user or group is associated with.
- 11 Click `OK`.

**Note:** If specified here, the `CSID` and `Callback Number` override the `CSID` and `callback number` specified in the resource properties.

### Specifying the Number of Retries

By default, users can change the number of retries. However, administrators can deny that privilege by applying an administrator lock.

- 1 In the manager, access the properties of a user or a group's primary users.
- 2 Click on the `Fax Settings` tab (see snapshot on page 86).
- 3 Select a resource in the `Default Resource` box. Only the resources the user or group is associated with are available.
- 4 In the `Settings` section, specify the `Number of Retries`. The default value is 3.
- 5 Click `OK`.

### Notifications

Notifications can be displayed in a pop-up window and/or sent by email.

#### Enabling the Pop-Up Notification Options

Notification pop-up messages, when enabled, appear immediately upon launching the manager and as long as it remains active.

A user can enable or disable the pop-up notification options.

- 1 In the manager, access the properties of a user or a group's primary users.
- 2 Click on the `User Settings` tab (see snapshot on page 78).
- 3 If applicable, in the `Resource` section, select a single resource to which the user or the group is associated, or check the `Applies to All Resources` box.
- 4 In the `Notification Options` section:
  - To issue a notification after a fax is sent successfully, select `Notify Success`;
  - To issue a notification after an outgoing fax fails, select `Notify Failed`;
  - To issue a notification after a fax is received successfully, select `Notify New`;
  - To issue a notification after an incoming fax fails, select `Notify New Failed`.
- 5 Click `OK`.

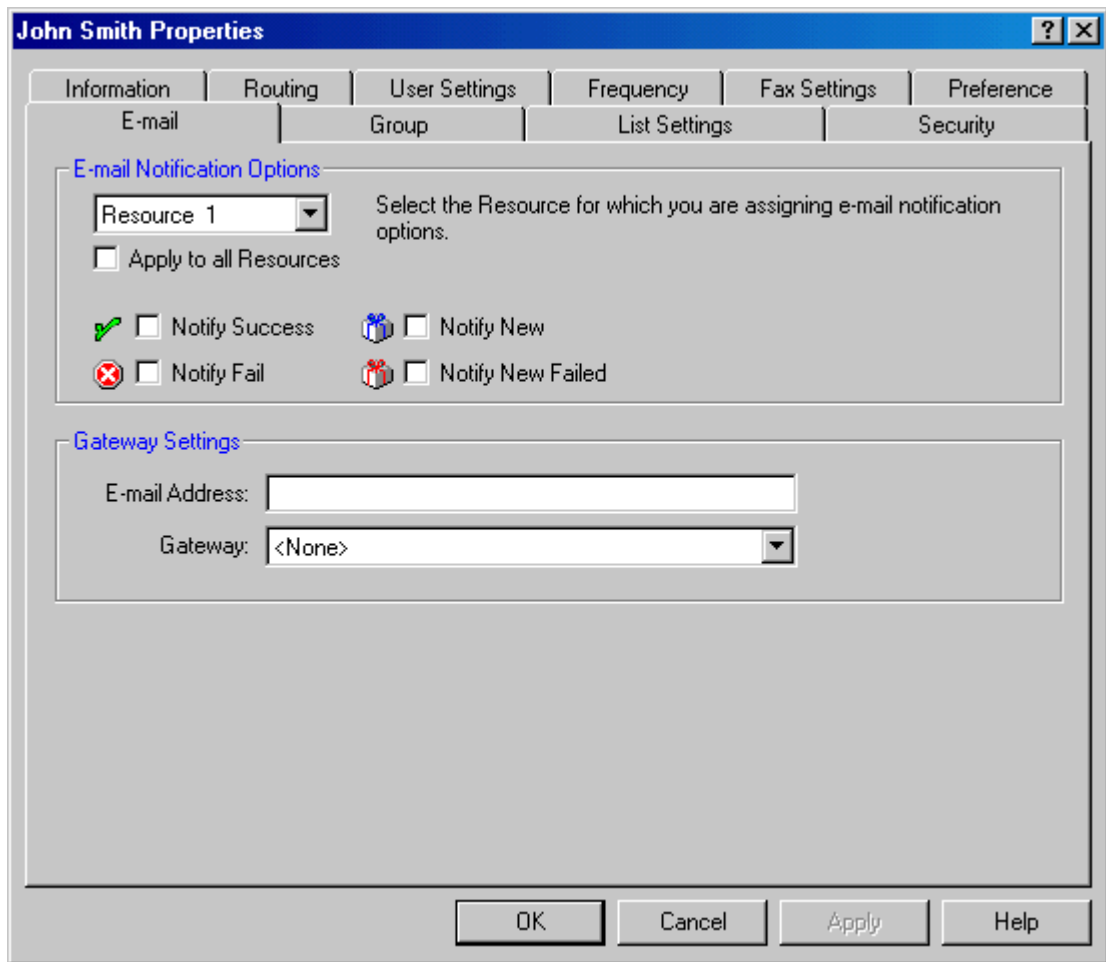
### Enabling the Email Notification Options

Email notification options can only be enabled when a gateway is installed, to re-direct incoming faxes from the `Default Recipient` in the manager to an existing `LightningFAX` user's email inbox, and specify any desired notification options.

A user can enable or disable the email notification options.

- 1 In the manager, access the properties of a user.
- 2 Click on the `E-mail` tab (see snapshot on next page).
- 3 If applicable, in the `E-mail Notification Options` section, select a single resource to which the user or the group is associated, or check the `Applies to All Resources` box.

Note: Only administrators can select resources.



- 4 Still in the `E-mail Notification Options` section:
    - To issue a notification after a fax is sent successfully, select `Notify Success`;
    - To issue a notification after an outgoing fax fails, select `Notify Failed`;
    - To issue a notification after a fax is received successfully, select `Notify New`;
    - To issue a notification after an incoming fax fails, select `Notify New Failed`.
  - 5 Enter an `E-mail Address`.
- Note: If the gateway for SAP (R/3) is installed, the entry in the `E-Mail Address` field must be the R/3 user's personal fax number.
- 6 Select an installed gateway, in the `Gateway` box.
  - 7 Click `OK`.

### Specifying the Minimum Notification Rate for All Users or Groups

The minimum notification rate represents the smallest interval that the LightningFAX server waits before polling for new notification messages. This value applies for all users or groups.

Only administrators can set the minimum notification rate.

- 1 In the manager, select a server in the tree and choose `Edit` ➔ `Properties` or right-click on it and choose `Server Properties`. The `Server Properties` dialog appears.
- 2 Click on the `User` tab (see snapshot on page 67).
- 3 In the `Minimum Notification Rate` section, position the slider between `High` and `Low`, as desired. The maximum (and default) notification rate is every 1 minute, the minimum is every 30 minutes.
- 4 Click `OK`.

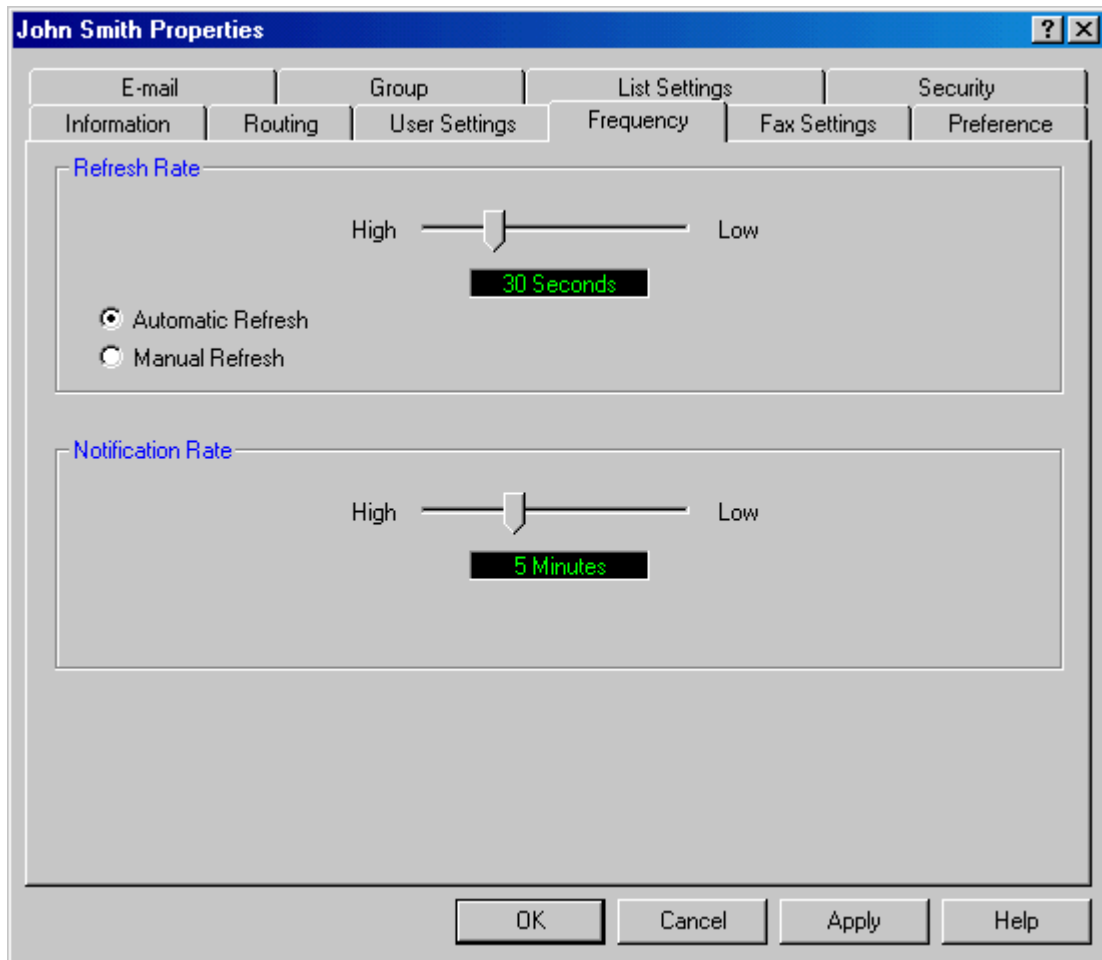
### Specifying the Default Notification Rate

The default notification rate represents the interval that LightningFAX waits before polling for new notification messages, for a user or a group's primary users. It can only be modified if at least one of the notification options is enabled.

A user can adjust his/her default notification rate.

- 1 In the manager, access the properties of a user or a group's primary users.
- 2 Click on the `Frequency` tab (see snapshot on next page).
- 3 In the `Notification Rate` section, position the slider between `High` and `Low`, as desired. The highest default notification rate is the minimum value set for the server (see previous section) or every 1 minute, the maximum is every 30 minutes. The default rate is 5 minutes or the minimum value set for the server, if is longer than 5 minutes.

4 Click OK.



## Archiving and Deletion

### Enabling the Archiving Options

By default, a user can enable or disable the archiving options. However, administrators can deny that privilege by applying an administrator lock.

- 1 In the manager, access the properties of a user or a group's primary users.
- 2 Click on the User Settings tab (see the snapshot on page 78).
- 3 If applicable, in the Resource section, select a single resource to which the user or the group is associated, or check the Applies to All Resources box.

- 4 In the Archiving Options section:
  - To archive fax details only, select `Archive Details`;
  - To archive both fax messages and details, select `Archive Messages and Details`;
  - To prevent user modification, select `Administrator Lock`.
- 5 Click `OK`.

### Enabling the Deleting Options

If archiving is enabled, deletion only removes faxes from the manager, not the archive. Otherwise, deletion permanently removes the fax message from the archive, as well as the manager.

A user can enable or disable the deleting options. However, an administrator must authorize the deletion of archived items.

- 1 In the manager, access the properties of a user or a group's primary users.
- 2 Click on the `User Settings` tab (see the snapshot on page 78).
- 3 If applicable, in the `Resource` section, select a single resource to which the user or the group is associated, or check the `Applies to All Resources` box.
- 4 In the `Deleting Options` section:
  - To automatically delete fax messages after they have been sent successfully, select `Delete after Success`;
  - To automatically delete outgoing fax messages that failed to send, select `Delete after Fail`;
  - To automatically delete successfully received fax messages after printing them, select `Delete after Printing New`;
  - To automatically delete incoming fax messages that failed to be received, select `Delete New Failed`.
- 5 Click `OK`.

### Authorizing the Deletion of Archived Faxes

Only administrators can grant users or group primary users the right to delete archived faxes.

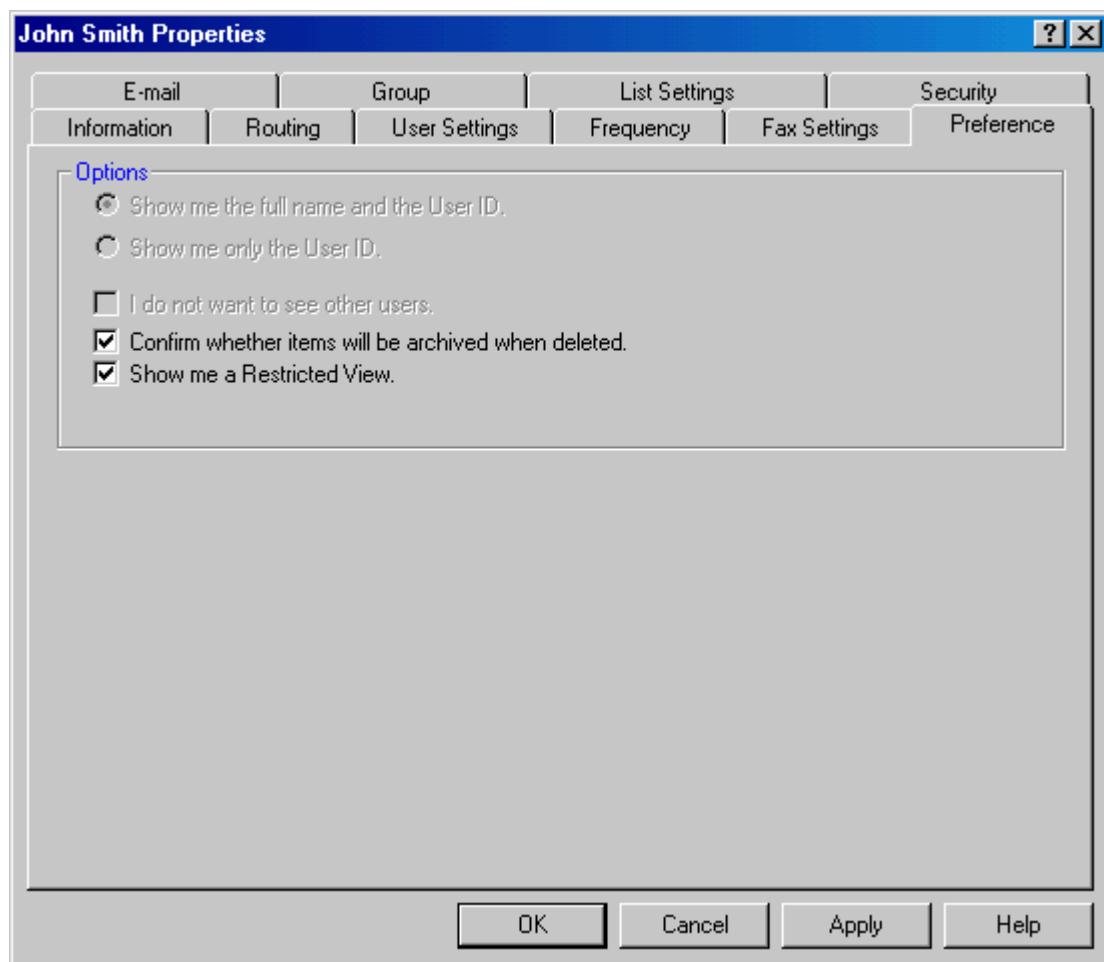
- 1 In the manager, access the properties of a user or a group's primary users.
- 2 Click on the `Security` tab (see snapshot on page 75).
- 3 In the `Miscellaneous` section, select `Authorized to delete archived items for all Resources`, to allow the user or group primary user to delete fax messages and details from the archive, for all of the resources he/she is associated with.
- 4 Click `OK`.

### Confirming Archiving upon Deletion

LightningFAX can be configured to prompt users to confirm if a fax should be archived, when it is being deleted.

A user can enable or disable the archiving confirmation.

- If archiving options are enabled and confirmation is set, LightningFAX informs the user that a deleted fax will be archived;
  - If none of the archiving options are enabled and confirmation is set, LightningFAX informs the user that a deleted fax will not be archived. The user can then choose not to delete;
  - If archiving options are enabled but confirmation is not set, LightningFAX only asks the user to confirm the deletion.
- 1 In the manager, access the properties of a user or a group's primary users.
  - 2 Click on the Preference tab.



- 3 Check the Confirm whether items will be archived when delete box.
- 4 Click OK.

### Enabling the Printing Options

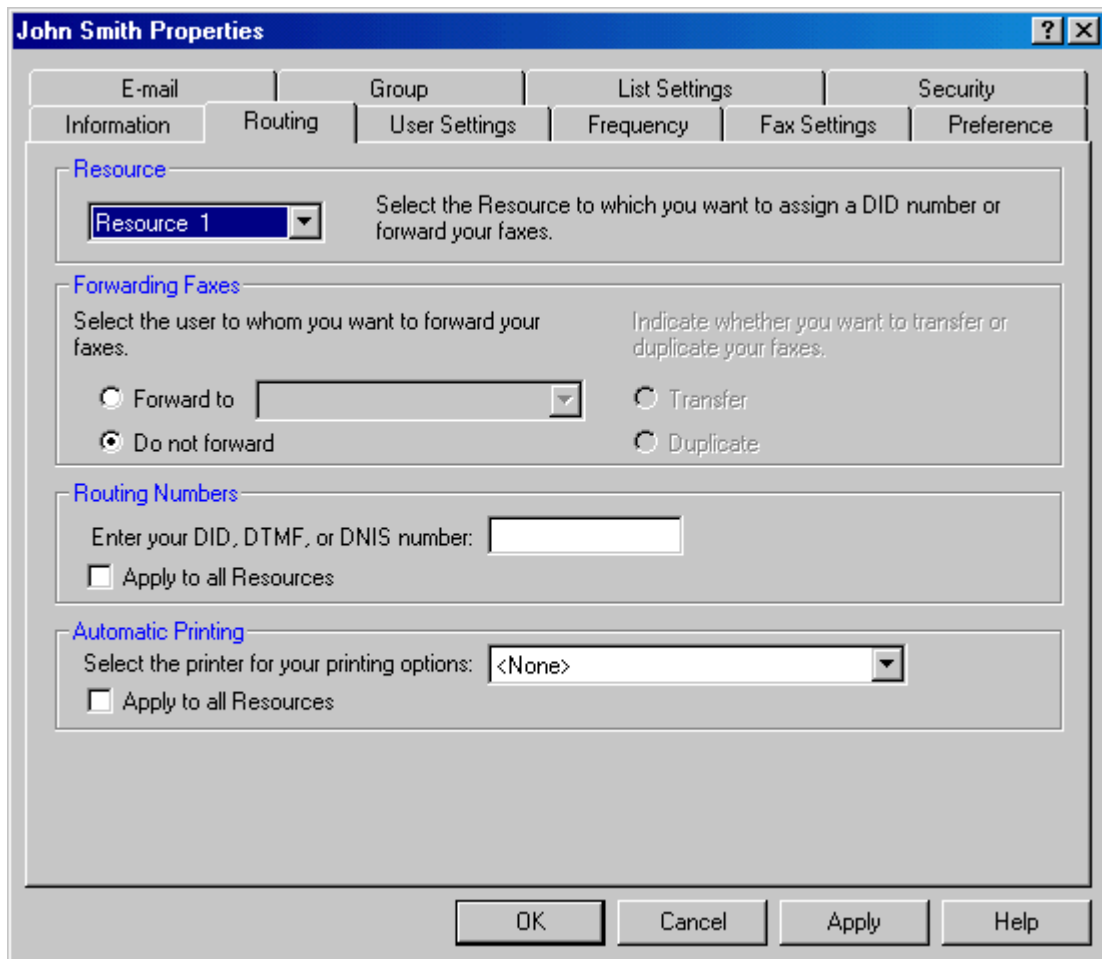
A printer must already be set up on the system, before printing options can be enabled. By default, a user can enable or disable printing options for fax messages or details. However, administrators can deny that privilege by applying an administrator lock.

- 1 In the manager, access the properties of a user or a group's primary users.
- 2 Click on the `User Settings` tab (see the snapshot on page 78).
- 3 If applicable, in the `Resource` section, select a single resource to which the user or the group is associated, or check the `Applies to All Resources` box.
- 4 In the `Printing Details Options` section:
  - To automatically print the details of a fax after it has been sent successfully, select `Print Details on Success`;
  - To automatically print the details of an outgoing fax that failed to send, select `Print Details on Failed`;
  - To automatically print the details of a fax after it has been received successfully, select `Print Details on New`;
  - To automatically print the details of an incoming fax that failed to be received, select `Print Details on New Failed`.
- 5 In the `Printing Message Options` section:
  - To automatically print the message of a fax after it has been sent successfully, select `Print Message on Success`;
  - To automatically print the message of a fax that failed to send, select `Print Message on Failed`;
  - To automatically print the message of a fax after it has been received successfully, select `Print Message on New`;
  - To automatically print the message of an incoming fax that failed to be received, select `Print Message on New Failed`.
- 6 Click `OK`.

### Enabling Fax Forwarding

A user can enable or disable the fax forwarding option.

- 1 In the manager, access the properties of a user.
- 2 Click on the `Routing` tab (see snapshot on next page).
- 3 In the `Forwarding Faxes` section, select `Forward to`.
- 4 Select a recipient in the `Group` box, either an individual member of a group, the group itself or the `Default Recipient`.
- 5 Click `Transfer` if the faxes are to be transferred to the recipient(s).  
OR  
Click `Duplicate` if a copy of the faxes is to be sent to the recipient(s).
- 6 Click `OK`.

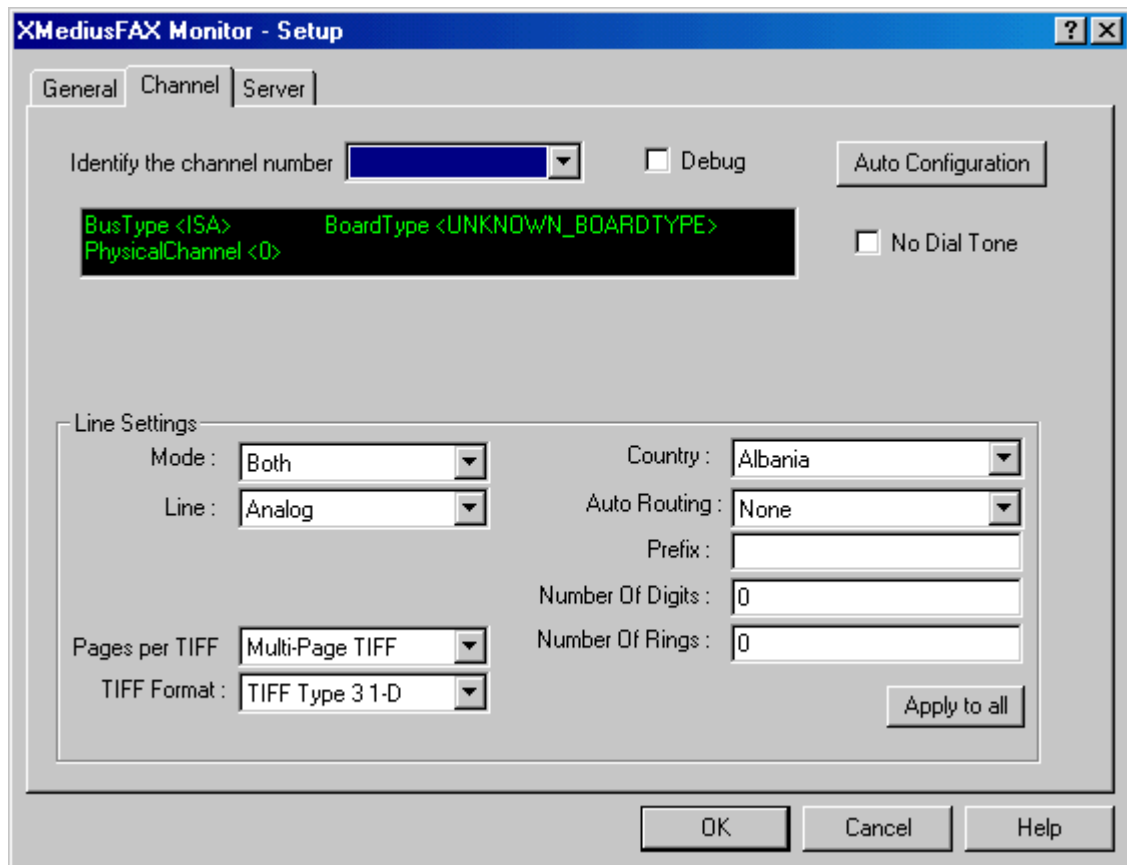


### Enabling DID, DTMF or DNIS Inbound Routing

Only administrators can enable or disable DID, DTMF or DNIS inbound routing.

