

Administering Licenses for Rational Software

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Preface

Welcome to *Administering Licenses for Rational Software*. This document provides you with the technical information you need to install and configure license keys, install and configure the FLEXlm license server software, and troubleshoot problems related to licensing Rational Software products.

Rational Suite delivers a comprehensive set of integrated tools that embody software engineering best practices and span the entire software development life cycle. Rational Suite's unparalleled level of integration improves communication both within teams and across team boundaries, reducing development time and improving software quality.

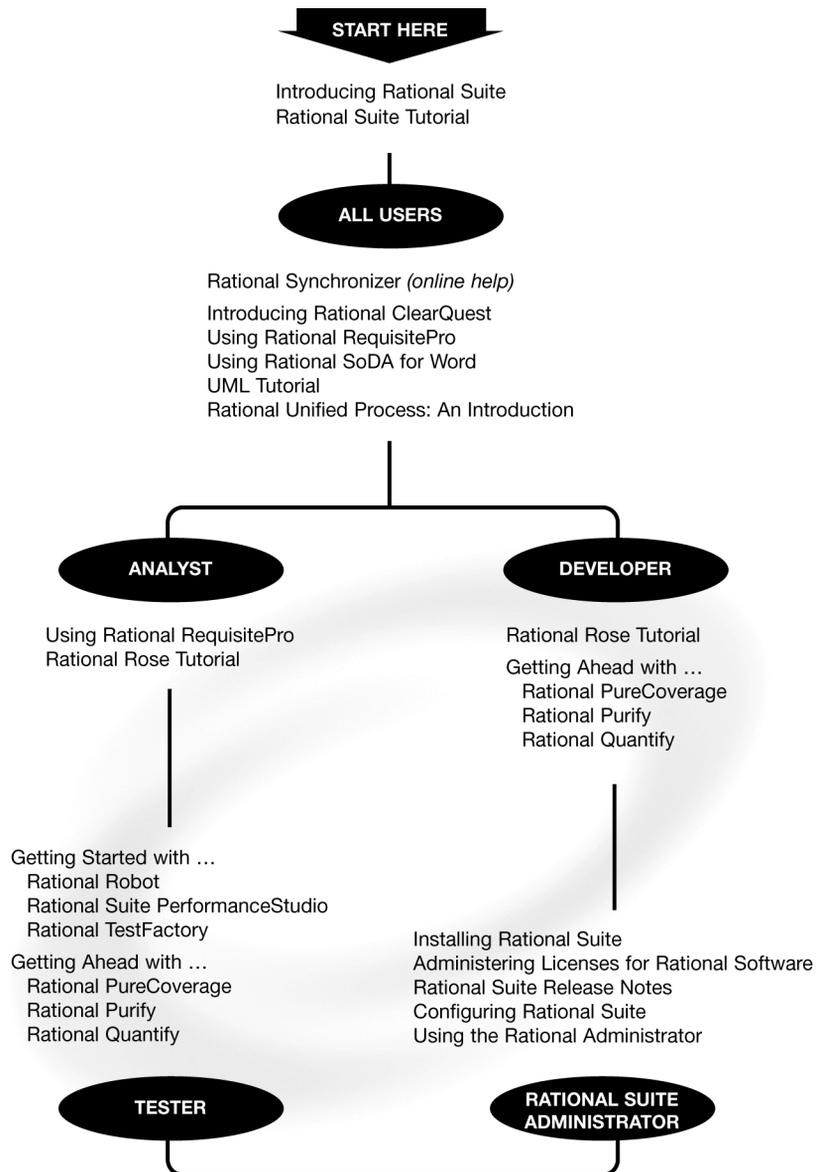
Audience

This guide is intended for licensing administrators; generally this means you are a system administrator. This book assumes knowledge of Microsoft Windows and its conventions and familiarity with client-server environments.

Other Resources