DID, DNIS and DTMF routing are subscriber services provided by the telephone company. DID routing requires a special fax board. DTMF routing is only available for fax boards, not T.38. If any of these three routing methods fails, the faxes received are sent to the Common Recipient to be forwarded manually by a super-user.

- 1 Select Start ➔ Programs ➔ LightningFAX ➔ Monitor. The LightningFAX Monitor dialog appears.
- 2 Select Driver ➔ Stop.
- 3 Select Setup.
- 4 Click on the Channel tab (see snapshot on next page).



- 5 Select the channel that provides inbound routing, in the Identify the channel number box.
- 6 Enter the number of digits to be considered in the Number of Digits field.
- 7 Select either DID, DTMF (telco), DTMF (manual) or DNIS, in the Auto-routing box.
- 8 Click OK.
- 9 Choose Driver ➔ Start.
- 10 Exit the monitor.

### Associating a Routing Number with a User

Although this can be accomplished through a user's `Routing` property, Interstar recommends using the routing table to associate users with their inbound routing numbers.

- 1 In the manager, access the properties of a user or a group's primary users.
- 2 Click on the `Routing` tab (see snapshot on previous page).

- 3 In the `Resource` section, select the resource associated with the fax channel receiving the inbound routing line.
- 4 Enter the DID, DTMF or DNIS number (maximum 63 digits) that you wish to assign to the user, in the `Routing Numbers` section. These numbers should be provided by your telephone company.

A rule corresponding to this entry is automatically generated in the LightningFAX auto-routing table. The rule appears as DID, DTMF or DNIS.

**Note:** Very rarely, an individual user might be given several inbound routing lines. For example, a user has two DID lines, each associated with a fax channel and each fax channel associated with a resource. Because only one resource can be selected at a time, selecting `Apply to all Resources` applies inbound routing to all the resources that the user is associated with. Note that only one number can be entered; that is, the same DID, DTMF or DNIS number is used for all inbound routing lines.

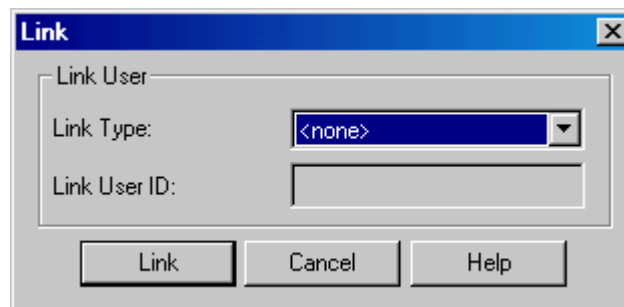
- 5 Click `OK`.

### Automatic Routing of Incoming Messages

#### Received Through the HP Scanner Service

Only administrators can route incoming messages received through the LightningFAX HP Scanner Service.

- 1 In the manager, select `Administrator` ➔ `User manager`. The `User Manager` window appears (see snapshot on page 65).
- 2 Click on a user ID.
- 3 Click `Link`. The `Link` dialog appears.



- 4 Select `Scanner` in the `Link Type` box.
- 5 Enter the `Link User ID`. This is the login user ID used when working directly with the **Hewlett Packard 9100C Digital Sender**.
- 6 Click `Link`.

The faxes received by the `LFScanner` service and manually routed to the user, are now routed automatically.

### Received through the Gateway for SAP (R/3)

Only administrators can route incoming messages received through the gateway for SAP (R/3).

- 1 In the manager, select `Administrator` ➔ `User manager`. The `User Manager` window appears (see snapshot on page 65).
- 2 Click on a user ID.
- 3 Click `Link` (see snapshot on previous page).
- 4 Select `R/3` in the `Link Type` box.
- 5 Enter the `Link User ID`. This is the R/3 user's personal fax number.
- 6 Click `Link`.

The faxes received by `MAILGTWY` and manually routed to the user, are now routed automatically.

### Enabling Least-Cost Routing (LCR) for Outgoing Faxes

Least-cost routing and load balancing must first be configured by an administrator.

A user can enable or disable least-cost routing for outgoing faxes.

- 1 In the manager, access the properties of a user or a group's primary users.
- 2 Click on the `Fax Settings` tab (see snapshot on page 86).
- 3 In the `Default Resource` section, select `Use LCR`. The resource selection box is grayed-out.
- 4 Click `OK`.

### Refresh Rate

#### Specifying the Minimum Refresh Rate for All Users or Groups

The minimum refresh rate represents the smallest interval that the LightningFAX server waits before automatically updating all the fax lists. This value applies for all users or groups.

Only administrators can set the minimum refresh rate.

- 1 In the manager, select a server in the tree and choose `Edit` ➔ `Properties`, or right-click on it and choose `Server Properties`.
- 2 Click on the `User` tab (see snapshot on page 67).
- 3 In the `Minimum Refresh Rate` section, position the slider between `High` and `Low`, as desired. The maximum (and default) refresh rate is every 10 seconds, the minimum every 10 minutes.
- 4 Click `OK`.

### Specifying the Default Refresh Rate

The default refresh rate represents the interval that LightningFAX waits before automatically updating a user or a group's fax list.

A user can adjust his/her default refresh rate.

- 1 In the manager, access the properties of a user or a group's primary users.
- 2 Click on the `Frequency` tab (see snapshot on page 98).
- 3 Make sure the `Automatic Refresh` option (default) is selected.
- 4 In the `Refresh Rate` section, position the slider between `High` and `Low`, as desired. The highest default refresh rate is every 10 seconds or the minimum value set for the server (see previous section), the maximum is every 10 minutes. The default rate is 30 seconds or the minimum value set for the server, if is longer than 30 seconds.
- 5 Click `OK`.

### Enabling Manual Refresh as Default for all Users or Groups

When manual refresh is enabled, users can only refresh their fax list by right-clicking their user ID in the manager and choosing `Refresh`, or by pressing the `F5` key. Of course, they are unable to configure their default refresh rate.

Only administrators can enable or disable manual refresh as the default behavior.

- 1 In the manager, select a server in the tree and choose `Edit` ➔ `Properties`, or right-click on it and choose `Server Properties`.
- 2 Click on the `User` tab (see snapshot on page 67).
- 3 In the `Minimum Refresh Rate` section, select `Manual refresh only`.
- 4 Click `OK`.

### Enabling Manual Refresh

The refresh rate slider is not available when manual refresh is selected.

A user can enable or disable manual refresh for his/her fax list.

- 1 In the manager, access the properties of a user or a group's primary users.
- 2 Click on the `Frequency` tab (see snapshot on page 98).
- 3 In the `Refresh Rate` section, select `Manual Refresh`.
- 4 Click `OK`.

## Configuring Advanced User Properties

Advanced properties govern the tree view and the initial contents of the fax list in the manager.

The tree view can be configured to show only a user's ID and his/her faxes, or the entire LightningFAX network. It is also possible to configure the tree view to display the entire network, but no other user IDs.

The contents of fax list as displayed at login can also be configured. It is also possible to display only current faxes, incoming faxes or faxes of a certain status, etc...

If a user is associated with several resources, the fax view can be configured to display only the faxes from a particular resource. For example, if DID, DTMF or DNIS routing have been configured for a user, he/she is likely to be associated with two resources, one for outgoing and another for incoming faxes. The fax list might be configured to show only incoming faxes when this user logs into the manager.

Configuring the tree view and the fax list does not prevent users from accessing their faxes. For example, if the fax list is configured to show only current faxes, the user can still access archived faxes in the fax list, by opening the appropriate folder in the tree view.

## Assigning an Unrestricted View

A restricted tree view, which is the default view for normal users, displays only the user ID and the fax folders. Administrators and super-users see the entire LightningFAX network.

Administrators can change this view for any user. Changing to an unrestricted tree view displays the entire network. The user will see servers, resources, groups and users. If assigned an unrestricted view, users can change their own settings, to hide other individual users. However, servers, resources and groups remain displayed.

Only administrators and super-users can toggle between a restricted and an unrestricted tree view.

- 1 In the manager, access the properties of a user or a group's primary users.
- 2 Click on the `Preference` tab (see snapshot on page 100).
- 3 Uncheck the `Show me a Restricted View` box.
- 4 Click `OK`.

## Chapter 5 Introducing Users

### Hiding Other Users

Users can enable or disable whether other users are hidden in the tree view in the manager.

- 1 In the manager, access the properties of a user, or a group's primary users, that have administrator privileges.
- 2 Click on the `Preference` tab.
- 3 Select `I do not want to see other users`.
- 4 Click `OK`.

### Hiding LCR Users

Only administrators can hide the LCR users.

- 1 In the manager, access the properties of a user, or a group's primary users, that have administrator privileges.
- 2 Click on the `Preference` tab.
- 3 Select `I do not want to see LCR users`.
- 4 Click `OK`.

### Showing the User ID and the Full Name

Users can enable or disable whether only the user ID, or the User ID and the full name, are displayed in the tree view of the manager.

- 1 In the manager, access the properties of a user or a group's primary users.
- 2 Click on the `Preference` tab.
- 3 Select `Show me the full name and User ID` to display both items.  
Select `Show me only the User ID` to display only that.
- 4 Click `OK`.

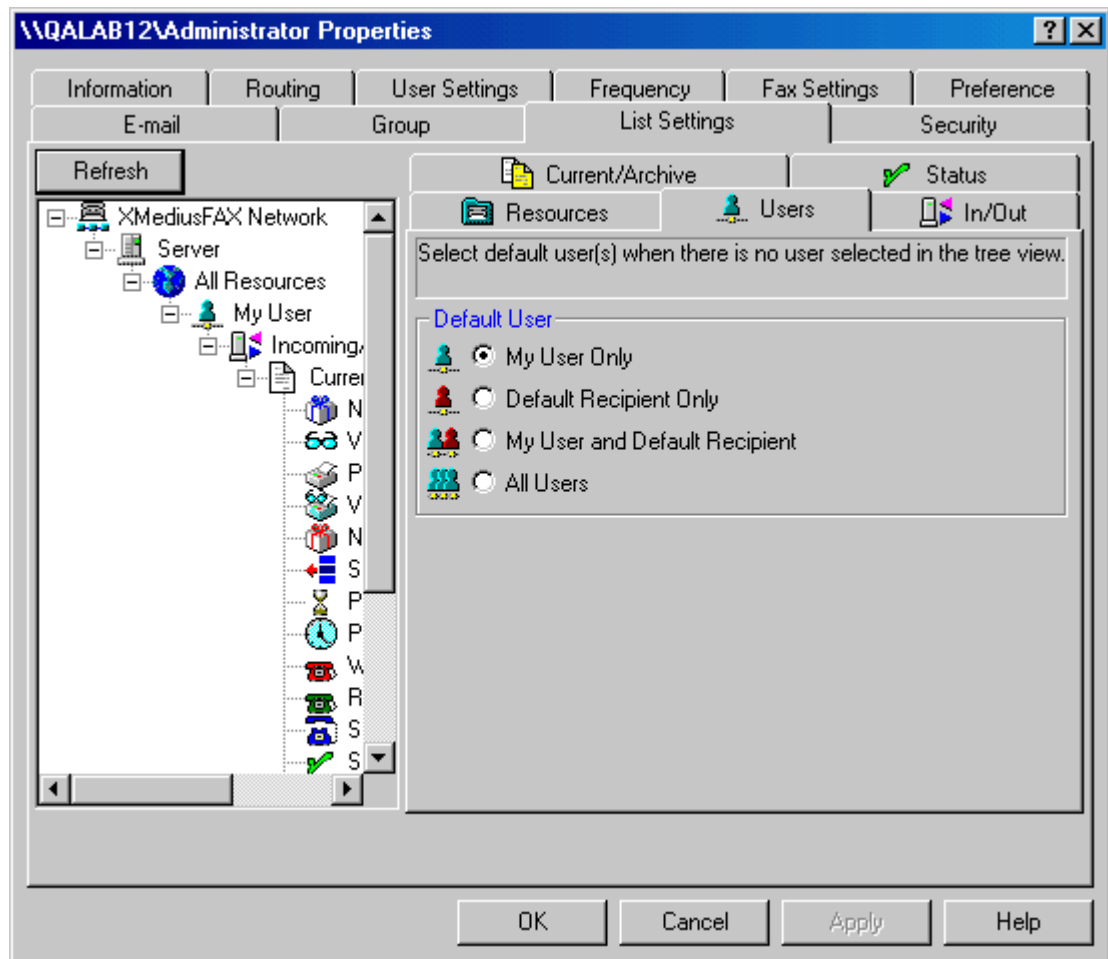
### Assigning a Default Fax List

Only administrators can assign a default fax list.

#### By User

**Note:** This only applies to administrators

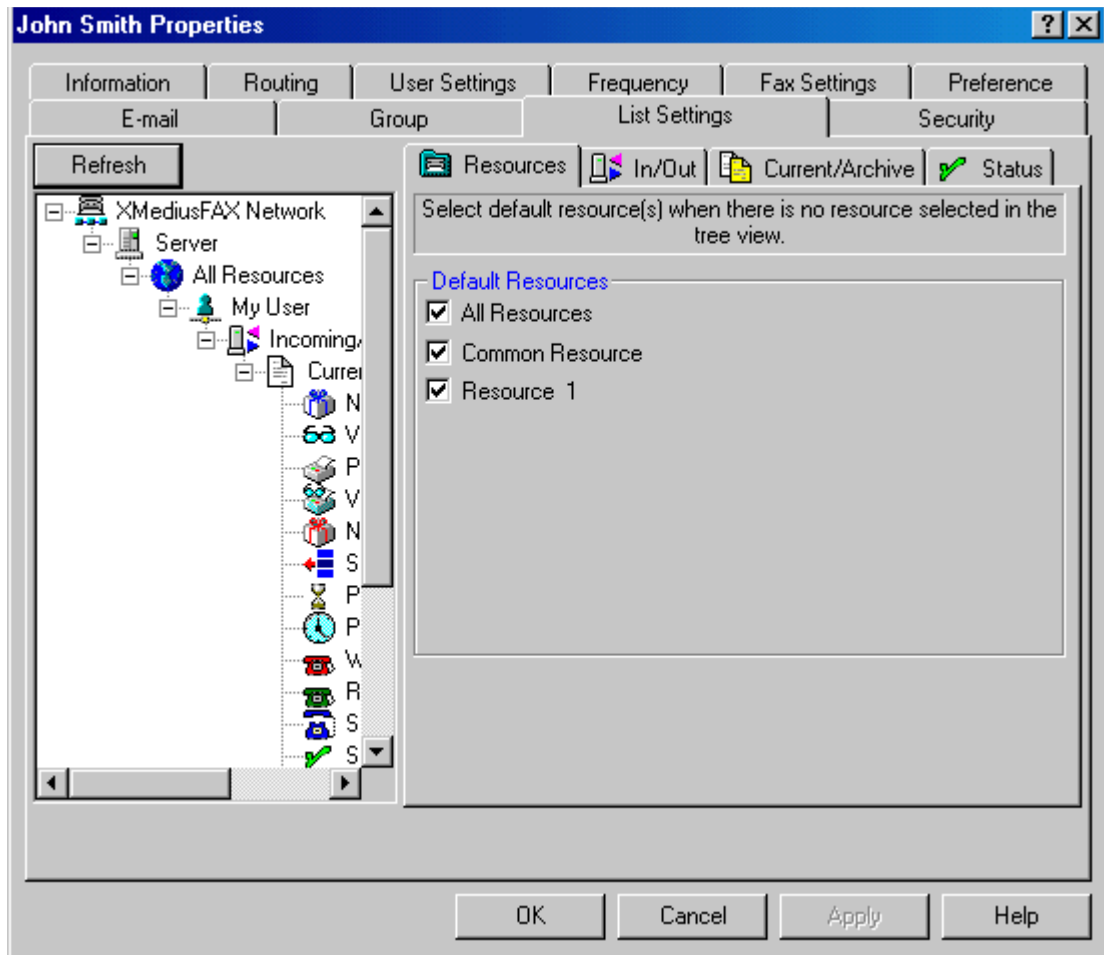
- 1 In the manager, access the properties of a user, or a group's primary users, that have administrator privileges.
- 2 Click on the `List Settings` tab.
- 3 Click on the `Users` tab (see snapshot on next page)



- 4 In the Default User section:
  - To only display the administrator's faxes, select the My User Only option.
  - To display only the faxes of the Default Recipient, select the Default Recipient Only option.
  - To display both the administrator's and the Default Recipient's faxes, select the My User and Default Recipient option.
  - To display the faxes of all users, select the All Users options.
- 5 Click Refresh to view the enabled display settings.
- 6 Click OK.

**By Resource**

- 1 In the manager, access the properties of a user or a group's primary users.
- 2 Click on the List Settings tab.
- 3 Click on the Resources tab.



- 4 The selection varies according to which resources are configured. At a minimum, All Resources, Common Resource and Resource 1 are displayed.

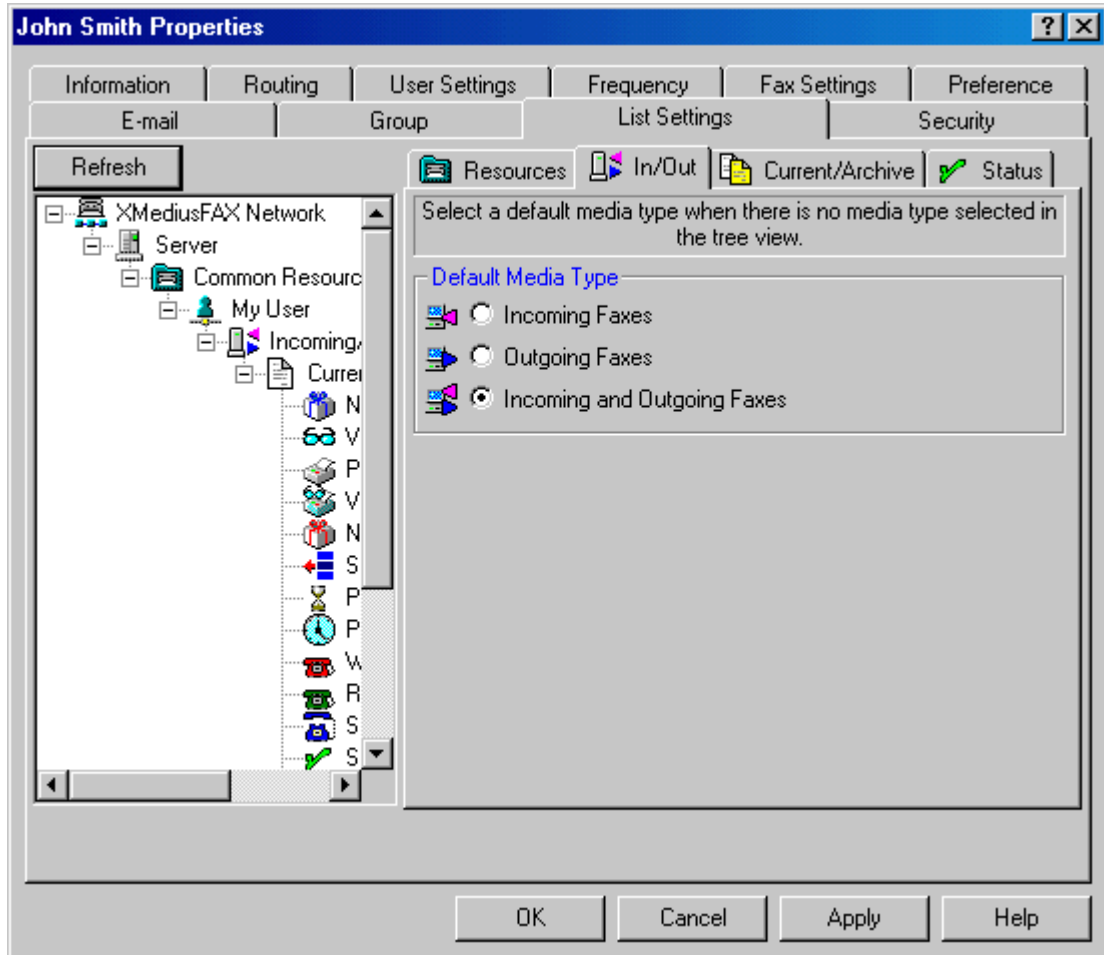
All the resources to which the user or group is associated, are selected by default. That is, the fax list displayed when the user or group primary member logs on, includes all the faxes belonging to all the resources the user or group is associated with.

De-select all the resources whose faxes should not be displayed in the fax list (at least one resource must remain selected).

- 5 Click Refresh to view the enabled display settings.
- 6 Click OK.

**By Media Type**

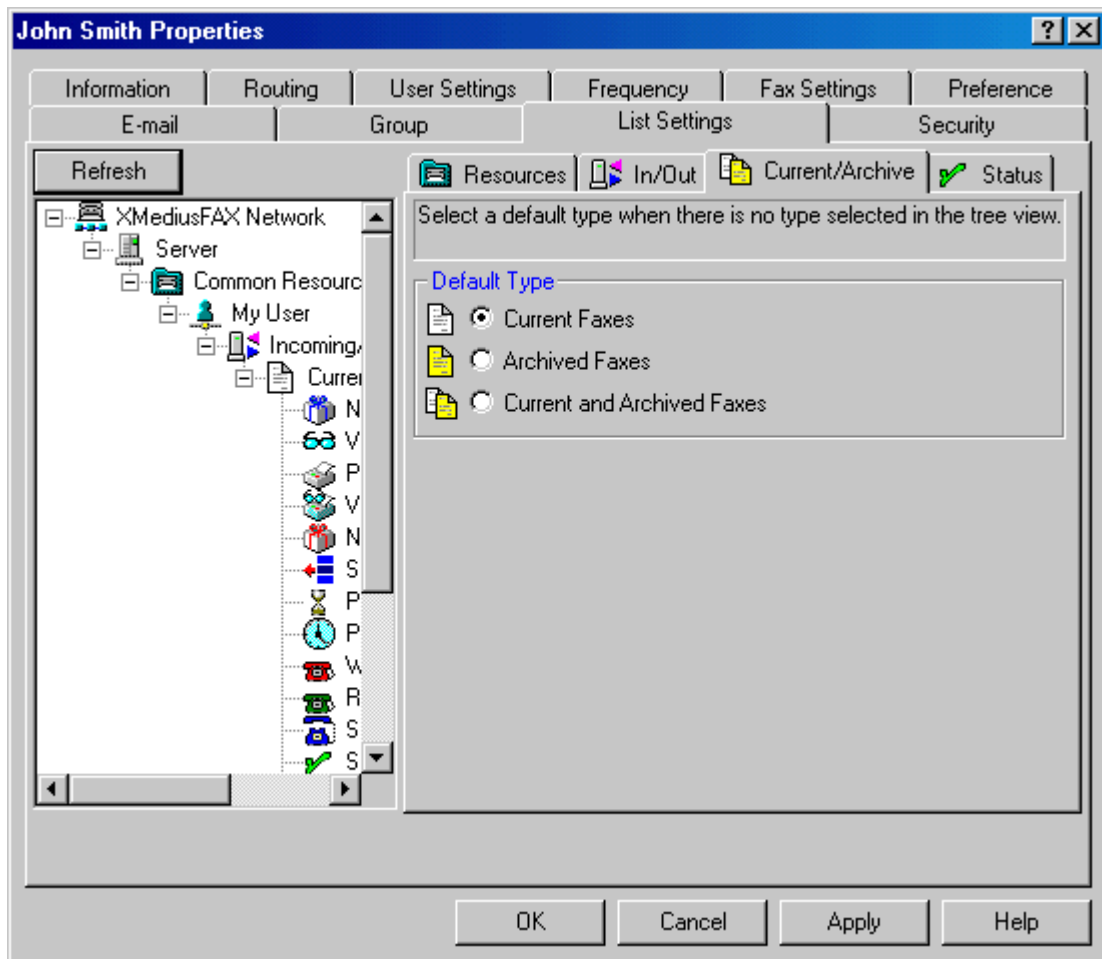
- 1 In the manager, access the properties of a user or a group's primary users.
- 2 Click on the List Settings tab.
- 3 Click on the In/Out tab.



- 4 In the Default Media Type section:
  - To display only incoming faxes in the fax list, select the Incoming Faxes option.
  - To display only outgoing faxes, select the Outgoing Faxes option.
  - To display both, select the Incoming and Outgoing Faxes option.
- 5 Click Refresh to view the enabled display settings.
- 6 Click OK.

**By Fax Type**

- 1 In the manager, access the properties of a user or a group's primary users.
- 2 Click on the List Settings tab.
- 3 Click on the Current/Archive tab.

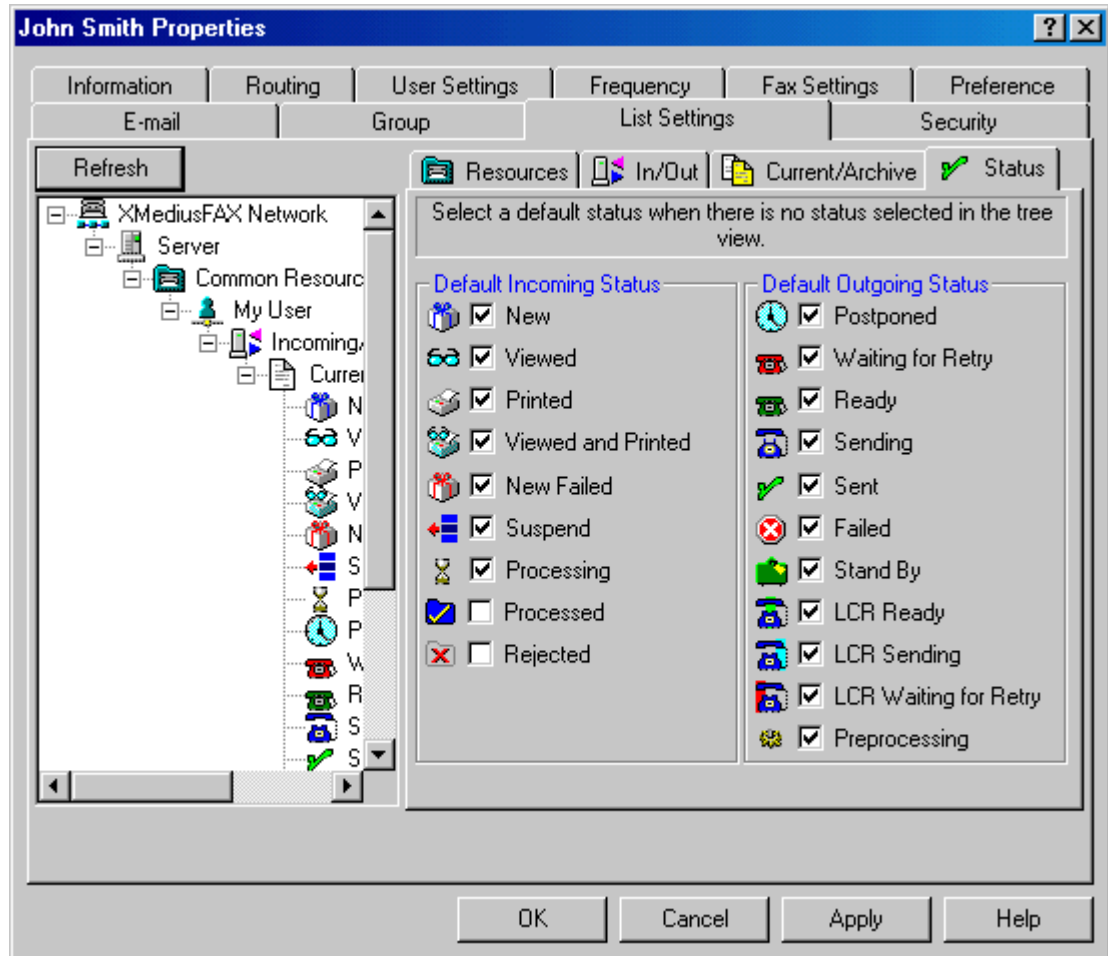


- 4 In the Default Type section:
  - To display only current faxes in the fax list, select the Current Faxes option.
  - To display only archived faxes, select the Archived Faxes option.
  - To display both, select the Current and Archived Faxes option.
- 5 Click Refresh to view the enabled display settings.
- 6 Click OK.

**By Fax Status**

Only administrators can assign a default fax list by fax status.

- 1 In the manager, access the properties of a user or a group's primary users.
- 2 Click on the List Settings tab.
- 3 Click on the Status tab.

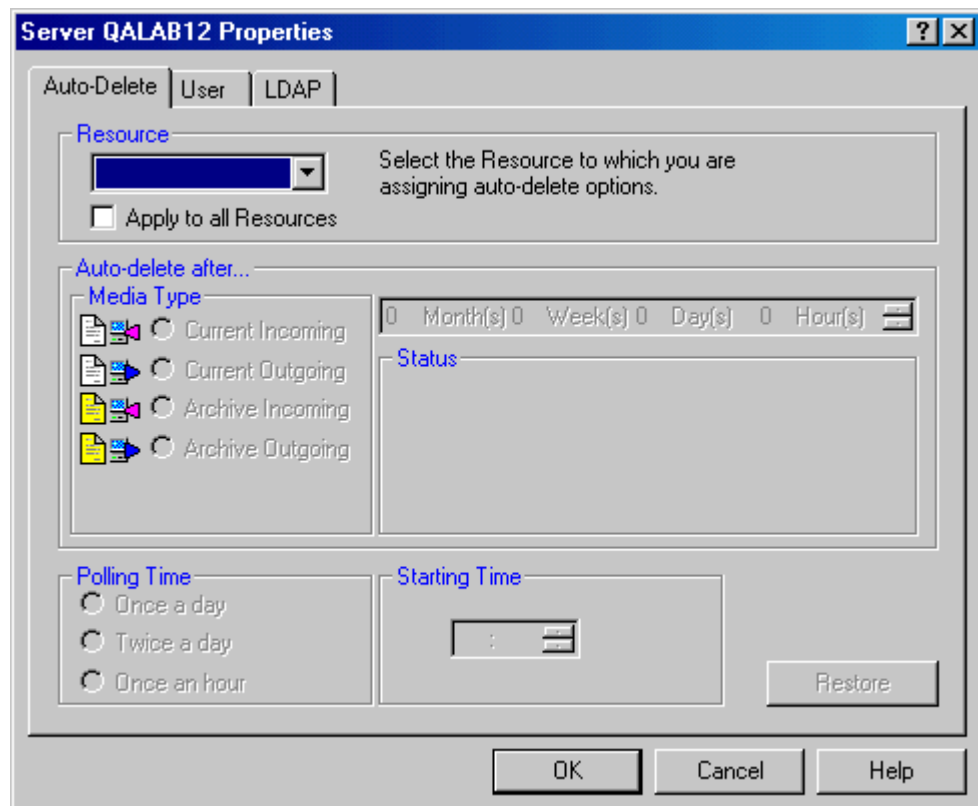


- 4 To keep faxes with a particular status from being displayed in the manager fax list, uncheck the corresponding box in the Default Incoming Status or Default Outgoing Status sections.
- 5 Click Refresh to view the enabled display settings.
- 6 Click OK.

### Auto-Deletion of Faxes

Only administrators can configure auto-deletion of faxes.

- 1 Select a server in the tree and choose **Edit** → **Properties**, or right-click on it and choose **Server Properties**. The **Server Properties** dialog appears.
- 2 Click on the **Auto-Delete** tab (default).



- 3 If applicable, in the **Resource** section, select a single resource to which auto-deletion is to apply, or check the **Applies to All Resources** box.
- 4 In the **Media Type** section, select either of the **Current Incoming**, **Current Outgoing**, **Archive Incoming** or **Archive Outgoing** options. The fax statuses associated with the media type selected are displayed in the **Status** section.
- 5 In the **Status** section, select **All** to apply auto-deletion to all statuses.  
OR  
Select an individual status, to which auto-deletion is to be applied.
- 6 Select **Enable auto-delete** for the selected status.

- 7 In the field above the `Status` section, specify the time range after which faxes must be auto-deleted. You can specify a number of months, weeks, days or hours. For example, `2 Week(s)` specifies that faxes will be auto-deleted after two weeks.
- 8 Repeat steps 6 and 7 for any other fax statuses, as required.
- 9 Repeat steps 4 to 7 for any other media types, as required.
- 10 In the `Polling Time` section, select whether auto-deletion is to occur once or twice a day, or every hour.
- 11 In the `Starting Time` section:
  - If `Once a day` is selected, you can enter the starting time in the 24 hour format (`00:00` to `23:59`);
  - If `Twice a day` is selected, you can enter the starting time in the 12 hour format (`00:00` to `11:59`);
  - If `Once an hour` is selected, you can only enter the starting time in minutes (`00:00` to `00:59`).
- 12 Click `Restore`, if you want reset the auto-deletion settings to their original values (before you made modifications).
- 13 Click `OK`.



## 6

## Introducing Profiles

Faxes sent using a particular profile are formatted and treated according to that profile's definition. It can contain a fax header, a reference to a cover sheet, the company information, the number of retries, the fax priority and the sender personal information, including billing codes (for more details, see [Billing Codes](#) on page 101).

**Note:** Personal sender information and billing codes can only be included in a private profile.

A resource is always associated to a profile. Faxes sent with that profile will use that resource exclusively. Which resource is to be used can be specified in the profile definition.

A profile can also make use of least-cost routing and load balancing. For more details, see [Configuring Least-Cost Routing and Load Balancing](#) on page 165.

**Note:** If a profile is to use least-cost routing and load balancing, an LCR network must be configured.

Profiles can be applied in SendFAX and the forms for Microsoft Outlook.

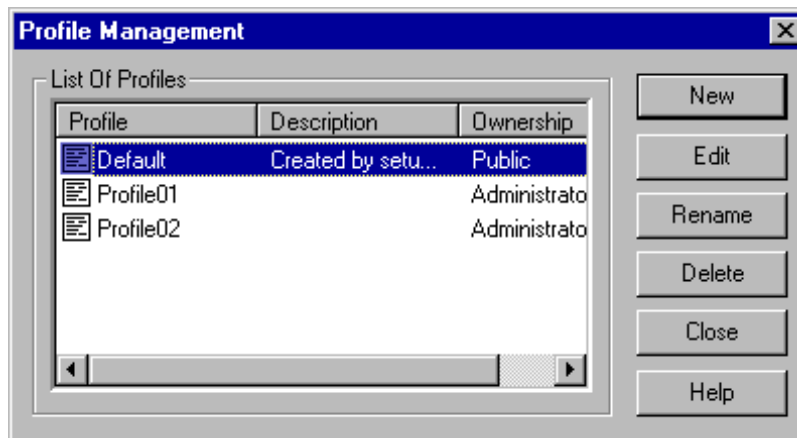
Profiles serve a variety of needs:

- ❑ Administrators can use a profile to specify the company information only once, rather than repeatedly in the properties of each user;
- ❑ Creating several profiles, each with different sender information, allows a user to send faxes on behalf of others;
- ❑ An individual user might use profiles to consistently apply a particular fax header and cover sheet to their faxes. For example, a user might create one cover sheet for intra-office and another for external communications. One profile references the first, another references the second;

- ❑ Several otherwise identical profiles might each reference a different cover sheet, each cover sheet containing the same information, but in a different language.

### Launching the Profile Manager

Choose **Tools** ➔ **Profile Management** in the manager or in SendFAX. The **Profile Management** window appears.



### Types of Profiles

Profiles may be:

- ❑ **private**, created and used by an individual user;
- ❑ **public**, created by an administrator and available to all users;
- ❑ **group**, created by an administrator and associated with a group.

Aside from its other functions, a public profile provides a means of specifying corporate information once, rather than repeatedly in the properties of each user. Such information includes: the company name, address, telephone and fax numbers, Call Station ID, callback number, etc... This information, entered in a public profile, overrides the same information entered in a user's properties.

A group profile serves the same purpose for groups.

Only administrators can edit public or group profiles. All users can create private profiles. Private profiles are available only to those who create them.

### Default Profile

LightningFAX provides a default profile, aptly called `Default`. It references the default cover sheet, also named `Default`; is associated with Resource 1, provides for three retries and sets the fax priority at 3. All other information is blank. You can use this as your default profile, or use it as a template for other profiles.

Any profile can be declared as a default and there may be a default profile of each type: public, private or group. When this is the case, LightningFAX automatically applies the default public profile first. If no default public profile exists, it applies the default group profile, and finally if that does not exist, it applies the default private profile.

When sending a fax, however, users can select any profile available to them. For example, although a default group profile exists, a user in the group can choose their private profile.

## Sender Information

Sender information in public and group profiles includes:

Company	Street	City	State/Province	Country
Zip Code	Phone	Fax	Call Station ID (CSID)	Callback Number (CBN)
Prefix	Suffix			

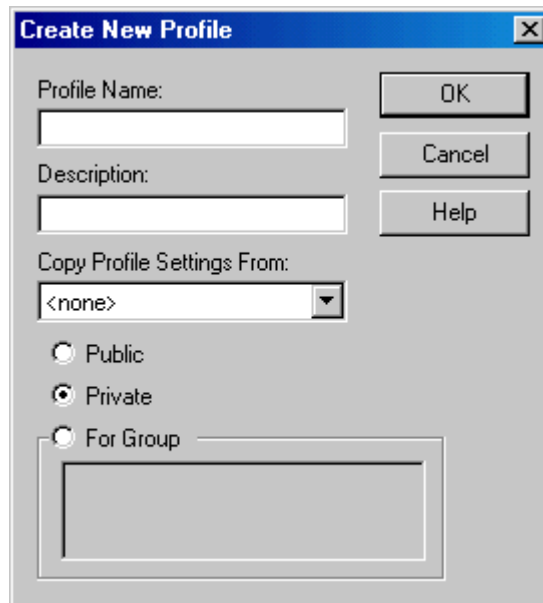
Sender information in private profiles includes the above and the following:

Salutation	First Name	Last Name	Job Title	Email
Cellular	Pager	Billing Code	Sub Billing Code	

Profiles can also include a fax header and a reference cover sheet.

## Creating a Profile

- 1 In the Profile Management window, click **New**. The Create New Profile dialog appears.



- 2 Type a name in the Profile Name field.
- 3 Enter a description (optional) in the Description field.

## Chapter 6 Introducing Profiles

- 4 If desired, select an existing profile in the Copy Profile Settings From box, as the basis for the new profile.

- 5 Administrators can specify the type of profile: `Public`, `Private` or `Group`. The default is `Private`.  
Users can only create private profiles.  
To create a group profile, select the `For Group` option and highlight the desired group.
- 6 Click `OK`. The `Editing Profile` dialog appears (see snapshot on next page).
- 7 To add a fax header, check the `Use Fax Header` box.
- 8 You can edit fax header information by clicking `Edit Fax Header` (for more information about creating fax headers, consult `Introducing Fax Headers` on page 121 of the `LightningFAX User Guide`).  
A sample of the fax header appears in the `Sample` display.
- 9 To include a cover sheet, check the `Use Cover Sheet` box.
- 10 Click `...` and select a cover sheet. Only an `LightningFAX` cover sheet with the `.cse` extension can be selected.
- 11 Enter the sender information. Sender information in a profile overrides the corresponding information in the user and group properties.
- 12 If required, select a particular resource. Only existing resource are available. The default is `Resource 1`.
- 13 If least cost routing has been configured, administrators can enable it, by checking the `Use LCR` box.
- 14 To set the profile as the default for its type, check the `Set this profile as default` box.
- 15 If desired, change the `Number of Retries`. The default is 3. The maximum is 99.
- 16 If desired, change the `Fax Priority`. It ranges from 1, the highest, to 10, the lowest. The default is 3.
- 17 If you are creating a private profile, continue through the next section, otherwise click `OK`, then click `Close`.

**Editing Profile "Profile 1"**

Profile Name:  Description:

Use Fax Header

Sample

**Corporate Information**

Company:

Street:

City:

State/Province:

Country:

Zip Code:

Phone:

Fax:

**Faxing Options**

Use Cover Sheet

**Resource**

Use LCR

CSID:

CBN:

Prefix:

Suffix:

Set this profile as default

Number of Retries:

Priority:

**Personal Information**

Salutation:  Job Title:

First Name:  Email:

Last Name:  Cellular:  Pager:

**Billing Information**

Billing Code:  Sub Billing Code:

**Private Profile Only**

- 18 Select how the user is to be addressed, in the Salutation box.
- 19 Enter a First Name and a Last Name, in the corresponding fields.
- 20 Enter the user's job description, in the Job Title field.
- 21 Enter the user's email address, in the Email field.
- 22 Enter the user's cellular phone number, in the Cellular field.
- 23 Enter the user's pager number, in the Pager field.
- 24 If a sender billing code and sub-billing code are required, to accompany the faxes sent using the profile, enter them in the Billing Code and Sub-Billing Code fields.
- 25 Click OK.
- 26 Click Close.

### Editing a Profile

- 1 In the Profile Management window, select the profile.  
Only administrators can edit public and group profiles.
- 2 Click Edit.
- 3 Make whatever modifications are necessary.
- 4 Click OK.
- 5 Click Close.

### Renaming a Profile

- 1 In the Profile Management window, select the profile.
- 2 Click Rename. The profile name in the Profile column becomes editable.
- 3 Enter the new name.
- 4 Press the Enter key.
- 5 Click Close.

### Deleting a Profile

- 1 In the Profile Management window, select the profile.
- 2 Click Delete.
- 3 Confirm the deletion by clicking Yes.
- 4 Click Close.



## 7 User and Profile Management

This chapter describes user and public profile management, using the Active Directory schema extension and the user administration MMC snap-in. It assumes that you have installed the Active Directory extensions along with the gateway for Microsoft Exchange, as well as the user administration MMC snap-in.

### Managing User Properties

User administration is accomplished through the Active Directory. Administrative tasks can include authorizing faxing, enabling number restrictions and specifying such properties as the Call Station ID (CSID), the callback number (CBN), the faxing priority, billing information, etc...

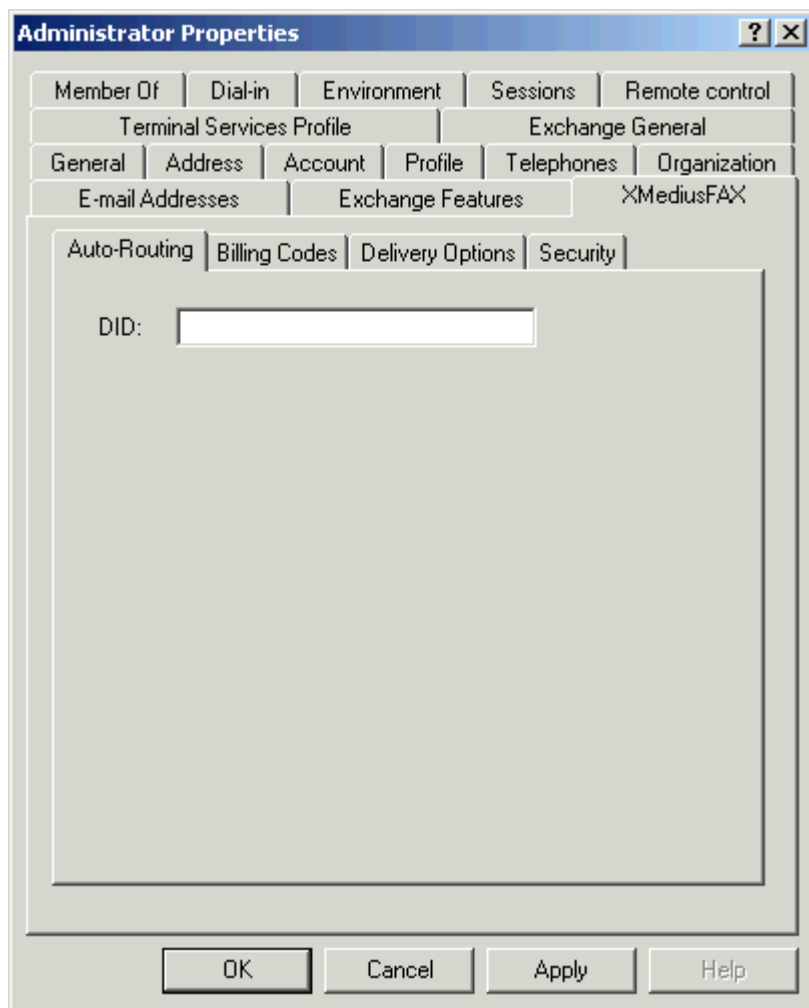
**Note:** Values specified as user properties are overridden by values assigned to the same properties in a profile.

At present, properties must be assigned to individual users and cannot be assigned to groups in the Active Directory.

All properties are accessed through the Active Directory Users and Computers console.

To access it and modify the properties for the users of the forms for Microsoft Outlook:

- 1 Select Start ➔ Programs ➔ Microsoft Exchange ➔ Active Directory Users and Computers.
- 2 In the tree-view, select the domain where Microsoft Exchange was installed.
- 3 Select the Users folder.
- 4 Double-click on a user or select it, right-click and choose Properties.
- 5 Select the LightningFAX tab (see snapshot on next page).



### Security Options

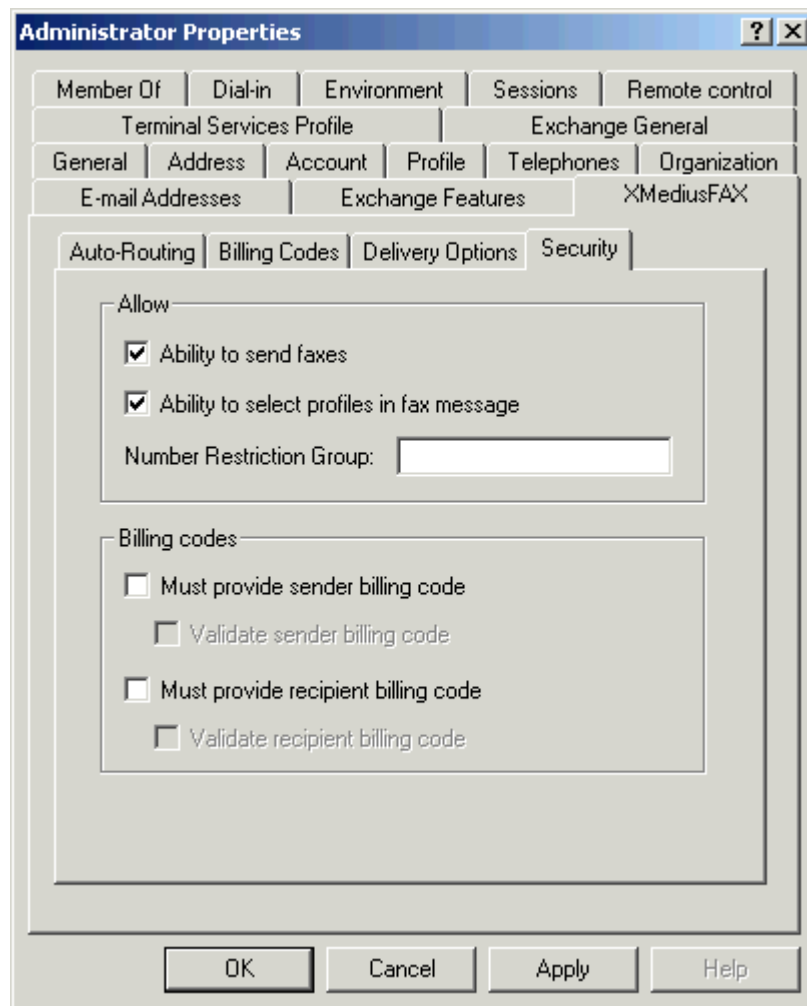
Security options include the ability to send faxes, select profiles and specify a number restriction group, as well as enforcing and validating the entry of billing information.

They can be applied to an individual user, to several individual users or to a group of users.

- Select the *Security* tab (see snapshot on next page).

#### Enabling or Disabling the Sending of Faxes

- 1 Check or un-check the *Ability to send faxes* box. By default, users can send faxes.
- 2 Click *OK*.



### Enabling or Disabling the Selection of Profiles

- 1 Check or un-check the Ability to select profiles in fax message box. By default, users can select profiles.
- 2 Click OK.

### Specifying a Number Restriction Group

- 1 In the Number Restriction Group field, type the name of an existing number restriction group, that you want to apply to the user.
- 2 Click OK.

### Enforcing Billing Information Entry

- 1 Check the Must provide sender billing code box, to force the sender to provide a sender billing code.
- 2 Check the Must provide recipient billing code box, to force the sender to provide a recipient billing code.
- 3 Click OK.

### Validating Billing Information

- 1 Check the `Validate sender billing code` box, to validate the sender billing code.

Note: Valid sender billing codes must be listed in the `\LFServer\sbilling.dat` file, in the LightningFAX root directory. It is an ASCII file, generated with any text editor.

- 2 Check the `Validate recipient billing code` box, to validate the recipient billing code.

Note: Valid sender billing codes must be listed in the `\LFServer\rbilling.dat` file, in the LightningFAX root directory. It is an ASCII file, generated with any text editor.

- 3 Click `OK`.

See `Billing Codes` on page 101 for more details of billing information and entry.

### Delivery Options

Delivery options include assigning a Call Station ID (CSID), a callback number, a fax prefix or suffix, the number of retries and the fax priority, the default outgoing resource, and a default profile.

- Select the `Delivery Options` tab.

#### Assigning a Call Station ID (CSID)

- 1 Enter a Call Station ID in the `CSID` field.
- 2 Click `OK`.

#### Assigning a Callback Number

- 1 Enter a callback number in the `Callback number` field.
- 2 Click `OK`.

#### Assigning a Fax Prefix or Suffix

- 1 Enter a prefix in the `Fax prefix` field. An example of a prefix is a number dialed to access an outgoing telephone line.
- 2 If desired, type a suffix in the `Fax suffix` field. An example of a suffix is a PIN number.
- 3 Click `OK`.

#### Assigning the Number of Retries

- 1 Specify the number of retries in the `Number of retries` field. The fewest is 0, the most is 10. The default is 3.
- 2 Click `OK`.

#### Assigning the Faxing Priority

- 1 Specify the faxing priority in the `Priority` field. The highest priority is 1, the lowest is 10. The default is 3.
- 2 Click `OK`.

### Assigning the Default Outgoing Resource

- 1 Specify an existing LightningFAX resource in the `Default resource` field. By default, `Resource 1` is specified.
- 2 Click `OK`.

### Assigning a Default Profile

- 1 Type the name of an existing profile in the `Default profile` field.
- 2 Click `OK`.

### Enabling Least-Cost Routing (LCR) for Outgoing Faxes

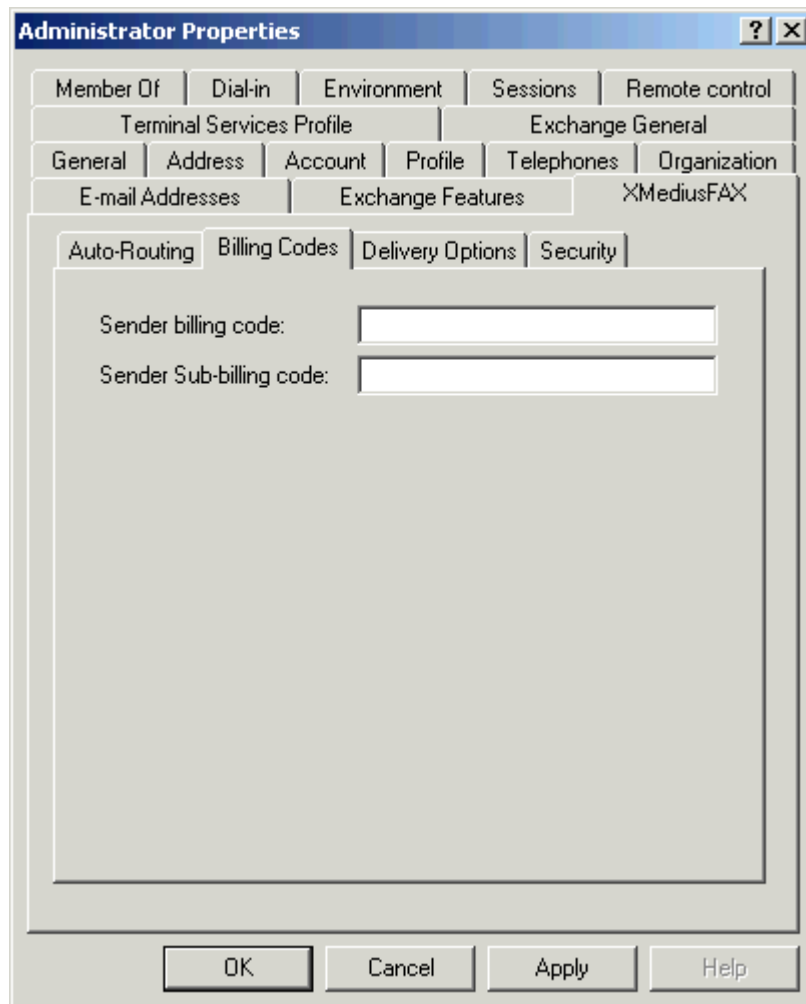
- 1 Check the `Use LCR` box.
- 2 Click `OK`.

See [Creating a Public Profile](#) on page 132 to learn how to create a public profile.

### Sender Billing Information

Billing codes assigned in the user properties are entered automatically when the user sends a fax. However, billing information in user properties is overridden by billing information in the profile used when faxing.

- 1 Select the Billing Codes tab.



The screenshot shows the 'Administrator Properties' dialog box with the 'Billing Codes' tab selected. The dialog has a title bar with a question mark and close button. Below the title bar are several tabs: Member Of, Dial-in, Environment, Sessions, Remote control, Terminal Services Profile, Exchange General, General, Address, Account, Profile, Telephones, Organization, E-mail Addresses, Exchange Features, and XMediusFAX. The 'Billing Codes' tab is active, showing two input fields: 'Sender billing code:' and 'Sender Sub-billing code:'. At the bottom of the dialog are four buttons: OK, Cancel, Apply, and Help.

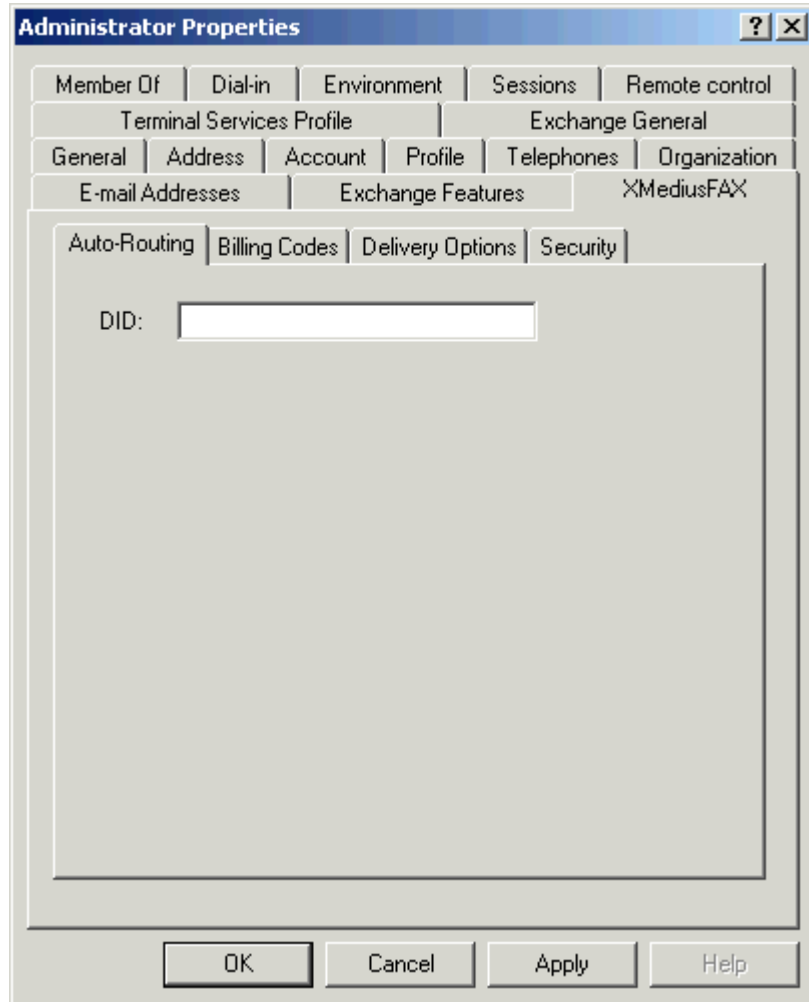
- 2 Enter a billing code in the Sender billing code field.
- 3 If desired, enter a sub-billing code in the Sender Sub-billing code field.
- 4 Click OK.

See Billing Codes on page 101 for more details of billing information and entry.

### Auto-Routing Incoming Faxes

Auto-routing directs incoming faxes to a user's inbox. An administrator can assign any Direct Inward Dialing (DID) number to a user, so that incoming faxes using this number are routed automatically to that user.

- 1 Select the Auto-Routing tab.



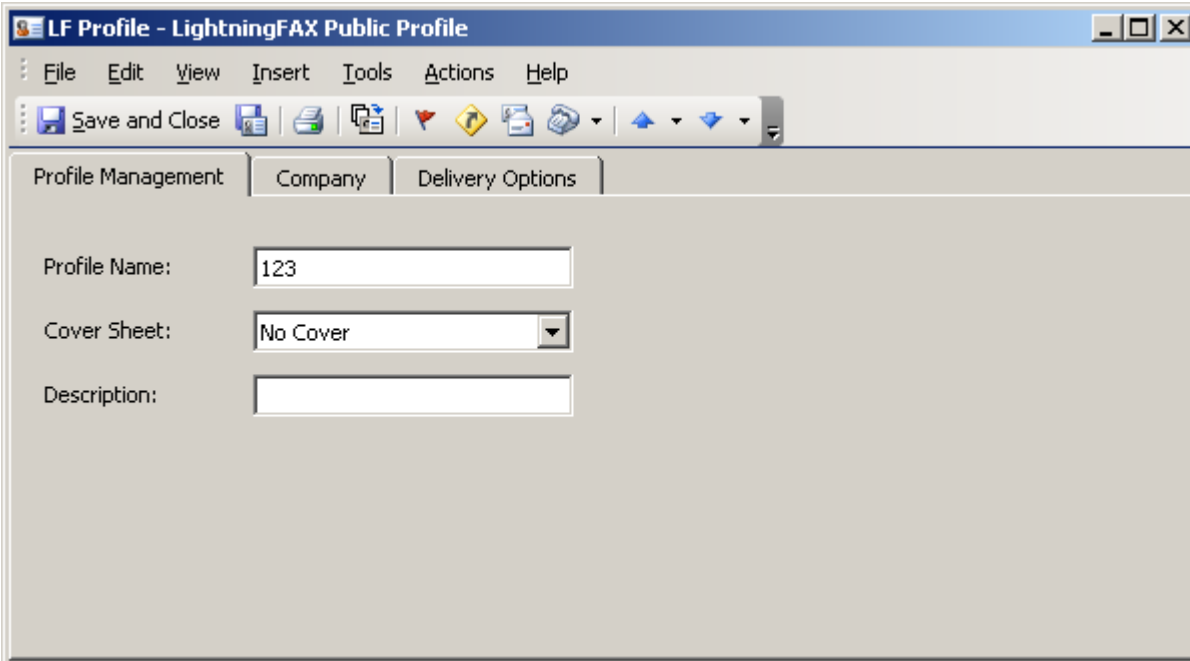
The screenshot shows the 'Administrator Properties' dialog box with the 'Auto-Routing' tab selected. The dialog has a title bar with a question mark and a close button. Below the title bar are several tabs: Member Of, Dial-in, Environment, Sessions, Remote control, Terminal Services Profile, Exchange General, General, Address, Account, Profile, Telephones, Organization, E-mail Addresses, Exchange Features, and XMediusFAX. The 'Auto-Routing' tab is active and contains a 'DID:' label followed by an empty text input field. At the bottom of the dialog are four buttons: OK, Cancel, Apply, and Help.

- 2 Type a number (maximum of 63 digits) in the DID field.  
Note: Several users can share the same DID number; the incoming fax is then automatically routed to each one.
- 3 Click OK.

### Creating a Public Profile

**Note:** The LightningFAX forms for Microsoft Outlook must already be published, to create a public profile in Outlook.

- 1 Launch Microsoft Outlook.
- 2 If the folder list is not displayed, choose **View** ➔ **Folder List** or **Go** ➔ **Folder List** in Outlook 2003.
- 3 Expand **Public Folders**, then **All Public Folders**.
- 4 Select **LFProfiles**.
- 5 Click **New** or double-click in the right panel of the window, or select **File** ➔ **New** ➔ **Contact**. The **Contact** dialog appears.



The screenshot shows a window titled "LF Profile - LightningFAX Public Profile". It features a menu bar with "File", "Edit", "View", "Insert", "Tools", "Actions", and "Help". Below the menu bar is a toolbar with icons for "Save and Close", "Print", "Copy", "Paste", "Undo", "Redo", and a scroll bar. The main area has three tabs: "Profile Management" (selected), "Company", and "Delivery Options". Under the "Profile Management" tab, there are three input fields: "Profile Name" with the text "123", "Cover Sheet" with a dropdown menu showing "No Cover", and "Description" with an empty text box.

- 6 Enter a unique name in the **Profile Name** field.
- 7 Select a cover sheet to be associated with this profile, in the **Cover Sheets** box.
- 8 Enter a description of the profile, in the **Description** field.
- 9 Enter the profile information in the appropriate field, in the dialogs for the **Company** and **Delivery Options** tabs.
- 10 Click **Save and Close**.

### Editing a Profile

- 1 Launch Microsoft Outlook.
- 2 If the folder list is not displayed, choose **View** ➔ **Folder List** or **Go** ➔ **Folder List** in Outlook 2003.
- 3 Expand **Public Folders**, then **All Public Folders**.
- 4 Select **LFProfiles**.
- 5 Double-click on a profile or right-click on it and choose **Open**.
- 6 Make the required modifications.
- 7 Click **Save** and **Close**.

### Deleting a Profile

- 1 Launch Outlook.
- 2 If the folder list is not displayed, choose **View** ➔ **Folder List** or **Go** ➔ **Folder List** in Outlook 2003.
- 3 Expand **Public Folders**, then **All Public Folders**.
- 4 Select **LFProfiles**.
- 5 Double-click on a profile or right-click on it and choose **Delete**.
- 6 Click **Yes** to confirm deletion.



## 8 Introducing Inbound Auto-Routing

This chapter details the various methods used to automatically route incoming faxes to various destinations.

By default, incoming faxes are sent to the `Default Recipient`, in the resource that received the fax. A super-user or an administrator periodically checks the `Default Recipient` folder, opening the cover sheets to learn who the recipient is and then routing the documents to the corresponding destination. Configuring manual delivery requires only the creation of a super-user, with access to the appropriate resources.

By specifying a series of routing rules that redirect incoming faxes to specific destinations, an administrator can greatly reduce the need for manual routing.

### The Routing Table

Routing rules are specified in the routing table. Briefly, an administrator selects the routing method, enters a routing string (in most cases), and then links the rule to one or more destinations.

Once specified, rules can be modified and deleted as well as disabled. Modifications can include adding and deleting destinations associated with the rule, as well as changing the routing string.

**Note:** Only administrators can configure inbound routing.

### Routing Methods

All routing methods must be configured in the routing table. In addition, some rules require subscriber services obtained from a telephone company.

#### Subscriber Service Routing Methods

Analog Subscriber Services		Digital Subscriber Services	
Direct Inward	Dual-Tone	Automatic	Dialed Number
Dialing	Multi-Frequency	Number	Identification
(DID)	(DTMF)	Identification	Service
		(ANI)	(DNIS)

## Chapter 8 Introducing Inbound Auto-Routing

Direct Inward Dialing also requires a fax board equipped with a DID channel. The other three subscriber service routing methods require no special fax board.

### LightningFAX Routing Methods

Channel	Default	Deferred	LDAP	Remote CSID
System Default		T.30 Sub-addressing		

### Destinations

Destinations specified in routing rules can be email addresses, folders, printers or user IDs. If a rule applies to an incoming fax, the latter is sent to all the destinations specified in the rule.

**Note:** Destinations cannot be specified for LDAP or deferred routing rules.

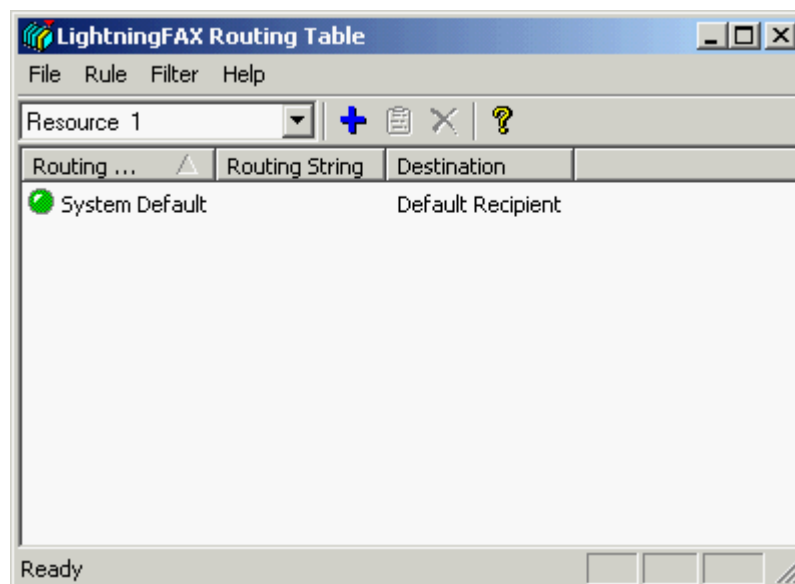
For archiving purposes, a copy of the fax is also routed to a particular system user in the resource, depending on the type of destination or method used:

- for an email destination, to the default user of the gateway;
- for a folder destination, to the ROUTING\FOLDER user;
- for a printer destination, to the ROUTING\PRINTER user;
- for an LDAP rule, to the default user of the gateway;
- for a deferred rule, to the default user of the gateway;

**Note:** The default user of a gateway is called MAILGTWY, unless otherwise renamed in the Control Panel.

### Launch the Routing Table

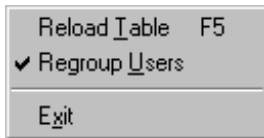
In the manager, choose Administrator ➤ Routing Table.



The `System Default` rule is enabled automatically at startup. When all other routing rules fail to apply to an incoming fax, this rule routes it to the `Default Recipient`. It cannot be deleted or modified.

**Note:** By default, if only one resource exists, it appears in the resource selection box (in this case `Resource 1`). Otherwise, `All Resources` is displayed.

### The File Menu



Reload Table refreshes the display of the table.

Regroup Users reorganizes the display of rules that route to two or more destinations. By default, each rule is displayed on a single line. Disabling Regroup Users re-displays the rule for each user.

Exit closes the routing table.

### The Rule Menu

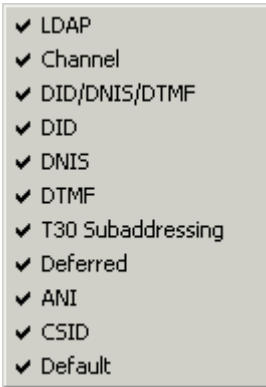


Add displays the dialog used to add a new rule.

Edit displays a selected rule for editing.

Delete deletes a selected rule.

### The Filter Menu



By default, all the rules, using any available method, are displayed. Users can toggle the display; showing or hiding the rules for one, some or all methods.

### Inbound Auto-Routing Methods

The following routing methods are available, that do not require the services of a telephone company.

---

<b>LDAP</b>	<p>LDAP routing instructs the LightningFAX server to query the LDAP server, upon receiving a fax with a Direct Inward Dialing (DID) number. The query searches the LDAP service for a matching number in the <code>facsimiletelephonenumber</code> field. If one is found, the fax is routed to the matched LDAP account, if it has been imported into LightningFAX. If no match is found, the rule fails and the routing table evaluates the next rule..</p> <p>LDAP routing assumes that LDAP has been configured on the server. If not, the rules will fail. See <i>Enabling the LDAP Server</i> on page 69 for more details.</p> <p><b>Note:</b> Only one LDAP rule can be specified in the Routing Table. Once it exists (enabled or not), LDAP is removed from the choice of routing methods and, therefore, cannot be selected again when adding other rules.</p>
<b>Channel</b>	<p>An incoming fax can be routed to a destination, according to the analog fax board channel that received the fax.</p> <p><b>Note:</b> Channel routing can only be applied to analog fax boards.</p>
<b>T.30 Sub-addressing</b>	<p>Incoming faxes that use T.30 are automatically routed to the sub-address, if it is specified in the fax preamble and recognized by the driver, according to its configuration.</p> <p>This method only works with fax boards that support it and not with the T.38 protocol.</p>
<b>Deferred</b>	<p>Deferred routing instructs LightningFAX to transfer the query to the email server. The email server compares the number received to an alias specified for email recipients. When a match is found, the email server directs the fax to the recipient's mailbox.</p> <p>The alias is specified in the following format. <i>alias@domain</i>. For example: <code>1234@abcindustries.com</code>.</p>

This method differs from the other methods used to deliver to mailboxes, in that it instructs the email server, and not LightningFAX, to conduct the query.

**Note:** A gateway must be installed.

Only one deferred rule can be specified in the Routing Table. Once it exists (enabled or not), `Deferred` is removed from the choice of routing methods and, therefore, cannot be selected when adding other rules.

**Remote CSID**

CSID (Call Station ID) is a standard routing method that does not require a specific fax board. Senders determine their CSID according to one or more alphanumeric strings. A company or user name, or a fax number, are all valid CSID strings.

Examples: **Markham, Industries, ABC, Office 22 and 333-4441.**

Faxes received from a specific remote CSID are routed to an LightningFAX recipient or a gateway.

To configure remote CSID routing, the LightningFAX administrator enters the rule in the routing table. Naturally, the administrator must know the remote CSID a potential fax sender uses.

**Default**

The default routing method is used to override the `System Default` rule and can be configured for a specific resource.

Incoming faxes normally received by the `Default Recipient` can thus be redirected to any destination.

**Routing using LDAP**

- 1 In the manager, choose `Administrator` ➔ `Routing Table`.
- 2 Choose `Rule` ➔ `Add`.
- 3 Use `Routing Type` to select `LDAP`.
- 4 By default, the `LDAP` field queried is `facsimiletelephonenumber`, which represents the value of the `Fax Number` field in the `Active Directory` configuration. You can specify any other `LDAP` property if `facsimiletelephonenumber` does not contain the `DID` number.

A maximum of 255 characters can be entered in this field.

The default placeholder, `*$did$` transmits the incoming number. The asterisk (\*) represents any combination of long-distance code and city code. `$did$` represents the actual `DID` number. Note that the entire entry is enclosed in parenthesis.

Note: For LDAP routing to work with MS Exchange 5.5, the asterisk (\*) must be removed:

```
facsimiletelephonenumber=$did$
```

If the Active Directory schema was extended (Windows 2000 or 2003 only), the value of the `DID` field configured in the Active Directory user properties (`LightningFAX` tab) can be used.

ANI routing can replace DID. In this case, the number is represented by the placeholder: `$ani$`.

It is also possible to provide format specifications, using the question mark (?). For example:

```
$did:???-????$
```

A semi-colon (:) serves as the delimiter between the placeholder tag and the format specification. Question marks are replaced by characters from the corresponding field, from right to left.

The search filter may contain any number of placeholders. For example:

```
( |(facsimiletelephonenumber=$did$) (facsimiletelephonenumber=*$did:????$) (facsimiletelephonenumber=$ani:???-????$) )
```

The backslash (\) can also be used as an escape character.

Here are a few examples of matches, placeholders and their corresponding formatted results:

```
DID=5146331493, "$did:xxx xxx-xxxx$" would give "514633-1439";
DID=5146331493, "$did:xxxx$" would give "1439";
DID=6331493, "$did:xxx xxx-xxxx$" would give "633-1439";
ANI=6331493, "$ani$" would give "6331439";
ANI=6331493, "$ani:xxxx$" would give "1439";
ANI=6331493, "$ani:\?xxxx$" would give "?1439";
ANI=6331493, "$ani:\\xxxx$" would give "\\1439".
```

LightningFAX searches the `facsimiletelephonenumber` field in the LDAP records until a match is found. The fax is then routed to the user whose `facsimiletelephonenumber` field contains the match.

- 5 Use Gateway to select the gateway set in the user properties of an imported LDAP user.
- 6 Click Create & Close. Use Create if other routing rules are to be added immediately.

### Routing by Channel

- 1 In the manager, choose Administrator ➔ Routing Table.
- 2 Choose Rule ➔ Add.
- 3 Use Routing Type to select Channel.
- 4 Type the number of the inbound fax board channel in the Channel field.
- 5 Use Resource to display a list of users and groups associated with a specific LightningFAX resource.
- 6 Click Route to.
- 7 Under Type, select the type of destination: Email, Printer, Folder or User.
- 8 If you choose Email, enter the email address in the Email field, then select the appropriate gateway, in the Gateway field.

OR



If you choose Folder, type the name of or browse to the desired folder, in the Folder field.

OR

If you choose Printer, select the desired printer in the left panel.

OR

If you choose User, select the desired user in the left panel.

- 9 Click . You can enter as many recipients as required. Use  to correct any errors.
- 10 Click OK.
- 11 Click Create & Close. Use Create if other routing rules are to be added immediately.

### Routing by T.30 Sub-addressing

- 1 In the manager, choose Administrator ➔ Routing Table.
- 2 Choose Rule ➔ Add.
- 3 Use Routing Type to select T.30 Sub-addressing.
- 4 Type the routing string in the Routing String field.  
Two wildcard characters can be used in the routing sting. The asterisk (\*) indicates any number of unspecified numbers. The question mark (?) indicates a single unspecified number.
- 5 Use Resource to display a list of users and groups associated with a specific resource.
- 6 Click Route to.
- 7 Under Type, select the type of destination: Email, Printer, Folder or User.

## Chapter 8 Introducing Inbound Auto-Routing

- 8 If you choose `Email`, enter the email address in the `Email` field, then select the appropriate gateway, in the `Gateway` field.

OR



If you choose `Folder`, type the name of or browse to the desired folder, in the `Folder` field.

OR

If you choose `Printer`, select the desired printer in the left panel.

OR

If you choose `User`, select the desired user in the left panel.

- 9 Click . You can enter as many recipients as required. Use  to correct any errors.
- 10 Click `OK`.
- 11 Click `Create & Close`. Use `Create` if other routing rules are to be added immediately.

### Routing by Deferred

If a gateway is installed, LightningFAX can be instructed to transfer the routing query to that server.

- 1 In the manager, choose `Administrator` ➔ `Routing Table`.
- 2 Choose `Rule` ➔ `Add`.
- 3 Use `Routing Type` to select `Deferred`.
- 4 By default, LightningFAX offers the variable `$DID$` and the current domain in the `Routing String` field. Change the domain as required.  
**Note:** The variable `$DID$` is specified regardless of whether `DID`, `DTMF` or `DNIS` routing is being used. It is underlined that the correct alias must be specified for the email recipient. For example, if incoming faxes addressed to the `DID` number 1342 are to be successfully routed to the recipient `smith@franklin.com`, an alias `1342@franklin.com` must be specified for that recipient. `$DID$@franklin.com` would be the entry specified here.
- 5 Use `Gateway` to select the appropriate gateway.
- 6 Click `Create & Close`. Use `Create` if other routing rules are to be added immediately.

## Routing by Remote CSID

- 1 In the manager, choose **Administrator** ➔ **Routing Table**.
- 2 Choose **Rule** ➔ **Add**.
- 3 Use **Routing Type** to select **CSID**.
- 4 Type the routing string in the **Routing String** field.

CSID routing strings are alphanumeric. Company names might be used, as might fax numbers. Spaces are allowed, that is, a CSID can consist of two or more alphanumeric strings. For example: Markham, ABC Industries, Office22 and 333-4441 are four valid CSIDs.

Two wildcard characters can be used in the routing sting. The asterisk (\*) indicates any number of unspecified letters or numbers. The question mark (?) indicates a single unspecified letter or number.

- 5 Select **Exact Phrase** if you wish to match the exact CSID string as entered.

To match all strings of the CSID in any order, select **Match All Words**

To match any single string of the CSID, select **Match Any Word**. This selection is the default.

- 6 Use **Resource** to display a list of users and groups associated with a specific resource.
- 7 Click **Route to**.
- 8 Under **Type**, select the type of destination: **Email**, **Printer**, **Folder** or **User**.
- 9 If you choose **Email**, enter the email address in the **Email** field, then select the appropriate gateway, in the **Gateway** field.

OR



If you choose **Folder**, type the name of or browse to the desired folder, in the **Folder** field.

OR

If you choose **Printer**, select the desired printer in the left panel.

OR

If you choose **User**, select the desired user in the left panel.

- 10 Click . You can enter as many recipients as required. Use  to correct any errors.
- 11 Click **OK**.
- 12 Click **Create & Close**. Use **Create** if other routing rules are to be added immediately.

### Routing by Default

- 1 In the manager, choose Administrator ➔ Routing Table.
- 2 Choose Rule ➔ Add.
- 3 Use Routing Type to select Default.
- 4 Use Resource to display a list of users and groups associated with a specific resource.
- 5 Click Route to.
- 6 Under Type, select the type of destination: Email, Printer, Folder or User.
- 7 If you choose Email, enter the email address in the Email field, then select the appropriate gateway, in the Gateway field.

OR



If you choose Folder, type the name of or browse to the desired folder, in the Folder field.

OR

If you choose Printer, select the desired printer in the left panel.

OR

If you choose User, select the desired user in the left panel.

- 8 Click . You can enter as many recipients as required. Use  to correct any errors.
- 9 Click OK.
- 10 Click Create & Close. Use Create if other routing rules are to be added immediately.

## Analog Inbound Routing Services (DID and DTMF)

The following analog routing methods require the services of a telephone company.

---

**Direct Inward Dialing** Direct Inward Dialing (**DID**) is an analog service provided to subscribers by the telephone company. The subscriber first obtains a DID trunk line, a block of fax numbers — typically 20 or 100 — and a fax board with at least one DID channel. Then, in LightningFAX, the subscriber associates a number from the block with each potential fax recipient in the network. Incoming faxes sent to a given number are automatically routed to the individual assigned that number. The DID channels on a fax board are inbound only. Outgoing faxes require another fax board channel.

To configure DID routing, the administrator specifies that type of routing in LightningFAX Monitor and then associates a recipient with a DID number in the routing table.

**Dual Tone  
Multi-Frequency**

Dual Tone Multi-Frequency (**DTMF**), which is also analog, requires action on the part of the fax sender. A specific number, which can be thought of as an extension or code, is assigned to each potential fax recipient. The fax sender first dials the usual seven- or ten-digit fax number, then, upon hearing an answering signal, dials the DTMF code and presses *Send*. The fax is routed directly to the recipient.

DTMF can be manual, as just described, or automatic. Automatic DTMF routing is arranged with the telephone company or configured on a Private Branch Exchange (PBX). The additional DTMF code is entered automatically rather than manually.

DTMF routing is a subscriber service offered by a telephone company and is only supported by fax boards, not T.38.

To configure DTMF routing, the administrator specifies that type of routing in LightningFAX Monitor and then associates a recipient with a DTMF number in the routing table.

### Routing by Direct Inward Dialing

- 1 Choose Start ➔ Programs ➔ LightningFAX ➔ Monitor.
- 2 Choose Driver ➔ Stop.
- 3 Choose Setup.
- 4 Select the Channel tab.
- 5 Use Identify the channel number to select the fax board channel that provides inbound routing.
- 6 Use Auto-routing to select DID.
- 7 Type the number of DID digits in the Number of Digits field.
- 8 Click OK.
- 9 Choose Driver ➔ Start.
- 10 Exit the LightningFAX monitor.

The next stage applies a routing rule to the recipient.

- 1 In the manager, choose Administrator ➔ Routing Table.
- 2 Choose Rule ➔ Add.
- 3 Use Routing Type to select DID.
- 4 Type the DID number in the Routing String field.  
Two wildcard characters can be used in the routing sting. The asterisk (\*) indicates any number of unspecified numbers. The question mark (?) indicates a single unspecified number.
- 5 Use Resource to display a list of users and groups associated with a specific resource.
- 6 Click Route to.
- 7 Under Type, select the type of destination: Email, Printer, Folder or User.
- 8 If you choose Email, enter the email address in the Email field, then select the appropriate gateway, in the Gateway field.

OR



If you choose Folder, type the name of or browse to the desired folder, in the Folder field.

OR

If you choose Printer, select the desired printer in the left panel.

OR

If you choose User, select the desired user in the left panel.

- 9 Click . You can enter as many recipients as required. Use  to correct any errors.
- 10 Click OK.
- 11 Click Create & Close. Use Create if other routing rules are to be added immediately.

### Routing by Dual-Tone Multi-Frequency

- 1 Choose Start ➔ Programs ➔ LightningFAX ➔ Monitor.
- 2 Choose Driver ➔ Stop.
- 3 Choose Setup.
- 4 Select the Channel tab.
- 5 Use Identify the channel number to select the fax board channel that provides inbound routing.
- 6 Use Auto-routing to select DTMF (telco). If manual DTMF routing is to be used, select DTMF (manual).
- 7 Type the number of DTMF digits in the Number of Digits field.
- 8 Click OK.
- 9 Choose Driver ➔ Start.
- 10 Exit the LightningFAX monitor.

The next stage applies a routing rule to the recipient.

- 1 In the manager, choose Administrator ➔ Routing Table.
- 2 Choose Rule ➔ Add.
- 3 Use Routing Type to select DTMF.
- 4 Type the DTMF number in the Routing String field.  
Two wildcard characters can be used in the routing sting. The asterisk (\*) indicates any number of unspecified numbers. The question mark (?) indicates a single unspecified number.
- 5 Use Resource to display a list of users and groups associated with a specific resource.
- 6 Click Route to.
- 7 Under Type, select the type of destination: Email, Printer, Folder or User.
- 8 If you choose Email, enter the email address in the Email field, then select the appropriate gateway, in the Gateway field.

OR



If you choose Folder, type the name of or browse to the desired folder, in the Folder field.

OR

If you choose Printer, select the desired printer in the left panel.

OR

If you choose User, select the desired user in the left panel.

- 9 Click . You can enter as many recipients as required. Use  to correct any errors.
- 10 Click OK.
- 11 Click Create & Close. Use Create if other routing rules are to be added immediately.

### Digital Inbound Routing Methods (ANI and DNIS)

The following digital routing methods require the services of a telephone company.

---

<b>Automatic Number Identification</b>	<p>Automatic Number Identification (ANI) is the digital equivalent of Call Station ID. That is, the fax can be routed to a given recipient by associating that recipient with the ANI number of the fax sender in the routing table.</p> <p>ANI routing is a subscriber service offered by a telephone company, but requires no special fax board.</p> <p>To configure ANI routing, the administrator specifies that type of routing in the Monitor and then associates a recipient with a ANI number in the routing table.</p>
<b>Dialed Number Identification Service</b>	<p>Dialed Number Identification Service (DNIS) is a digital service that uses a telephone line, but is otherwise similar to Direct Inward Dialing. A telephone company provides the subscriber with a dedicated telephone line and a block of DNIS numbers that are assigned to fax recipients using the routing table. Unlike DID fax board channels, DNIS channels allow outgoing as well as incoming transmissions.</p> <p>DNIS routing requires no special fax board.</p> <p>To configure DNIS routing, the administrator specifies that type of routing in LightningFAX Monitor and then associates a recipient with a DNIS number in the routing table.</p>

---

#### Routing through Automatic Number Identification

- 1 Choose Start ➔ Programs ➔ LightningFAX ➔ Monitor.
- 2 Choose Driver ➔ Stop.
- 3 Choose Setup.
- 4 Select the Channel tab.
- 5 Use Identify the channel number to select the fax board channel that provides inbound routing.
- 6 Use Auto-routing to select DNIS. If you are using Alcatel switches, select VPS.
- 7 Type the number of ANI digits in the Number of Digits field.
- 8 OK.
- 9 Choose Driver ➔ Start.
- 10 Exit the LightningFAX monitor.

The next stage applies a routing rule to a recipient.

- 1 In the manager, choose Administrator ➔ Routing Table.
- 2 Choose Rule ➔ Add.
- 3 Use Routing Type to select ANI.
- 4 Type the ANI number in the Routing String field.  
Two wildcard characters can be used in the routing sting. The asterisk (\*) indicates any number of unspecified numbers. The question mark (?), indicates a single unspecified number.
- 5 Select Exact Phrase if you wish to match the exact ANI string as entered.  
To match all strings of the ANI in any order, select Match All Words  
To match any single string of the ANI, select Match Any Word. This selection is the default.
- 6 Use Resource to display a list of users and groups associated with a specific resource.
- 7 Click Route to.
- 8 Under Type, select the type of destination: Email, Printer, Folder or User.
- 9 If you choose Email, enter the email address in the Email field, then select the appropriate gateway, in the Gateway field.

OR



If you choose Folder, type the name of or browse to the desired folder, in the Folder field.

OR

If you choose Printer, select the desired printer in the left panel.

OR

If you choose User, select the desired user in the left panel.

- 10 Click . You can enter as many recipients as required. Use  to correct any errors.
- 11 Click OK.
- 12 Click Create & Close. Use Create if other routing rules are to be added immediately.

### Routing through Dialed Number Identification Service

- 1 Choose Start ➔ Programs ➔ LightningFAX ➔ Monitor.
- 2 Choose Driver ➔ Stop.
- 3 Choose Setup.
- 4 Select the Channel tab.
- 5 Use Identify the channel number to select the fax board channel that provides inbound routing.
- 6 Use Auto-routing to select DNIS.
- 7 Type the number of DNIS digits in the Number of Digits field.
- 8 Click OK.
- 9 Choose Driver ➔ Start.
- 10 Exit the LightningFAX monitor.

The next stage applies a routing rule to the recipient.

- 1 In the manager, choose Administrator ➔ Routing Table.
- 2 Choose Rule ➔ Add.
- 3 Use Routing Type to select DNIS.
- 4 Type the DNIS number in the Routing String field.

Two wildcard characters can be used in the routing sting. The asterisk (\*) indicates any number of unspecified numbers. The question mark (?) indicates a single unspecified number.

- 5 Use Resource to display a list of users and groups associated with a specific resource.
- 6 Click Route to.
- 7 If you choose Email, enter the email address in the Email field, then select the appropriate gateway, in the Gateway field.

OR



If you choose Folder, type the name of or browse to the desired folder, in the Folder field.

OR

If you choose Printer, select the desired printer in the left panel.

OR

If you choose User, select the desired user in the left panel.

- 8 Click . You can enter as many recipients as required. Use  to correct any errors.
- 9 Click OK.
- 10 Click Create & Close. Use Create if other routing rules are to be added immediately.

## Managing Inbound Routing Rules

Once established, routing rules can be managed in a variety of ways.

### Adding a Destination to a Routing Rule

- 1 In the manager, choose `Administrator` ➔ `Routing Table`.
- 2 Click on the rule and choose `Rule` ➔ `Edit` or right-click on it and choose `Edit`.
- 3 Click `Route To`.
- 4 If you choose `Email`, enter the email address in the `Email` field, then select the appropriate gateway, in the `Gateway` field.

OR



If you choose `Folder`, type the name of or browse to the desired folder, in the `Folder` field.

OR

If you choose `Printer`, select the desired printer in the left panel.

OR


If you choose `User`, select the desired user in the left panel.

- 5 Click . Use  to correct any errors.
- 6 Click `OK`.

### Removing Destinations and/or Rules

There are two ways to delete destinations and rules. The first deletes the destinations linked to the rule on a selective basis. The second deletes the rule and all destinations linked to it immediately.

#### Removing selected Destinations

- 1 In the manager, choose `Administrator` ➔ `Routing Table`.
- 2 Click on the rule and select `Rule` ➔ `Edit` or right-click on it and choose `Edit`.
- 3 Click `Route To`.
- 4 Under `Destinations to add`, select one or more destinations.
- 5 Click . then click `OK`.

#### Deleting a Rule and All Destinations Immediately

- 1 In the manager, choose `Administrator` ➔ `Routing Table`.
- 2 Click on the rule and select `Rule` ➔ `Delete` or right-click on it and choose `Delete`.
  - In `Regroup Users` mode, you are prompted: Are you sure you want to delete this routing rule and all the destinations links associated with it?
  - Otherwise, you are prompted: Are you sure you want to delete this destination link to a routing rule?

3 Click **Yes**.

- In **Regroup Users** mode, the rule and all its destinations are deleted from the routing table.
- Otherwise, if there is only one destination specified for the selected rule, the rule is deleted from the routing table.

If there is more than one destination specified in the rule, only the destination selected is deleted. All the other destinations for that rule remain visible in the routing table.

If the destination selected is the last one left for that rule, after all the others have been deleted, you are prompted: *There is no more users linked to rule "x". Do you want to delete the routing rule? (where x is the name of the rule).* Click **Yes** again. The destination and the rule are deleted from the routing table.

### Modifying a Routing Rule

- 1 In the manager, choose **Administrator** ➔ **Routing Table**.
- 2 Click on the rule and select **Rule** ➔ **Edit** or right-click on it and choose **Edit**.
- 3 Make the changes you wish.
- 4 Click **OK**.

### Disabling a Routing Rule

- 1 In the manager, choose **Administrator** ➔ **Routing Table**.
- 2 Click on the rule and select **Rule** ➔ **Edit** or right-click on it and choose **Edit**.
- 3 Uncheck the **Enable Rule** box.
- 4 Click **OK**.

### Enabling a Routing Rule

- 1 Click on the rule and select **Rule** ➔ **Edit** or right-click on it and choose **Edit**.
- 2 Check the **Enable Rule** box.
- 3 Click **OK**.

## Displaying Rules by Type

By default, all routing rules are displayed in the routing table.

---

To toggle the display of ANI rules:	Choose Filter ➔ ANI
To toggle the display of LDAP rules:	Choose Filter ➔ LDAP
To toggle the display of channel rules:	Choose Filter ➔ Channel
To toggle the display of DID/DNIS/DTMF rules entered through a user's routing properties:	Choose Filter ➔ DID/DNIS/DTMF
To toggle the display of DID rules:	Choose Filter ➔ DID
To toggle the display of DTMF rules:	Choose Filter ➔ DTMF
To toggle the display of T.30 Sub-addressing rules:	Choose Filter ➔ T.30 Sub-addressing
To toggle the display of Deferred rules:	Choose Filter ➔ Deferred
To toggle the display of CSID rules:	Choose Filter ➔ CSID
To toggle the display of DNIS rules:	Choose Filter ➔ DNIS
To toggle the display of Default rules:	Choose Filter ➔ Default

---

**Note:** Rules can be specified in a user's routing properties. These rules are restricted to DID, DNIS or DTMF routing. To configure through the routing properties, the administrator must specify the type of routing in the LightningFAX monitor and then enter the DID, DNIS or DTMF number in the user's routing properties.

That entry automatically generates a rule in the routing table. However, these rules cannot be edited from there, only deleted. Furthermore, these rules are listed as DID/DNIS/DTMF in the table, that is, there is no exact indication of which specific routing method is being used.

Interstar recommends that the routing table be used, instead of the routing properties, to specify any inbound auto-routing rule.



## 9

# Configuring Least-Cost Routing and Load Balancing

Least-cost routing (LCR) configures LightningFAX so that faxes sent from one server are routed to the server nearest to the destination. The latter then forwards the faxes to their recipients. Because LightningFAX uses TCP/IP rather than telephone lines, long distance telephone charges are thus avoided.

LCR requires at least one trusted server, which may be LightningFAX or SMTP T.37-compatible. The trust relationship is one way; that is, the LCR table on the destination server must list the sending server as a trusted server. Furthermore, on both servers, the resources that send and receive the transmissions must be configured to use LCR.

By default, the `Common Resource` and `Resource 1` are configured to use LCR. However, LCR use can only be disabled on the latter. If other resources are added, they are not configured to use LCR. An administrator must enable them to do so, if required.

**Note:** Load balancing, which distributes the work among the servers in the LCR network, is automatic.

If your faxing operations include the SMTP protocol compatible with T.37, you can transmit via T.37 rather than TCP/IP. The transmission can be forwarded from the receiving SMTP server to a LightningFAX server or to third-party fax software.

**Note:** The LightningFAX gateway for SMTP must be installed, if you intend to enable an SMTP server for LCR use.

Having selected a trusted server, the administrator associates one or more LCR rules with the destination server and a LightningFAX resource. LCR rules include either a specific fax number or a more general numeric pattern. A fax that a) is addressed to a number in the

LCR table and b) specifically states that LCR is to be used, is automatically sent to the server associated with a rule.

**Note:** Fax senders must access SendFAX transmission settings and select the `Use LCR` option, if LCR is to be used. If `Use LCR` is not selected, the fax is transmitted over the telephone line, even if LCR has been configured as described in this chapter.

If the fax sender selects the `Use LCR` option, but the LCR table does not contain any rule applicable to the fax number, the fax fails.

In the LightningFAX manager, LCR parent items are listed under the user that sent the fax. LCR child items are listed under the LCR user.

### Search Patterns

Search patterns specify a fax number or number pattern to be searched for, a condition, and the number of digits that may be entered by the fax sender.

**Note:** For the destination server to forward the fax to its recipient, it probably needs to modify the fax number, in order to complete the call. See *Least-Cost Routing Example* on page 159, for an example of both an LCR rules and required number modification.

### LCR Resource Configuration

- 1 In the manager, select a resource.
- 2 Right-click and choose `Resource Properties`.
- 3 In the `Options` section, check the `This resource is available for LCR` box.
- 4 Click `OK`.

**Note:** If an LCR fax encounters a receiving resource that is not configured for LCR, it is assigned the status of `Ready To Send` and LightningFAX retries to send it indefinitely, until the resource becomes available for LCR.

### Specifying a Trusted Server

- 1 In the manager, choose `Administrator` ➔ `LCR Table`.
- 2 Click `Trusted Servers`.
- 3 Enter the host name or the IP address of the LightningFAX server.
- 4 Click `Add`.
- 5 Click `OK`.

### Removing a Trusted Server

LCR tables are not synchronized. No update of corresponding LCR tables occurs when a trusted server is removed.

- 1 In the manager, choose **Administrator** ➔ **LCR Table**.
- 2 Click **Trusted Servers**.
- 3 Select the server that you want to remove and click **Remove**.  
 Note: You cannot remove a server referenced in an existing LCR rule.
- 4 Click **OK**.
- 5 Click **OK** to close the LCR table.

### Adding an LCR Rule

- 1 In the manager, choose **Administrator** ➔ **LCR Table**.
- 2 Click **Add**.
- 3 In the **Definition** section, enter a fax number or a number pattern in the **Pattern** field. Numeric patterns can include numbers and wildcards. The question mark(?) specifies a single digit; the asterisk (\*) any number of digits.  
 This entry represents the entire fax number. That is, you cannot specify a portion of the fax number such as an area code or city code. 1222\* or 1222???????? are valid entries; an entry like 1222 is a pattern of exactly four digits that searches for the fax number 1222.
- 4 In the **Condition** field, select **Less than**, **Exactly** or **More than**.
- 5 Enter the number of digits to be considered in the **Digits** field.  
 For example, the pattern 1222\*, with a condition of **Exactly** and an 11-digit fax number, would apply LCR whenever an 11 digit fax number entered by the sender begins with 1222.
- 6 In the **Server** box or the **Domain** field, select an **LightningFAX** server or enter an **SMTP** domain, depending on the type of destination.
- 7 In the **Server** box, select an **LightningFAX** server or enter an **SMTP** domain, depending on the type of destination.  
 Note: A destination must be entered before you can save an LCR rule.
- 8 Click **Add**. If only a single LCR-enabled resource is available, the rule is added. If more than one LCR-enabled resource is available, you are prompted to select which are associated to the rule.
- 9 In the case of an **SMTP** server, you can instruct **LightningFAX** to cancel any transmission that is not confirmed by the destination server, by checking the **Fail if transmission cannot be confirmed** box.
- 10 Click **OK**.
- 11 Repeat steps 2 to 10 for all the LCR rules you need to add.
- 12 Click **OK** to close the LCR table.

### Editing an LCR Rule

- 1 In the manager, choose `Administrator` ➔ `LCR Table`.
- 2 Select the rule to be modified.
- 3 Click `Properties`.
- 4 Enter the desired modifications.
- 5 Click `OK`.
- 6 Repeat steps 2 to 5 for all LCR rules that need to be modified.
- 7 Click `OK` to close the LCR table.

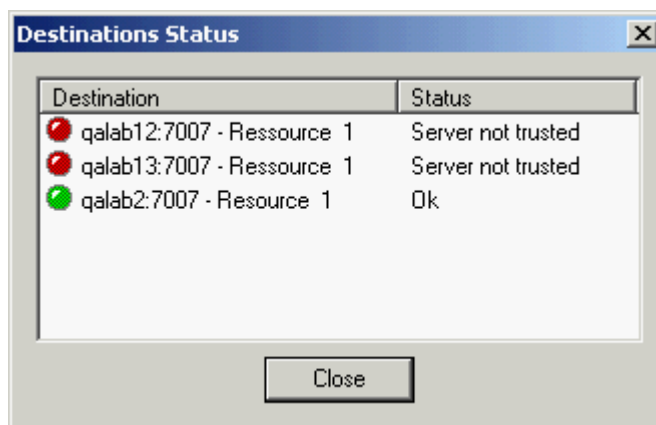
### Removing an LCR Rule

- 1 In the manager, choose `Administrator` ➔ `LCR Table`.
- 2 Select the rule to be removed.
- 3 Click `Remove`.
- 4 Repeat steps 2 and 3 for all LCR rules to remove.
- 5 Click `OK` to close the LCR table.

### Testing LCR Destinations

- 1 In the manager, choose `Administrator` ➔ `LCR Table`.
- 2 Click on `Test Destinations`.

All of the destinations in the LCR Table are tested and the results are displayed in the `Destinations Status` window that appears.



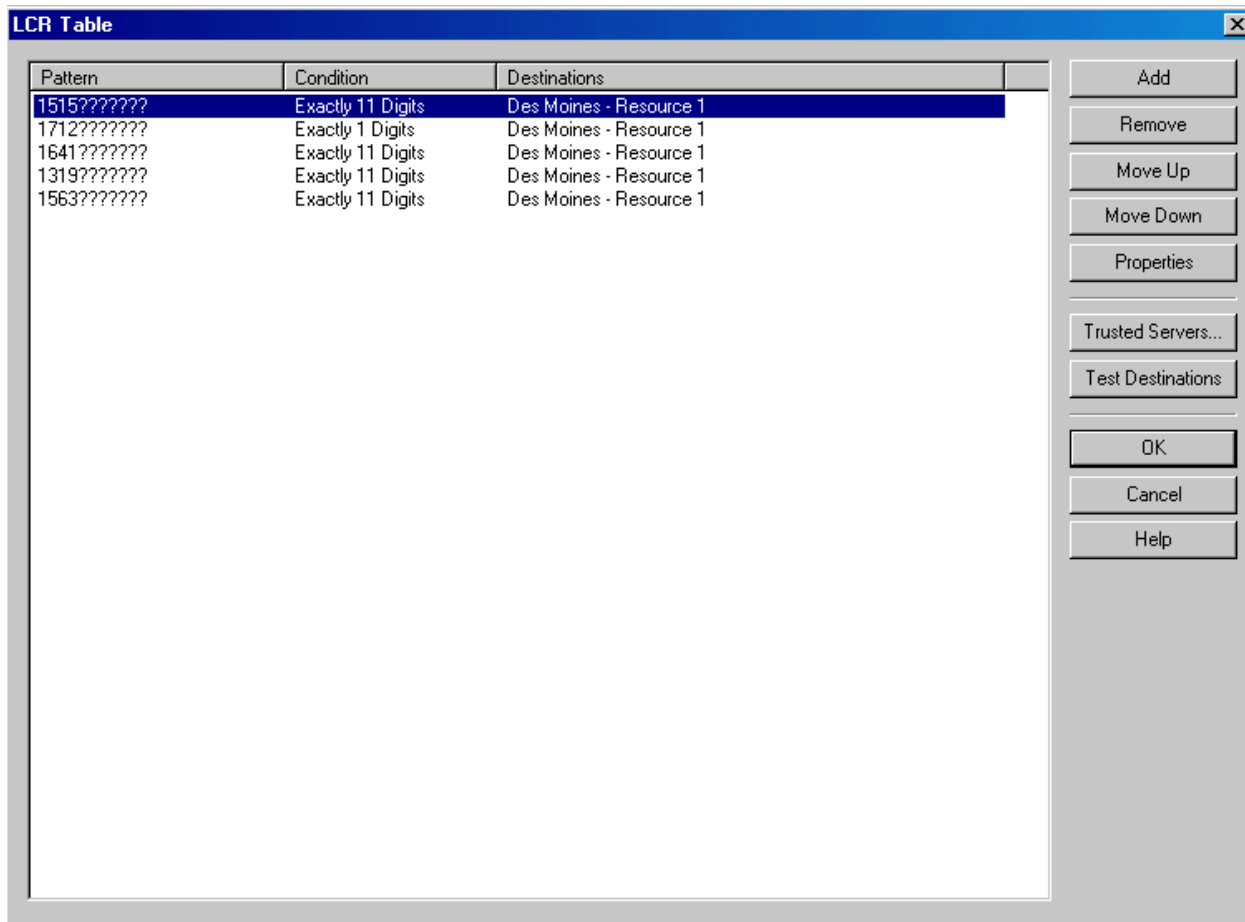
**Least-Cost Routing Example**

What follows is an example of least-cost routing and the necessary entries to the modification table on the destination server.

**Specifying LCR**

A LightningFAX LCR network is to be established between ABC Industries' offices in New York and in Des Moines, Iowa. The purpose is to direct all faxes addressed from the New York server to any destination in Iowa, to the server in Des Moines, using LCR.

First, an administrator in Des Moines would specify the New York server as a trusted server in the local LCR table, then add the area codes for Iowa, selecting the Des Moines server for each entry. Area codes for Iowa are 515 (Des Moines), 712, 641, 319 and 563.



All the long distance faxes sent to any of these numbers will now be sent to the server in the Des Moines office. The fax sender must of course select the Use LCR option when faxing.

**Note:** As many as 14 other resources can be added and be made available for LCR, then selected when LCR rules are specified.

### Number Modification

**Note:** Administrators can configure any available resource to send, receive or both. Number modification is applied to any resource capable of sending faxes. It is always applied before the LCR table.

To correctly direct the faxes from New York to their recipient, an administrator in Des Moines must configure number modification in at least one case. Specifically, faxes sent from New York to cities in the 515 area, do not require the long distance code or the area code. These are local calls relayed from Des Moines.

**Note:** Although it might not actually be the case, this example assumes that calls from Des Moines to the other Iowa area codes are long distance calls, thus requiring the long distance and area codes. If this is the case, it is not necessary to modify fax numbers sent to those area codes.

The administrator specifies a search pattern using 1515??????, the condition Exactly, and a fax number of 11 digits. The modification removes the long distance code and the area code.

The screenshot shows a dialog box titled "Rule Properties" with a close button (X) in the top right corner. The dialog contains the following fields and controls:

- Pattern:** A text input field containing "1515????".
- Condition:** A dropdown menu set to "Exactly".
- Digits:** A text input field containing "11".
- Stop On Match:** A checked checkbox.
- Actions:** A table with the following data:

Start From	Offset	Digits	Replace With
Beginning	0	4	
- Buttons:** "Add", "Remove", "Move Up", "Move Down", and "Properties" are stacked vertically on the right side of the table.
- Bottom Buttons:** "OK", "Cancel", and "Help" are at the bottom of the dialog.

Full details on number modification are available in Fax Number Modification on page 31.

### Load Balancing

As stated above, load balancing is automatic. Another use of the LCR table, therefore, might be to establish load balancing between two or more LightningFAX servers, in a single location.

The servers must be listed as trusted in their respective LCR tables. The fax number search pattern is the asterisk (\*), that is, it includes all fax numbers. LightningFAX then automatically attempts to distribute the fax load among the trusted servers.



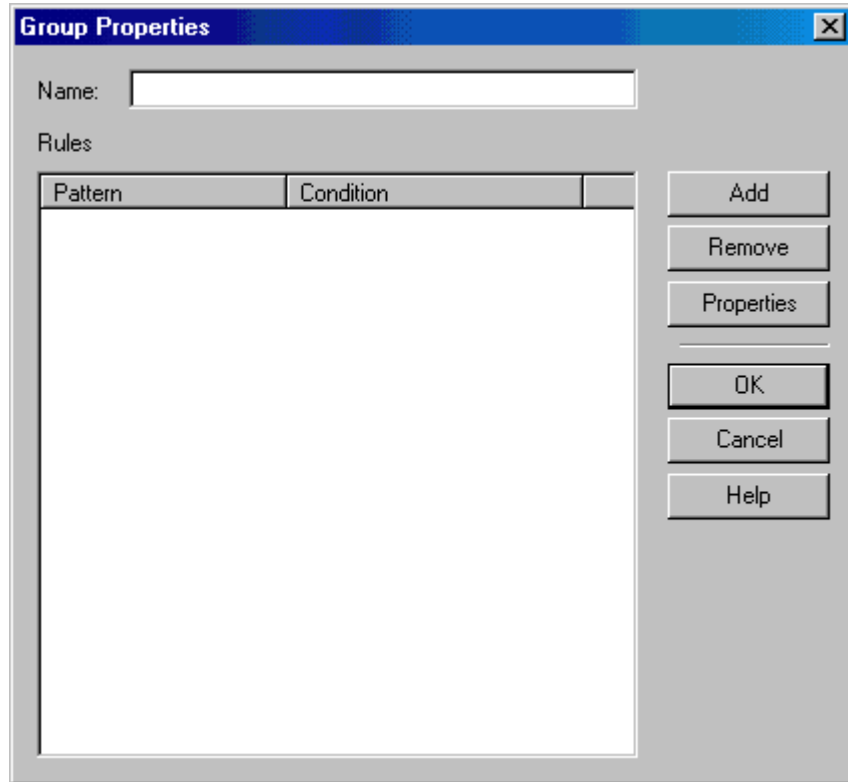
By default, users have the right to make international, domestic long distance and local calls. However, a number restriction group can deny them any of these rights. This chapter explains how to configure the Number Restriction Table, by creating groups that can be associated with particular users and rules that can restrict any combination of numbers. See *Associating a Number Restriction Group to a User or a Group* on page 91 for more information.

**Note:** The number modification table is always applied to a number, before the number restriction table.



### Adding a Number Restriction Group

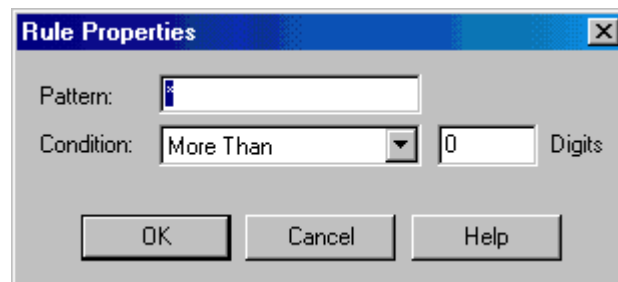
- 1 In the manager, choose Administrator → Number Restriction Table. The Number Restriction Table window appears (see snapshot on previous page).
- 2 Click Add. The Group Properties window appears.



- 3 In the Name field, enter the name of the number restriction group.
- 4 Add number restriction rules, as shown in the next section.
- 5 Click OK.
- 6 Click OK.

### Adding Number Restriction Rules to a Group

- 1 In the Group Properties window, click Add. The Rule Properties dialog appears.



- 2 In the `Pattern` field, enter a fax number or a number pattern. Numeric patterns can include numbers and wildcards. The question mark (?) specifies a single digit; the asterisk (\*) any number of digits. This entry represents the entire fax number. That is, you cannot specify a portion of the fax number such as an area code or city code. `1222*` or `1222??????` are valid entries; an entry like `1222` is a pattern of exactly four digits that searches for the fax number `1222`.
- 3 In the `Condition` field, select `Less than`, `Exactly` or `More than`.
- 4 Enter the number of digits to be considered, in the `Digits` field.
- 5 Click `OK`.

For example, the pattern `1222*`, with a condition of `Exactly` and an 11-digit fax number would refuse connection, whenever `1222` begins an 11 digit fax number entered by a sender.

### Editing a Number Restriction Rule from a Group

- 1 In the `Group Properties` window, select a number restriction rule and click `Properties`. The `Rule Properties` dialog appears.
- 2 Modify the `Pattern`, `Condition` and/or `Digits` fields as needed.
- 3 Click `OK`.

### Removing a Number Restriction Rule In a Group

- 1 In the `Group Properties` window, select a number restriction rule and click `Remove`.

### Editing a Number Restriction Group

- 1 In the manager, choose `Administrator` ➔ `Number Restriction Table`. The `Number Restriction Table` window appears.
- 2 Select a number restriction group and click `Properties`. The `Group Properties` window appears.
- 3 Modify the number restriction rules as needed.
- 4 Click `OK`.
- 5 Click `OK`.

### Removing a Number Restriction Group

- 1 In the manager, choose `Administrator` ➔ `Number Restriction Table`. The `Number Restriction Table` window appears.
- 2 Select a number restriction group and click `Remove`.
- 3 Click `OK`.
- 4 Click `OK`.



# 11

## Introducing the API ToolKit

The API ToolKit provides the means to automate routine broadcasts by means of a command file. The messages can be transmitted by as fax or email messages.

**Note:** The SMTP gateway must be installed and properly configured if email messages are to be sent using the toolkit.

An API ToolKit command file is an ASCII file. You can write one with a text editor or use third-party software to generate one. Although the format is frequently used, ASCII, Unicode, and Multi-Byte Character Set (MBCS) file formats are supported.

The command file consists of one or more transmissions, each transmission specifying at least a recipient and the file containing the message.

The recipient and the message file — and all other information in the command file — are specified by variables. @FAX\_NUMBER specifies the recipient's fax number or email address; @CONVERSION\_FILE specifies the path and file name of the document or documents to be transmitted. Additional variables allow you to specify such information as billing codes, the recipient's name, or return email address, etc.

By default, the command file is saved in the `\Program Files\LightningFAX\LFapi\ToConvert` directory. This directory is routinely polled by the API Toolkit. The instructions in the command file are executed and the file is immediately deleted. The default directory can be changed.

If an error occurs, the command file is moved to the `\Program Files\LightningFAX\LFapi\Failed` directory. An error log file, `APIError.log`, found in the `\Trace` sub-directory of the LightningFAX root directory, provides specific information.

The outgoing faxes are listed under the user `LFapi` in the LightningFAX manager. Two variables, (`@USER_ID` and `@USER_PASSWORD`) allow you to designate another user as the fax sender. Further, a group of variables (`@NOTIFY_EMAIL`, `@NOTIFY_GATEWAY`, `@NOTIFY_SENT`, and `@NOTIFY_FAILED`) allow you to send email notification upon success or failure to a user's email address.

### API ToolKit Command Files

At a minimum, a command file specifies a single transmission to a single recipient. A broadcast would specify several transmissions, each to a different recipient. Whatever the number of transmissions specified in a single command file, the following variables are used.

API Variable	Function
<code>@DESTINATION</code> <code>@FAX_NUMBER</code>	<p>specifies a fax number, an email address, or the value <code>BROADCAST</code>. Either <code>@DESTINATION</code> or <code>@FAX_NUMBER</code> must begin the command file and, in the case of broadcast transmissions, each transmission within the command file.</p> <p>These two variables can be used interchangeably, but not in the same command file.</p>
<code>@CONVERSION_FILE</code>	<p>references a conversion file, that is, the document or documents to be sent. Several files can be specified, each separated from the next by a comma.</p> <p>In addition, the <code>@CONVERSION_FILE</code> variable can include the value <code>SELF_CONTAINED</code>. <code>SELF_CONTAINED</code> indicates that a message to be sent appears in the command file itself.</p> <p><b>Note:</b> A complementary variable, <code>@CONVERSION_MODE</code>, is required when messages files that are not already in the TIFF fax format. A variety of conversion methods are available and users can generate and specify their own.</p> <p>If you are using the API ToolKit to send only a cover sheet, the <code>@CONVERSION_FILE</code> variable can be left blank.</p>
<code>@MEDIA_TYPE</code>	<p>The <code>@MEDIA_TYPE</code> variable must be used whenever email addresses appear as destinations in the command file. The values are <code>FAX</code> or <code>EMAIL</code>.</p>
<code>@END</code>	<p>indicates the end of a single transmission.</p>

`@DESTINATION` or `@FAX_NUMBER` begins the transmission and `@END` terminates it. Other API ToolKit variables can appear between these variables in any order. For example, `@SUBJECT` might be used to specify a subject and `@CSID` to specify a call station ID. As noted above, `@MEDIA_TYPE` is used when the command file includes transmissions to be sent to email addresses.

Broadcasts are sent by entering several transmissions one after another. As always, @DESTINATION or @FAX\_NUMBER begins each individual transmission and @END terminates each transmission, with any of optional variables specified within an individual transmission. However, the first occurrence of @DESTINATION or @FAX\_NUMBER variable specifies the value BROADCAST and the next occurrences specify the recipient's fax number or email address.

## Variable Syntax

API command variables follow this syntax.

```
@VARIABLE [value [,value] ...]
```

A single space must separate the variable and the value it specifies.

The following rules govern the command file.

Each transmission within a command file begins with the @DESTINATION or @FAX\_NUMBER variable and ends with the @END variable. Other command variables applied to the transmission appear after @DESTINATION or @FAX\_NUMBER in any order.

At least one space separates the variable from the value it specifies. When multiple values are specified, commas are used to separate them.

Command variables can be separated by a carriage return and a line feed or by a semi-colon. Form feeds can also be used.

Comments can be entered by omitting the @ character.

## Filtering Command Files

The `Filter` field allows you to combine wildcards and file extensions to reference your command files. For example, `*.txt` instructs the API ToolKit to recognize all files in the `ToConvert` directory as command files. A not operator, which is the minus sign (-), can precede the file specification. The file specification `-AB*.cbd` instructs the toolkit to ignore all files begun with the letters AB and ending with the extension `.cbd`.

Multiple file specifications can be entered, each separated by a comma. For example, `*.*, -*.prn, -AB*.*` instructs the toolkit to recognize as command files all files except those ending with the `.prn` extension and those beginning with the letters AB.

### API ToolKit File Conversion Methods

The @CONVERSION\_MODE variable is used to specify the method to be used to convert an external file to the TIFF fax format. Several conversion methods are available.

File Type	Conversion Method
Text files	TXT
	TXT_TO_PCL5
	TXT_TO_TIF
Postscript files	PS
Hewlett Packard printer language files. These usually have the .pcl extension	PCL5
.tif	TIF

All conversion methods must be installed on your system. The Elan file conversion utility from Faccent provides conversion to PCL5. Ghostscript provides conversion to Postscript. These products are available from their respective manufacturers.

API Toolkit allows you to add as many as five conversion methods of your own. The keywords OTHER1 to OTHER5 would be specified with the @CONVERSION\_MODE variable. These conversion methods must be installed and configured through LightningFAX Control Panel.

The TXT\_TO\_PCL5 and TXT\_TO\_TIF conversion methods each support text formatting by means of a group of command variables.

When sending several files that use the same conversion method, you can specify that method only once. However, if different files sent in the same command file use different conversion methods, you must specify both the files and the methods in consecutive order.

### Using Several Conversion Methods

In the following example, two conversion methods are used to convert different file types.

```
@FAX_NUMBER 123-4567
@CONVERSION_FILE c:\files\fileA.pcl, c:\ps\fileA.ps
@CONVERSION_MODE PCL5, PS
@END
```

### API ToolKit Cover Sheets

A cover sheet, which must be an external file, is specified through the @COVER\_PAGE variable. The method to convert the cover sheet is specified through the @COVER\_CONVERSION\_MODE variable.

LightningFAX cover sheets can be specified, and you can use the cover sheet editor to create an LightningFAX cover sheet. In either case, you specify in the command file a filename with the .cse extension, including the path if necessary, and specify CSE as the cover sheet conversion mode.

The variables specified in the cover sheet correspond to variables specified in the command file. For example, the cover sheet variables Subject, Time, and API tag correspond to the toolkit variables @SUBJECT, @TIME, and @API\_TAG. Naturally, you must enter in the command file the toolkit variables that correspond to the variables used in the cover sheet. If you do not, the cover sheet variables cannot be resolved and are left blank.

See Chapter 10 Introducing the Cover Sheet Editor in the LightningFAX User Guide for further information about creating cover sheets and cover sheet variables.

### API ToolKit Cover Sheet Variables

The following variables can be specified in the cover sheets you compose using third-party applications. These are place holders that are resolved by toolkit variables entered in the command file.

---

@LFVAR_API_TAG@	@LFVAR_FAX_LDC@
@LFVAR_APPLICATION_NAME@	@LFVAR_FAX_NUMBER@
@LFVAR_BILLING_CODE@	@LFVAR_FAX_POSTFIX@
@LFVAR_CALL_BACK_NUMBER@	@LFVAR_FAX_PREFIX@
@LFVAR_COMMENTARY@	@LFVAR_SUBJECT@
@LFVAR_COMPANY@	@LFVAR_TIME@
@LFVAR_CSID@	@LFVAR_TOTAL_PAGES@
@LFVAR_DATE@	@LFVAR_USER_DEFINED1@
@LFVAR_DESTINATION_FIRST_NAME@	@LFVAR_USER_DEFINED2@
@LFVAR_DESTINATION_NAME@	@LFVAR_USER_DEFINED3@
@LFVAR_DOCUMENT_NAME@	@LFVAR_USER_DEFINED4@
@LFVAR_FAX_AC@	

---

### API ToolKit Troubleshooting

- ❑ The API service does not start.

Examine the `APIError.log` file found in the `\Trace` sub-directory of the LightningFAX root directory for an error message. The error message `Access refused by Server` indicates that you need a valid license to use the API ToolKit.

- ❑ The command file is deleted from the `ToConvert` directory, indicating that it was processed, but no fax transmission is registered in the LightningFAX manager.

The command file should be found in the `LFapi\Failed` directory. Examine it for syntax errors or missing elements. Further information can be found in the `API.log` and `APIError.log` files.

- ❑ The `APIError.log` file maintains that no conversion program is installed.

The API ToolKit uses third-party file conversion programs. If you have not installed such a program, you will get the above message.

You can find a list of tested conversion programs in the Technical Support section of our web site.

### Basic Command Files

The following command file sends an external file to a single recipient.

```
@DESTINATION 12223334444
@CONVERSION_FILE c:\temp\documentA.txt
@CONVERSION_MODE TXT_TO_TIFF
@END
```

The following command file also transmits a single message to a single recipient, but uses a self-contained message and sends the message by email.

```
@DESTINATION ppotter@xyzconsulting.com
@MEDIA_TYPE EMAIL
@CONVERSION_FILE SELF_CONTAINED
@END
```

Attention:

This is to confirm the receipt of your order. You may expect delivery within the next two weeks. The confirmation number is AD4-1232. You may inquire at any time to learn the status of your order by calling us at 666-7777 and quoting that number.

Thank you very much.

ABC Industries Ltd.  
12323 South St.  
Newtown

### Basic Broadcast Files

The following command file specifies that a broadcast fax to be sent to three recipients. The documents transmitted are external files. A cover sheet is included. The cover sheet is in the LightningFAX format and the appropriate conversion method is used to convert it.

```
@FAX_NUMBER BROADCAST
@CONVERSION_FILE c:\files\documentA.txt, c:\temp\ab.txt
@CONVERSION_MODE TXT_TO_TIFF
@COVER_PAGE c:\files\broadcast.cse
@COVER_CONVERSION_MODE CSE
@END
```

```
@FAX_NUMBER 4445555
@DESTINATION_NAME Jones
@DESTINATION_FIRST_NAME J
@COMPANY ABC Industries Inc.
@END
```

```
@FAX_NUMBER 5556666
@DESTINATION_NAME Smith
@DESTINATION_FIRST_NAME J
@COMPANY LMW Technologies Ltd.
@END
```

```
@FAX_NUMBER 6667777
@DESTINATION_NAME Delaney
@DESTINATION_FIRST_NAME A
@COMPANY XYZ Manufacturing Inc.
@END
```

The following command file sends external files to two recipients. The first recipient will receive a fax, the second will receive the same TIFF files by email.

```
@DESTINATION BROADCAST
@CONVERSION_FILE c:\files\documentA.txt, c:\temp\ab.txt
@CONVERSION_MODE TXT_TO_TIFF
@END
```

```
@DESTINATION 8889999
@MEDIA_TYPE FAX
@DESTINATION_NAME Jones
@DESTINATION_FIRST_NAME J
@COMPANY ABC Industries Inc.
@END
```

```
@DESTINATION smith@lmwtechnologies.com
@MEDIA_TYPE EMAIL
@DESTINATION_NAME Smith
@DESTINATION_FIRST_NAME J
@COMPANY LMW Technologies Ltd.
@END
```

### Advanced Broadcast Files

The following broadcast command file specifies both external files and a self-contained message and transmits them to three recipients. When the value BROADCAST is specified, the self-contained message must appear within the first transmission; it is received by all recipients. The recipients are listed immediately after the first transmission. No second self-contained message can be specified in the other transmissions.

```
@DESTINATION BROADCAST
@CONVERSION_FILE c:\files\documentA.txt, c:\temp\ab.txt,
SELF-CONTAINED
@CONVERSION_MODE TXT_TO_TIFF
@COVER_PAGE c:\files\broadcast.cse
@COVER_CONVERSION_MODE CSE
@END
```

Attention:

This is to confirm the receipt of your order. You may expect delivery within the next two weeks. The confirmation number is AD4-1232. You may inquire at any time to learn the status of your order by calling us at 666-7777 and quoting that number. Thank you very much.

## Chapter 11 Introducing the API ToolKit

```
ABC Industries Ltd.  
Newtown  
@DESTINATION 4445555  
@DESTINATION_NAME Jones  
@DESTINATION_FIRST_NAME J  
@COMPANY ABC Industries Inc.  
@END  
  
@DESTINATION 5556666  
@DESTINATION_NAME Smith  
@DESTINATION_FIRST_NAME J  
@COMPANY LMW Technologies Ltd.  
@END  
  
@DESTINATION 6667777  
@DESTINATION_NAME Delaney  
@DESTINATION_FIRST_NAME A  
@COMPANY XYZ Manufacturing Inc.  
@END
```

The following example sends a self-contained message to three recipients. Note that the @FAX\_NUMBER variable specifies the recipients' fax numbers and not the value BROADCAST. This is the only means of sending a different self-contained message to several recipients.

```
@FAX_NUMBER 3334444  
@CONVERSION_FILE SELF_CONTAINED  
@RECIPIENT_BILLING_CODE AD4-1232  
@END
```

Attention:

This is to confirm the receipt of your order. You may expect delivery within the next two weeks. The confirmation number is AD4-1232. You may inquire about the status of your order by calling us at 666-7777.

```
ABC Industries Ltd.  
12323 South St.  
Newtown  
@FAX_NUMBER 8889911  
@CONVERSION_FILE SELF_CONTAINED, c:\response\bat.txt  
@CONVERSION_MODE TXT_TO_TIFF  
@CALL_BACK_NUMBER 9987632  
@END
```

Attention: This is to confirm receipt of your proposal for updating delivery procedures. Also inclosed is our comments.

Thank you very much.

```
ABC Industries Ltd.  
1234 South Ave.  
Newtown
```

```
@FAX_NUMBER 18783333  
@CONVERSION_FILE SELF_CONTAINED  
@RECIPIENT_FIRST_NAME P  
@RECIPIENT_NAME Martin  
@END
```

Just a reminder of the upcoming seminar. I'd like to underline that your contribution to planning has been vital and highly-regarded by all involved.

K. Phillips  
ABC Industries Ltd.



### Operational Variables

The following table describes the operational API ToolKit command file variables.

As indicated when appropriate, some operational variables correspond to cover sheet variables and to placeholders used in the cover sheets created with third party applications.

Operational Variables	Description
@APPLICATION_NAME	<p>corresponds to the <code>Application Name</code> column in the LightningFAX manager. If used in a command file, the entry appears in the manager's list of fax information. A maximum of 19 characters can be entered.</p> <p style="text-align: right;">Placeholder @LFVAR_APPLICATION_NAME@</p>
@CONVERSION_FILE	<p>specifies whether the fax message appears within the command file or is contained in one or more external files.</p> <p>Default = SELF_CONTAINED</p> <p>Alternative = [path\]filename [, [path\]filename]</p> <p>SELF_CONTAINED is specified in the first case. In the second; the path, if required, and a mandatory file name are specified. Several external files can be entered, each separated from the next by a comma.</p> <p>No path and filename combination can be more than 255 characters.</p>

Operational Variables	Description
<p>@CONVERSION_MODE</p>	<p>LFEngine is specified for documents created with typical Windows applications such as Microsoft Word or Corel WordPerfect.</p> <p>PCL5 is specified for Hewlett Packard printer language documents.</p> <p>PS is specified for Postscript documents.</p> <p>OTHER1 through OTHER5 specify a third-party conversion program or one generated by the user. Such conversion programs must be configured through the API tab of LightningFAX Control Panel.</p> <p>TIF specifies a Group 3 fax format, that is, the document is already in the TIFF format and does not require conversion.</p> <p>SELF_CONTAINED is specified when a third-party conversion utility is used. That occurs when the format of the document to be faxed is not supported by LightningFAX conversion methods. The utility must be specified using the SELF_CONTAINED conversion mode variables. See SELF_CONTAINED Conversion Mode Variables on page 189.</p> <p><b>Note:</b> SELF_CONTAINED conversion mode and the value SELF_CONTAINED specified with the @CONVERSION_FILE variable perform entirely independent functions.</p> <p>TXT is specified for ASCII documents.</p> <p>TXT_TO_PCL5 supports automatic formatting of ASCII text documents for the HP printer language.</p> <p>TXT_TO_TIF converts ASCII text documents to TIFF format with support for text formatting.</p>

Operational Variables	Description				
@COVER_CONVERSION_MODE	<p>specifies the conversion method applied to the cover sheet.</p> <p>Default = NONE</p> <p>Alternative entry = CSE   PCL5   SELF_CONTAINED   TXT   TIF   TXT_TO_PCL5   TXT_TO_TIF</p> <p>CSE specifies that the cover sheet is an LightningFAX cover sheet.</p> <p>NONE specifies that no conversion is required.</p> <p>PCL5 is specified for Hewlett Packard printer language documents.</p> <p>SELF_CONTAINED is specified when a third-party conversion utility is used. That occurs when the format of the cover sheet is not supported by LightningFAX conversion methods. The conversion utility must be specified using the SELF_CONTAINED conversion mode variables. See SELF_CONTAINED Conversion Mode Variables on page 189.</p> <p><b>Note:</b> SELF_CONTAINED conversion mode and the value SELF_CONTAINED specified with the @CONVERSION_FILE variable perform entirely independent functions.</p> <p>TXT is specified for ASCII documents.</p> <p>TXT_TO_PCL5 supports automatic formatting of ASCII text documents for the HP printer language.</p> <p>TXT_TO_TIF converts ASCII text documents to TIFF format with support for text formatting.</p>				
@COVER_PAGE	<p>specifies the path and filename of the cover sheet. A maximum of 255 characters can be entered. Covers sheets can be those provided with LightningFAX or cover sheets you create using the cover sheet editor.</p> <p>If a cover sheet is specified, @COVER_CONVERSION_MODE must be used to specify a conversion method.</p>				
@DATE	<p>schedules the date for fax transmission. The format is YYYY/MM/DD format. If you use @DATE and neglect to enter the actual date, the server sends the fax immediately. If you use @DATE and do not specify a time with @TIME, the server schedules the fax to be sent at midnight.</p> <table data-bbox="594 1520 1208 1583"> <tr> <td data-bbox="594 1520 964 1547">Cover Sheet General Variable</td> <td data-bbox="1016 1520 1166 1547">Placeholder</td> </tr> <tr> <td data-bbox="594 1556 662 1583">Date</td> <td data-bbox="1016 1556 1208 1583">@LFVAR_DATE@</td> </tr> </table>	Cover Sheet General Variable	Placeholder	Date	@LFVAR_DATE@
Cover Sheet General Variable	Placeholder				
Date	@LFVAR_DATE@				
@DELETE_INPUT	<p>specifies whether to delete or retain the attachments joined to the command file after transmission. The variable cannot be applied to a self-contained command file.</p> <p>Default: No</p> <p>Alternative entry: Yes</p>				

Operational Variables	Description
@DESTINATION @FAX_NUMBER	<p>begins the command file and specifies the destination of each transmission. Valid entries include fax numbers or email addresses.</p> <p>Entry = BROADCAST   <i>fax_number</i>   <i>email_address</i></p> <p>The value BROADCAST is specified when the message is to be transmitted to more than one recipient. When this is the case, @DESTINATION or @FAX_NUMBER is repeated for each recipient's fax number or email address.</p> <p>A maximum of 63 characters can be entered.</p> <p><b>Note:</b> Either variable can be interchanged freely in a command file.</p> <p>Whenever email addresses appear as destinations in the command file, the @MEDIA_TYPE variable must also be specified with a value of EMAIL.</p>
	<p>Cover Sheet General Variable      Placeholder</p> <p>Destination                              @LFVAR_FAX_NUMBER@</p>
@DOCUMENT_NAME	<p>specifies the name(s) of the fax attachments. If there are more than one attachment, the variable will contain all the attachment names, separated by commas.</p> <p>Placeholder @LFVAR_DOCUMENT_NAME@</p>
@END	<p>The mandatory @END variable terminates both the command file and, in the case of fax broadcasts, each separate destination. When a self-contained command file is used, the API ToolKit interprets all text that appears after @END as the fax message.</p>
@FAX_PREFIX	<p>specifies a prefix that appears before the fax number. An example of a prefix is a number that must be dialed to obtain an outside line. A maximum of 15 characters can be entered.</p> <p>This variable overwrites a prefix applied to an LightningFAX resource.</p> <p>Placeholder @LFVAR_FAX_PREFIX@</p>
@FAX_POSTFIX	<p>specifies a suffix that appears after the fax number. An example of a suffix is a number dialed after a telephone number to authorize a long distance call. A maximum of 15 characters can be entered.</p> <p>This variable overwrites a suffix applied to an LightningFAX resource.</p> <p>Placeholder @LFVAR_FAX_POSTFIX@</p>

Operational Variables	Description
@MEDIA_TYPE	<p>specified whenever email addresses appear as destinations in the command file. FAX is the default method and the variable need not be specified if recipients are specified by their fax numbers.</p> <p>Default = FAX Alternative = EMAIL</p> <p><b>Note:</b> @MEDIA_TYPE EMAIL must be specified whenever email addresses appear as destinations in the command file.</p>
@NOTIFY_EMAIL	<p>Notification of success and unsuccessful transmissions, whether to fax numbers or to email addresses, can be sent to a user's email address. This variable specifies that email address. The variable @NOTIFY_GATEWAY must be used when this variable is used.</p> <p>Entry = <i>email_address</i></p>
@NOTIFY_FAILED	<p>specifies that notification be sent to an email address upon failed transmission.</p> <p>Default = NO Alternative entry = YES</p>
@NOTIFY_GATEWAY	<p>specifies the gateway through which the notification are sent.</p> <p>Available entries = MSEXCHANGE   SMTP   R/3</p> <p>This variable is mandatory if @NOTIFY_EMAIL is used.</p>
@NOTIFY_SENT	<p>specifies that notification be sent to an email address upon successful transmission.</p> <p>Default = NO Alternative entry = YES</p>
@REPLY_ADDRESS	<p>specifies the defined SMTP address of the user sending the fax.</p>
@RESOURCE_NUMBER	<p>specifies the resource to be used to send the fax. A resource must be configured through the LightningFAX manager, before it can be successfully specified.</p> <p>Default = 1</p>
@RETRIES	<p>specifies the number of retries. Valid entries range from 0 to 99.</p> <p>Default = 5</p>
@SENDING_PRIORITY	<p>specifies the sending priority. Valid entries range from 1, the highest, to 9, the lowest.</p> <p>Default = 3</p>

Operational Variables	Description
@TIME	<p>@TIME schedules the time for fax transmission. Hours and minutes can be entered in a 24 hour format: HH:MM.</p> <p>Cover Sheet General Variable Placeholder Time @LFVAR_TIME@</p>
@USER_ID	<p>specifies the user ID registered with the LightningFAX configuration. The entry of a valid user ID in this field instructs LightningFAX to record the fax transmitted under that user's ID in LightningFAX manager. A maximum of 23 characters can be entered and the entry must be a valid LightningFAX user ID.</p> <p>Default = LFapi</p> <p>If the user referenced by the @USER_ID variable is an LDAP or an NT user, you must also use the @USER_TYPE_SEC variable.</p>
@USER_PASSWORD	<p>specifies the password associated with the user indicated by the @USER_ID variable. A maximum of 11 characters can be entered.</p> <p>Default = LFapi0</p>
@USER_TYPE_SEC	<p>specifies the user security type, indicating that the user specified by the @USER_ID variable is an LDAP user or an NT user. This variable must be specified in either of those cases. The value is set to 1 for an NT user, to 2 for an LDAP user.</p> <p>NT user: @USER_TYPE_SEC 1 LDAP user: @USER_TYPE_SEC 2 Default = 0 (LightningFAX user)</p>

**Cover Sheet Variables**

The following toolkit variables correspond to the variables available in the cover sheet editor. If you specify a variable in the cover sheet and neglect to enter the corresponding variable in the command file, the entry in the cover sheet will be blank.

The variables available for cover sheets created with third-party applications are fewer in number and noted when present.

Cover Sheet Variables	Description
@API_TAG @API_TAG2	<p>can be used by other programs to identify a fax for transmission information feedback purposes. A maximum of 10 numeric characters can be entered.</p> <p>Cover Sheet General Variables Placeholders API Tag, API Tag 2 @LFVAR_API_TAG@</p>

Cover Sheet Variables	Description
@CALL_BACK_NUMBER	<p>specifies a call-back number that appears on the top of the fax, usually a voice number to call in case of transmission difficulties. A maximum of 23 characters can be entered.</p> <p>Placeholder @LFVAR_CALL_BACK_NUMBER@</p>
@COMMENTARY	<p>represents a commentary field on the cover sheet. A comment of 4095 characters can be entered. These must be entered on a single line. Line breaks can be entered by entering the characters \n. \n can be used consecutively: \n\n.</p> <p>Cover Sheet General Variable Commentary</p> <p>Placeholder @LFVAR_COMMENTARY@</p>
@CSID	<p>specifies the sender's call station ID. If a CSID has been associated with the LightningFAX resource to send the fax and no entry is made here, that CSID is used. A maximum of 20 characters can be entered.</p> <p>Placeholder @LFVAR_CSID@</p>
@DESTINATION_CELLULAR	<p>specifies the recipient's cellular telephone number. A maximum of 24 characters can be entered.</p> <p>Cover Sheet Recipient Variable Cellular</p>
@DESTINATION_CITY	<p>specifies the recipient's city. A maximum of 32 characters can be entered.</p> <p>Cover Sheet Recipient Variable City</p>
@DESTINATION_COMPANY @COMPANY	<p>specifies the name of the recipient's company. A maximum of 47 characters can be entered. When both are specified, @DESTINATION_COMPANY is used.</p> <p>Cover Sheet Recipient Variable Company</p> <p>Placeholder @LFVAR_COMPANY@</p>
@DESTINATION_COUNTRY	<p>specifies the recipient's country. A maximum of 32 characters can be used.</p> <p>Cover Sheet Recipient Variable Country</p>
@DESTINATION_DEAR	<p>specifies a salutation. A maximum of 16 characters can be entered.</p> <p>Cover Sheet Recipient Variable Dear</p>

Cover Sheet Variables	Description
@DESTINATION_EMAIL	<p>specifies the recipient's email address. If @MEDIA_TYPE specifies the value EMAIL, @DESTINATION or @FAX_NUMBER overwrite this variable in the cover sheet. A maximum of 64 characters can be entered.</p> <p>Cover Sheet Recipient Variable E-mail</p>
@DESTINATION_EMAIL2 @DESTINATION_EMAIL3	<p>specifies any additional recipient email addresses. A maximum of 64 characters can be entered.</p> <p>Cover Sheet Recipient Variables E-mail 2, E-mail 3</p>
@DESTINATION_EXTENSION	<p>specifies the recipient's extension. A maximum of 48 characters can be entered. This variable is strictly informational.</p> <p>Cover Sheet Recipient Variable Extension</p>
@DESTINATION_FAX	<p>specifies the recipient's fax number. If @MEDIA_TYPE specifies the value FAX, @DESTINATION and @FAX_NUMBER overwrite this variable in the cover sheet. A maximum of 24 characters can be entered</p> <p>Cover Sheet Recipient Variable Fax</p>
@DESTINATION_FAX_2 @DESTINATION_FAX_3	<p>specifies any additional recipient fax number. A maximum of 24 characters can be entered.</p> <p>Cover Sheet Recipient Variables Fax 2, Fax 3</p>
@DESTINATION_FIRST_NAME	<p>specifies the recipient's first name. A maximum of 24 characters can be entered.</p> <p>Cover sheet recipient variable      Placeholder First Name                                      @LFVAR_DESTINATION_FIRST_NAME@</p>
@DESTINATION_JOB_TITLE	<p>specifies the recipient's job title. A maximum of 48 characters can be entered.</p> <p>Cover Sheet Recipient Variable Title</p>
@DESTINATION_LAST_NAME @DESTINATION_NAME	<p>specifies the recipient's last name. A maximum of 24 characters can be entered. When both are specified, @DESTINATION_LAST_NAME is used.</p> <p>Cover sheet recipient variable      Placeholder Last Name                                      @LFVAR_DESTINATION_NAME@</p>

Cover Sheet Variables	Description
@DESTINATION_PAGER	<p>specifies the recipient's pager number. A maximum of 24 characters can be entered.</p> <p>Cover Sheet Recipient Variable Pager</p>
@DESTINATION_PHONE	<p>specifies the recipient's phone number. A maximum of 48 characters can be entered.</p> <p>Cover Sheet Recipient Variable Phone</p>
@DESTINATION_STATE	<p>Specifies the recipient's state. A maximum of 32 characters can be entered.</p> <p>Cover Sheet Recipient Variable State/Province</p>
@DESTINATION_STREET	<p>specifies the recipient's street address. A maximum of 48 characters can be entered.</p> <p>Cover Sheet Recipient Variable Street</p>
@DESTINATION_ZIP_CODE	<p>specifies the recipient's zip code. A maximum of 16 characters can be entered.</p> <p>Cover Sheet Recipient Variable Zip Code</p>
@FAX_AC	<p>specifies the area code. A maximum of seven characters can be entered.</p> <p>Placeholder @LFVAR_FAX_AC@</p>
@FAX_LDC	<p>specifies the long distance code. A maximum of seven characters can be entered.</p> <p>Placeholder @LFVAR_FAX_LDC@</p>
@PROFILE <profile_name>	<p>specifies a sender profile that overrides the user's default settings.</p>
@RECIPIENT_BILLING_CODE	<p>specifies the recipient's billing code. You can enter a maximum of 255 alphanumeric characters.</p> <p>Cover Sheet Recipient Variable Billing Code</p>
@RECIPIENT_SUB_BILLING_CODE	<p>specifies additional billing code information. A sub-billing code, for example, might represent a department, while the billing code represents the company. You can specify a maximum of 255 alphanumeric characters.</p> <p>Cover Sheet Recipient Variable Sub Billing Code</p>

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Cover Sheet Variables	Description
@SENDER_BILLING_CODE	specifies billing code information. You can specify a maximum of 255 alphanumeric characters.  Cover Sheet Sender Variable Billing Code  Placeholder @LFVAR_BILLING_CODE@
@SENDER_CELLULAR	specifies the sender's cellular phone number. A maximum of 23 characters can be entered.  Cover Sheet Sender Variable Cellular
@SENDER_CITY	specifies the sender's city. A maximum of 31 characters can be entered.  Cover Sheet Sender Variable City
@SENDER_COMPANY	specifies the name of the sender's company. A maximum of 47 characters can be entered.  Cover Sheet Sender Variable Company
@SENDER_COUNTRY	specifies the sender's country. A maximum of 31 characters can be entered.  Cover Sheet Sender Variable Country
@SENDER_DEAR	specifies a salutation. A maximum of 15 characters can be entered.  Cover Sheet Sender Variable Dear
@SENDER_EMAIL	specifies the sender's e-mail address. A maximum of 63 characters can be entered.  <b>Note:</b> This variable only applies to cover sheets and should not be used to specify the email address of the user sending the fax. Use the @REPLY_ADDRESS operational variable instead.  Cover Sheet Sender Variable E-mail
@SENDER_FAX	specifies the sender's fax number. A maximum of 23 characters can be entered.  Cover Sheet Sender Variable Fax
@SENDER_FIRST_NAME	specifies the first name of the sender. A maximum of 23 characters can be entered.  Cover Sheet Sender Variable First Name

<b>Cover Sheet Variables</b>	<b>Description</b>
@SENDER_JOB_TITLE	<p>specifies the sender's job title. A maximum of 63 characters can be entered.</p> <p>Cover Sheet Sender Variable Title</p>
@SENDER_LAST_NAME	<p>specifies the last name of the sender. A maximum of 23 characters can be entered.</p> <p>Cover Sheet Sender Variable Last Name</p>
@SENDER_PAGER	<p>specifies the sender's pager number. A maximum of 23 characters can be entered.</p> <p>Cover Sheet Sender Variable Pager</p>
@SENDER_PHONE	<p>specifies the sender's phone number. A maximum of 47 characters can be entered.</p> <p>Cover Sheet Sender Variable Phone</p>
@SENDER_STATE	<p>specifies the sender's state. A maximum of 31 characters can be entered.</p> <p>Cover Sheet Sender Variable State/Province</p>
@SENDER_STREET	<p>specifies the sender's street address. A maximum of 47 characters per line can be entered, on two lines.</p> <p>Cover Sheet Sender Variable Street</p>
@SENDER_SUB_BILLING_CODE	<p>specifies additional billing code information. A sub-billing code, for example, might represent a department, while the billing code represents the company. You can specify a maximum of 255 alphanumeric characters.</p> <p>Cover Sheet Sender Variable Sub Billing Code</p>
@SENDER_ZIP_CODE	<p>specifies the sender's postal code. A maximum of 15 characters can be entered.</p> <p>Cover Sheet Sender Variable Zip Code</p>
@SUBJECT	<p>specifies the subject matter of the fax to identify the fax in the fax list in the LightningFAX manager. A maximum of 47 characters can be entered.</p> <p>Cover Sheet General Variable      Placeholder Subject                                      @LFVAR_SUBJECT@</p>

Cover Sheet Variables	Description
@USER_DEFINEDn	The four variables, @USER_DEFINED1, @USER_DEFINED2, @USER_DEFINED3, and @USER_DEFINED4 can be used to receive any information not already available through other API command variables. These variables can accept any alphanumeric combination of no more than 99 characters.
	Cover Sheet Recipient Variables Placeholder User n @LFVAR_USER_DEFINEDn@

**TXT\_TO\_PCL5 Command Variables**

The following variables are reserved for use only when using the TXT\_TO\_PCL5 conversion method.

Command Variable	Description
@PCL5_BOLD	renders the text in your conversion file in bold after conversion to the fax format. Default = NO Alternative = YES
@PCL5_FONT_TYPE	specifies a type style for your document. Default = 3 COURIER A fixed font such as Courier 3 or Letter Gothic 6 is recommended if you need to align tables in your document.
@PCL5_LEFT_MARGIN	specifies the left margin of the fax. Default = 0
@PCL5_ORIENTATION	specifies page orientation of your document Default = PORTRAIT Alternative = LANDSCAPE
@PCL5_PITCH	specifies a pitch for the text of your document in point measure. Pitch refers to the horizontal space assigned to each character in a fixed font. Default = 16.67
@PCL5_SYMBOL_SET	specifies symbol set to be used with your document Default = 10U
@PCL5_TEXT_LENGTH	specifies number of lines of text per page in your document Default = 66

**TXT\_TO\_TIF Command Variables**

The following command variables are effective only when using the TXT\_TO\_TIF conversion method.

<b>Command Variable</b>	<b>Description</b>
@PAPER_SIZE <paper_size>	<p>specifies the paper size.</p> <p>Default = LETTER</p> <p>Alternative = A4   LEGAL   B4</p> <p>The default value can be changed, by modifying a registry key. For more details, contact the Interstar technical support.</p>
@TTT_FONT_TYPE	<p>specifies the font type for the text document you wish to send as fax. This variable must be specified.</p> <p>Default = COURIER NEW</p>
@TTT_ORIENTATION	<p>specifies the page orientation.</p> <p>Default = PORTRAIT</p> <p>Alternative = LANDSCAPE</p>
@TTT_WORDWRAP	<p>wraps the text line of your fax document automatically after 80 characters.</p> <p>Default = NO</p> <p>Alternative = YES</p>

**SELF\_CONTAINED Conversion Mode Variables**

If you have used the SELF\_CONTAINED conversion mode to specify a third-party conversion utility, you must use the @SC\_COMMAND variable to indicate the path and filename of the conversion utility.

<b>Command Variable</b>	<b>Description</b>
@SC_COMMAND	specifies the path and filename of the third party conversion utility.
@SC_OUTPUT_FORMAT	specifies the output format.
@SC_OUTPUT_NAME	specifies the name of the output file.
@SC_RESOLUTION_HIGH	specifies the highest resolution available.
@SC_RESOLUTION_LOW	specifies the lowest resolution available.



The Feedback API utility lets you define actions to be executed when a given fax status occurs on a given resource. For example, you might define one action to be executed whenever a new fax is sent on resource 1 and a second to be executed when an incoming fax receives a status of `Failed`.

An action might be any operation that can be executed on a computer. For example, you can write a script that displays a message box containing a warning or an alert whenever an outgoing fax fails. The user is alerted immediately upon failure rather than learning of it when they next access LightningFAX manager.

Feedback actions are defined through the Feedback API tab of LightningFAX Settings in Control Panel.

Any number of actions can be specified and more than one action can be assigned to a given resource. However, all actions make use of the same feedback variables. These variables can be formatted. For example, there are several time variables can represent hours and minutes in the format you wish.

**Note:** The Feedback API utility is automatically installed with the LightningFAX server.

### Report Log Action

Feedback API offers a default action already configured to produce reports when a fax is sent over any LightningFAX resource. The action, `Activity Log`, is already associated with every resource and is executed with each outgoing fax.

The executable is named `ActivityLog.js` and resides in the `\LFapifbk` folder.

The reports are `.txt` files; the date is used as the name in the format `YYYY-MM-DD.txt`. These files can be opened in Microsoft Excel. Excel formatting options are applied; accepting them opens a document formatted in columns with the names of all Feedback API variables used as column headings. These reports reside in the `\LFapifbk\Reports` folder.

### Generating a Text File

A second executable, `LFttester.exe`, which also resides in the `LFapifbk` folder, allows you to generate a text file when fax events occur on the resource assigned the action.

This action is available with all versions of LightningFAX.

By referencing `LFttester.exe` and specifying any of the Feedback API variables, you can generate a text file containing the status of the variables specified. For example, among others, Feedback API variables include `CompletedTime`, `DocumentName`, and `FaxNumber`. Defining an `LFttester` action with these parameters and associating that action with a resource will generate a text file recording the values for `CompletedTime`, `DocumentName`, and `FaxNumber`.

The text file can be overwritten or appended to. You can instruct Feedback API to format the variables on a single or on separate lines. You can also include text using the following format

```
title={feedback_api_variable}
```

### Feedback API Variables

Feedback API variables are only listed here. See Chapter 14 Feedback API Variables for full descriptions.

Feedback API Variables		
<code>AcknowledgedTime</code>	<code>LCRMessageId</code>	<code>RecordType</code>
<code>ApiTag</code>	<code>LCRResourceNumber</code>	<code>RemoteCSID</code>
<code>ApiTag2</code>	<code>LCRServerAddress</code>	<code>RetriesLeft</code>
<code>ApplicationName</code>	<code>LCRServerPort</code>	<code>ReturnCode</code>
<code>BillingCode</code>	<code>LocalCSID</code>	<code>RoutedTime</code>
<code>CallBackNumber</code>	<code>MediaType</code>	<code>RoutingMethod</code>
<code>ChannelNumber</code>	<code>MessageFileList</code>	<code>RoutingString</code>
<code>Company</code>	<code>MessageFileName</code>	<code>SenderBilling</code>
<code>CompletedSize</code>	<code>MessageId</code>	<code>SenderSubBillingCode</code>
<code>CompletedTime</code>	<code>NbOfFaxPages</code>	<code>Speed</code>
<code>CompressionType</code>	<code>PostPonedTime</code>	<code>Subject</code>
<code>DelayTime</code>	<code>PresentTime</code>	<code>SubmittedSize</code>
<code>DocumentName</code>	<code>Priority</code>	<code>SubmittedTime</code>
<code>DurationTime</code>	<code>RecipientBillingCode</code>	<code>UserId</code>
<code>FaxNumber</code>	<code>RecipientSubBillingCode</code>	
<code>FirstName</code>	<code>ReceivedTime</code>	
<code>LastName</code>	<code>RecordStatus</code>	

Feedback API variables are used to specify actions that are executed when certain fax events occur, as detailed in Chapter 13 Feedback API Actions. This chapter describes the variables and the formatting options that can be applied to them.

The syntax of feedback variables is the following:

```
{["formatting"][,...] variable}
```

Below is a list of all feedback variables, their default and alternative formats, accessible to the Feedback API from the LightningFAX server database:

Variable Name	Default Format (Alternative format)
AcknowledgedTime#	%Y/%m/%d %H:%M:%S (any time format)
ApiTag	%d (%X)
ApplicationName	%s
BillingCode	%d (%x)
CallBackNumber	%s
ChannelNumber	%d (%x)
Company	%s
CompletedSize	%d (%x)
CompletedTime*	%Y/%m/%d %H:%M:%S (any time format)
CompressionType	%s (%d, %X)
DelayTime*	%Y/%m/%d %H:%M:%S (any time format)
DN	%s
DocumentName	%s

<b>Variable Name</b>	<b>Default Format (Alternative format)</b>
DurationTime	%d (%x)
EMailFrom	%s
EMailTo	%s
EMI	%s
FaxNumber	%s
FirstName	%s
GatewayReturnCode	%s
GatewayReturnString	%s
HasCoverSheet	%d
LastName	%s
LCRMessageId	%d (%x)
LCRResourceNumber	%d (%x)
LCRServerAddress	%s
LCRServerPort	%d (%x)
LocalCSID	%s
MediaType	%s (%d, %x)
MessageFileList	%s
MessageFileName	%s
MessageId	%d (%x)
NbOfFaxPages	%d (%X)
PostPonedTime*	%Y/%m/%d %H:%M:%S (any time format)
PresentTime	%Y/%m/%d %H:%M:%S
Priority	%d (%x)
ReceivedTime#	%Y/%m/%d %H:%M:%S (any time format)
RecipientBillingCode	%s
RecipientSubBillingCode	%s
RecordStatus	%s (%d, %x)
RecordType	%s (%d, %x)
RemoteCSID	%s
ResourceNumber	%d
RetriesLeft	%d (%x)
ReturnCode	%d (%s, %x)

Variable Name	Default Format (Alternative format)
RoutedTime <sup>#</sup>	%Y/%m/%d %H:%M:%S (any time format)
RoutingMethod	%s
RoutingString	%s
SenderBillingCode	%s
SenderSubBillingCode	%s
Speed	%d (%x)
Subject	%s
SubmittedSize	%d (%x)
SubmittedTime <sup>*</sup>	%Y/%m/%d %H:%M:%S (any time format)
UserId	%s

\* These variables function only with outgoing transmissions.

# These variable function only with incoming transmissions.

### Example of Usage

```
"Submitted Time = {SubmittedTime}" "Received time =
{ReceivedTime}" "Postponed Time = {PostponedTime}" "Api
Tag (Default) = {ApiTag}" "Api Tag (Hexadecimal) =
{"%08x",ApiTag}" "Return Code = {ReturnCode}" "Return Code
(in text)= {"%s",ReturnCode}" etc.
```

### Formatting Variables

Variables are formatted according to the following syntax:

```
%[flags] [width] [precision] type
```

The simplest format specification contains only the percent sign and a type character (for example, "%s"). If a character that has no meaning as a format field follows a percent sign, the character is copied to stdout. For example, to print a percent sign character, use "%%".

### Flags

Flags are optional characters that control the justification of output and the printing of signs, blanks, decimal points, and octal or hexadecimal prefixes. More than one flag can appear in a format specification.

Flag	Meaning	Default
-	Left align the result within the given field width.	Right align
+	Prefix the output value with a sign (+ or -) if the output value is of a signed type.	Sign appears only for negative signed values (-)
0	If width is prefixed with 0, zeros are added until the minimum width is reached. If 0 and - appear, the 0 is ignored. If 0 is specified with an integer format (i,u,x X,o,d) the 0 is ignored.	No padding.
blank ( ' ' )	Prefix the output value with a blank if the output value is signed and positive; the blank is ignored if both the blank and + flags appear.	No blank appears.
#	When used with the o, x or X format, the # flag prefixes any nonzero output value with 0, ox, or oX, respectively.  When used with the e, E or f format, the # flag forces the output value to contain a decimal point in all cases.  When used with the g or G format, the # flag forces the output value to contain a decimal point in all cases and prevents the truncation of trailing zeros.	No blank appears.  Decimal points appear only if digits follow it.  Decimal points appear only if digits follow it. Trailing zeros are truncated.
	Ignored when used with c, d, i, u or s.	

### Width

The second optional field of the format specification is the width specification. The width argument is a non-negative decimal integer controlling the minimum number of characters printed. If the number of characters in the output value is less than the specified width, blanks are added to the left or to the right of the values – depending on whether the flag (for left alignment) is specified, until the minimum width is reached. If width is prefixed with 0, zeros are added until the minimum width is reached.

The width specification never causes a value to be truncated. If the number of characters in the output value is greater than the specified width, or if width is not given, all characters of the value are printed (subject to the precision specification).



## Chapter 14 Feedback API Variables

Command	Output
%w	Weekday as a decimal number (0 – 6, Sunday is 0).
%W	Week of year as a decimal number, with Monday as first day of week (00 – 51).
%x	Date representation for current locale.
%X	Time representation for current locale.
%y	Year without century, as a decimal number (00 – 99).
%Y	Year with century, as a decimal number.
%z, %Z	Time zone name or abbreviation, no characters if time zone is unknown.

### Examples of Usage

Command	Output
{ "%Y/%m/%d %H:%M:%S" }	1997/11/28 14:22:02
International Standard Format	
{ "%m/%d/%Y %I:%M:%S %p" }	11/28/1997 2:22:02 PM
American Standard Format	

# A Installing LightningFAX in a Microsoft Cluster Server Environment

The LightningFAX server, gateways, rasterization server and web client can be installed on a Microsoft cluster that does not exceed two nodes.

**Note:** The cluster must be configured as active/passive.

Installation involves two operations: (a) installing the desired LightningFAX components on the first and second cluster nodes and (b) configuring the cluster.

## Installing components

- 1 Login to the node that current has control of the shared disk group as Administrator.
- 2 Installed the components from the LightningFAX CD. Ensure that the path you select for installation is located on the shared disk and not a local drive.

Whenever the installation procedure prompts you for a host name, enter the name of the Microsoft cluster.

**Note:** Do not restart the computer when installation is complete, even if you are prompted to.

- 3 After installation, choose Start ➔ Control Panel ➔ Services.
- 4 Stop each LightningFAX service and set its startup mode to manual. All LightningFAX services are begun by the letters LF.
- 5 Reboot the node to ensure that all local DLLs are properly updated.
- 6 Transfer control of the shared disk group to the second node before installing components on that node.
- 7 Login to the second node as Administrator and repeat steps through.

### Configure the Microsoft Cluster

- 1 Launch the Microsoft Cluster Administrator.
- 2 Determine the name of the group that owns the shared disk group, cluster name, and cluster IP resources.

This is the group where we will create the required LightningFAX resources. Right-click the group name and select New Resource.

**Note:** You must perform this step once for each LightningFAX module installed on the cluster.

- 3 To determine what LightningFAX modules are installed, choose Start ➤ Control Panel ➤ Services.

**Note:** All LightningFAX services are begun by the letters LF.

- 4 Refer to the table on the next page for more information about the values to enter when running the Microsoft Cluster Wizard.

**Note:** Please note that some services listed below may not apply to your current environment, depending on what components you installed.

If not otherwise specified, the Service Name will apply to both the Resource Name and the Service Name values requested by the Wizard.

#### If you installed the LightningFAX Web Client

For those who use the web client in a cluster environment, you must modify a registry key on each cluster node, in order to run service correctly after the configuration in the cluster administrator.

For more details, contact Interstar technical support.

## Appendix A Installing LightningFAX in a Microsoft Cluster Server Environment

Resource Name/ Service Name	Dependent Resources	Registry Values
LFServer	Shared Disk Group Cluster Network Cluster IP Address	SOFTWARE\Interstar Technologies\ - SERVER\
LFSlave	LFServer	None
LFPrint	LFServer	None
LFArchive	LFServer	None
LFApifbk	LFServer	None
LFCorba	LFServer	None
LFDriver	LFServer	SOFTWARE\Interstar Technologies\ - DRIVER\
LFApi	LFServer	SOFTWARE\Interstar Technologies\ - API\
LFRS	LFServer	SOFTWARE\Interstar Technologies\ - RASTERISER SERVER\
Resource Name: LFExGateway Service Name: 7J8I-9K0L-1R5T-8k9P-1A2B-1V5H-5H7J-4F6G (Only for Exchange 5.5)		
	LFServer	SOFTWARE\Interstar Technologies\LightningFAX - LFEXGATEWAY\
	MS Exchange System Attendant	
	MS Exchange Message Transfer Agent	
	MS Exchange Directory	
	MS Exchange Information Store	
LFSMTP	LFServer	SOFTWARE\Interstar Technologies\LightningFAX - SMTP\
LFRCp	LFServer LFExGateway LFSMTP	None



## B

## Error Messages

The error codes and messages listed here can be found in the text file. `ErrorMessages.txt` located in the `\Program Files\LightningFAX\LFCommon` folder. The text portion of the file can be freely modified to suit local needs.

The number zero indicates that no error has occurred.

### Dialogic Error Messages

Error Code	Error Message
1000 to 8999	Your Dialogic fax board has reported an error.
3030	Fax transmission was aborted by the user.
3031	An error occurred while communicating with the remote fax machine, fax may have been partially transmitted. Fax transmission was aborted.
3070	No answer detected. Fax transmission was aborted.
3072	An error occurred while grabbing phone line. Fax transmission was aborted.
3170-3171	Unsupported TIFF/resolution. Fax transmission was aborted.
3200	An error occurred while establishing communication with the remote fax machine. Fax transmission was aborted.
3201-3202	An error occurred while communicating with the remote fax machine, fax may have been partially transmitted. Fax transmission was aborted.
3203-3206 3210	An error occurred while establishing communication with the remote fax machine. Fax transmission was aborted.
3211	An error occurred while communicating with the remote fax machine, fax may have been partially transmitted. Fax transmission was aborted.

## Appendix B Error Messages

<b>Error Code</b>	<b>Error Message</b>
3212-3213	An error occurred while establishing communication with the remote fax machine. Fax transmission was aborted.
3214-3215	An error occurred while communicating with the remote fax machine, fax may have been partially transmitted. Fax transmission was aborted.
3216	Unsupported TIFF/resolution. Fax transmission was aborted.
3217	An error occurred while establishing communication with the remote fax machine. Fax transmission was aborted.
3218	Unsupported TIFF/resolution. Fax transmission was aborted.
3219-3220	An error occurred while establishing communication with the remote fax machine. Fax transmission was aborted.
3221-3225	An error occurred while communicating with the remote fax machine, fax may have been partially transmitted. Fax transmission was aborted.
3230-3231	An error occurred while establishing communication with the remote fax machine. Fax transmission was aborted.
3233	Unsupported TIFF/resolution. Fax transmission was aborted.
3234	An error occurred while establishing the call. Fax transmission was aborted.
3235 3240-3245	An error occurred while communicating with the remote fax machine, fax may have been partially transmitted. Fax transmission was aborted.
3250-3256	Bad image quality was detected. Fax transmission was aborted.
3260-3261	An error occurred while communicating with the remote fax machine, fax may have been partially transmitted. Fax transmission was aborted.
3264-3269	An error occurred while establishing communication with the remote fax machine. Fax transmission was aborted.
3270; 3300; 3510	An error occurred while communicating with the remote fax machine, fax may have been partially transmitted. Fax transmission was aborted.
3821-3823	An error occurred while establishing communication with the remote fax machine. Fax transmission was aborted.
3830-3831 3910-3911	An error occurred while grabbing phone line. Fax transmission was aborted.
3912	No answer detected. Fax transmission was aborted.
3913	An error occurred while communicating with the remote fax machine, fax may have been partially transmitted. Fax transmission was aborted.

Error Code	Error Message
3914-3916	An error occurred while establishing communication with the remote fax machine. Fax transmission was aborted.
3920-3923	An error occurred while communicating with the remote fax machine, fax may have been partially transmitted. Fax transmission was aborted.
3931	Line Busy detected. Fax transmission was aborted.
3932	An error occurred while communicating with the remote fax machine, fax may have been partially transmitted. Fax transmission was aborted.
3933	An error occurred while establishing communication with the remote fax machine. Fax transmission was aborted.
3935-3936	No answer detected . Fax transmission was aborted.
3937	Line Busy detected. Fax transmission was aborted.
3938 3940-3942 8016	An error occurred while establishing communication with the remote fax machine. Fax transmission was aborted.
8100-8107	An error occurred while communicating with the remote fax machine, fax may have been partially transmitted. Fax transmission was aborted.
8108-8109	An error occurred while establishing communication with the remote fax machine. Fax transmission was aborted.
8110; 8112 8114-8118 8120-8121 8127-8132	An error occurred while communicating with the remote fax machine, fax may have been partially transmitted. Fax transmission was aborted.
8111	Unsupported TIFF/resolution. Fax transmission was aborted.
8140	No available lines. Fax transmission was aborted.
8190-8191 8193-8195 8197-8199	An error occurred while communicating with the remote fax machine, fax may have been partially transmitted. Fax transmission was aborted.
8201-8202	An error occurred while establishing communication with the remote fax machine. Fax transmission was aborted.
8210-8212	An error occurred while communicating with the remote fax machine, fax may have been partially transmitted. Fax transmission was aborted.
8259-8262	Unsupported TIFF/resolution. Fax transmission was aborted.
8263-8264	An error occurred while communicating with the remote fax machine, fax may have been partially transmitted. Fax transmission was aborted.

## Appendix B Error Messages

Error Code	Error Message
8266 8276	Unsupported TIFF/resolution. Fax transmission was aborted.
8510-8511	A error occurred in the fax driver. Fax transmission was aborted.

### Dialogic DNA Error Messages

Error Code	Error Message
9000 à 9999	Your Dialogic fax board has reported an error.
9000	An error occurred in the fax driver. Fax transmission was aborted.
9007	Line Busy detected. Fax transmission was aborted.
9008	No answer detected . Fax transmission was aborted.
9009-9012	An error occurred while establishing communication with the remote fax machine. Fax transmission was aborted.
9017	An error occurred while grabbing phone line. Fax transmission was aborted.
9050	An error occurred while establishing communication with the remote fax machine. Fax transmission was aborted.
9051	An error occurred while communicating with the remote fax machine, fax may have been partially transmitted. Fax transmission was aborted.
9054	An error occurred while grabbing phone line. Fax transmission was aborted.
9100-9104 9106-9107	An error occurred while communicating with the remote fax machine, fax may have been partially transmitted. Fax transmission was aborted.
9108-9109	An error occurred while establishing communication with the remote fax machine. Fax transmission was aborted.
9110	An error occurred while communicating with the remote fax machine, fax may have been partially transmitted. Fax transmission was aborted.
9111	Unsupported TIFF/resolution. Fax transmission was aborted.
9112-9118 9120-9121 9127-9132	An error occurred while communicating with the remote fax machine, fax may have been partially transmitted. Fax transmission was aborted.
9140	Line Busy detected. Fax transmission was aborted.
9190-9191 9193-9195 9197-9199	An error occurred while communicating with the remote fax machine, fax may have been partially transmitted. Fax transmission was aborted.
9201-9202	An error occurred while establishing communication with the remote fax machine. Fax transmission was aborted.
9203 9210-9212	An error occurred while communicating with the remote fax machine, fax may have been partially transmitted. Fax transmission was aborted.
9274	Line Busy detected. Fax transmission was aborted.

## Brooktrout Error Messages

Error Code	Error Message
10000 to 19999	Your Brooktrout FAX board has reported an error.
10016	An error occurred while grabbing phone line. Fax transmission was aborted.
10018	Unsupported TIFF/resolution. Fax transmission was aborted.
11261	No dial tone detected. Fax transmission was aborted.
11262-11263	An error occurred while grabbing phone line. Fax transmission was aborted.
11264 11268	Line Busy detected. Fax transmission was aborted.
11269	An error occurred while grabbing phone line. Fax transmission was aborted.
11270	No answer detected . Fax transmission was aborted.
11271	Invalid number detected. Fax transmission was aborted.
12005	Ring was detected without a successful handshake.
12006	An error occurred while establishing the call. Fax transmission was aborted.
12007	An error occurred while grabbing phone line. Fax transmission was aborted.
12008	Line was disconnected. Fax transmission was aborted.
12015	No answer detected. Fax transmission was aborted.
12024	An error occurred while communicating with the remote fax machine, fax may have been partially transmitted. Fax transmission was aborted.
12025	An error occurred while establishing communication with the remote fax machine. Fax transmission was aborted.
12029-12034	An error occurred while communicating with the remote fax machine, fax may have been partially transmitted. Fax transmission was aborted.
12035	Unsupported TIFF/resolution. Fax transmission was aborted.

## Appendix B Error Messages

Error Code	Error Message
12036 12044-12050 12056-12061 12064-12072 12074 12077-12082 12107-12112 12244-12248 12504-12505 12508	An error occurred while communicating with the remote fax machine, fax may have been partially transmitted. Fax transmission was aborted.
12509	The remote fax unexpectedly terminated the communication, fax may have been partially transmitted. Fax transmission was aborted.
14006-14007	An error occurred while communicating with the remote fax machine, fax may have been partially transmitted. Fax transmission was aborted.
17301-17302	Line Busy detected. Fax transmission was aborted.
17303	No available lines. Fax transmission was aborted.
17304	An error occurred while communicating with the remote fax machine, fax may have been partially transmitted. Fax transmission was aborted.
17316	Call was answered, human voice was detected. Fax transmission was aborted.
17318	An error occurred while grabbing phone line. Fax transmission was aborted.
17325	No answer detected . Fax transmission was aborted.
17327	Invalid number detected. Fax transmission was aborted.
17328	No answer detected . Fax transmission was aborted.
17329	Invalid number detected. Fax transmission was aborted.
17330	An error occurred while grabbing phone line. Fax transmission was aborted.
17331	No available lines. Fax transmission was aborted.
17333	The remote fax unexpectedly terminated the communication, fax may have been partially transmitted. Fax transmission was aborted.
17334	An error occurred while establishing the call. Fax transmission was aborted.
17349	An error occurred while communicating with the remote fax machine, fax may have been partially transmitted. Fax transmission was aborted.
18003	An error occurred while establishing the call. Fax transmission was aborted.
18101	Invalid number detected. Fax transmission was aborted.

Error Code	Error Message
18102 18106	No available lines. Fax transmission was aborted.
18117	Line Busy detected. Fax transmission was aborted.
18118	No answer detected . Fax transmission was aborted.
18121	An error occurred while establishing communication with the remote fax machine. Fax transmission was aborted.
18122	Invalid number detected. Fax transmission was aborted.
18127	No answer detected . Fax transmission was aborted.
18128	Invalid number detected. Fax transmission was aborted.
18134	No available lines. Fax transmission was aborted.
18142	An error occurred while establishing the call. Fax transmission was aborted.
18144	No available lines. Fax transmission was aborted.
18202; 18211 18227	An error occurred while communicating with the remote fax machine, fax may have been partially transmitted. Fax transmission was aborted.
18502; 19004 19099; 19104	An error occurred while establishing the call. Fax transmission was aborted.
19105	The remote fax unexpectedly terminated the communication, fax may have been partially transmitted. Fax transmission was aborted.
19106	An error occurred while communicating with the remote fax machine, fax may have been partially transmitted. Fax transmission was aborted.
19107	No answer detected. Fax transmission was aborted.
19502-19517	No available lines. Fax transmission was aborted.

**Server Error Messages**

Error Code	Error Message
20001	Unreachable server.
20002	Can not transfer message.
20003	No resource available for LCR or resources are not connected.
20004	Did not match any LCR table filters.
20005	An error occurred writing the file. Check available space in Lfdriver\out.

## Appendix B Error Messages

Error Code	Error Message
20006	You are not allowed to make this call. See your fax administrator to get proper permissions
20007	Billing code validation failed.
20008	Unable to send email to gateway.
20010	Unable to reach fax gateway.
20011	Billing code validation failed: A sender billing code must be provided.
20012	Billing code validation failed: The sender billing code is invalid.
20013	Billing code validation failed: A recipient billing code must be provided.
20014	Billing code validation failed: The recipient billing code is invalid.
20015	Can't send a empty fax to LCR.
20016	Invalid fax number. The fax number returned by the modification table exceed the size limit.

## Rasterization Error Messages

Error Code	Error Message
21000 to 21999	An error occurred during the file rasterization process.
21000	Fax rejected. The Rasterisation Server was not able to rasterise a file.
21001	Fax rejected. The Rasterizer server was not able to rasterize a cover sheet.
21002	Fax rejected. There was no file to send.
21003	Fax rejected. The Server CoverSheet does not exist.
21004	Fax rejected. You can't attach 2 coversheets to a fax.
201000 to 201999	An error occurred during the file rasterization process.
201000	Fax rejected. The Rasterisation Server was not able to rasterise a file.
201001	Fax rejected. The Rasterizer server was not able to rasterize a cover sheet.
201002	Fax rejected. There was no file to send.
201003	Fax rejected. The Server CoverSheet does not exist.
201004	Fax rejected. You can't attach 2 coversheets to a fax.
22000 to 22999	An error occurred in the SMTP gateway.
22001	External failure (unknown error).

Error Code	Error Message
22002	Error sending message to the external SMTP server.
22003	Can't deliver inbound message.
22004	Can't deliver offramp message.
22005	User rejected by the gateway.
22006	The Rasterization Server is down.
22007	Message was relayed. No other status information will be available. This does not necessarily indicate a failure.
22008	You are not licensed for this functionality, please contact your administrator.

**General Error Messages**

Error Code	Error Message
23000 to 23999	An error occurred in the fax driver. Fax transmission was aborted.
23000	Failed to send data to the card (GammaLink).
23001	Failed to send data to the card (Modem).
23002	Received a user drop call/disconnect before the data was sent to GammaLink (ISDN).
23003	cc_MakeCall failed (ISDN).
23004	No timeslot available (ISDN).
23005	Timeout to get connected (ISDN).
23009	Could not get the TIFF correctly from server (possibly corrupted TIFF).
23010	Invalid phone number.
23011	There is no message attached to this item.
23012	Fax transmission was aborted by the user.

**External Directory Sync Error Messages**

Error Code	Error Message
24000 to 24999	External directory sync. error.

## Appendix B Error Messages

### Eicon Error Messages

Error Code	Error Message
25000 to 25999	Your Eicon FAX board has reported an error.
25001	Fax transmission was aborted by the user.
25002	Line Busy detected. Fax transmission was aborted.
25003	An error occurred while establishing communication with the remote fax machine. Fax transmission was aborted.
25004-25005	No answer detected. Fax transmission was aborted.
25006-25008	Invalid number detected. Fax transmission was aborted.
25009	No available lines. Fax transmission was aborted.
25010	An error occurred while grabbing phone line. Fax transmission was aborted.
25011	An error occurred while establishing communication with the remote fax machine. Fax transmission was aborted.
25012	An error occurred while communicating with the remote fax machine, fax may have been partially transmitted. Fax transmission was aborted.
25013	Invalid number detected. Fax transmission was aborted.
25015	An error occurred while establishing communication with the remote fax machine. Fax transmission was aborted.
25016	Call was answered, human voice was detected. Fax transmission was aborted.
25017	An error occurred while establishing communication with the remote fax machine. Fax transmission was aborted.
25018	The remote fax unexpectedly terminated the communication, fax may have been partially transmitted. Fax transmission was aborted.
25020	An error occurred while establishing communication with the remote fax machine. Fax transmission was aborted.
25021	No answer detected. Fax transmission was aborted.
25022	An error occurred while communicating with the remote fax machine, fax may have been partially transmitted. Fax transmission was aborted.
25023	An error occurred while establishing communication with the remote fax machine. Fax transmission was aborted.
25026	Unsupported TIFF/resolution. Fax transmission was aborted.
25100	Internal driver error.
25151	The Eicon API stopped responding.

Error Code	Error Message
25152	The fax transmission did not end properly.
25201	Failed to send fax to the Eicon board.

**Modem Error Messages**

Error Code	Error Message
30000 to 49999	Modem error.

**LFGH Error Messages**

Error Code	Error Message
60000 to 60999	An error occurred while transmitting the fax to the rasterization server.
60010	A user name must be provided in order to authenticate to the system.
60011	The user name cannot be authenticated.
60012	The profile specified is not found.
60013	The rasterization server is not running.
60014	There is no rasterization server configured in the system.
60015	There are no fax recipients in the message.
60017	The specified resource is invalid.
60018	The specified resolution is invalid.

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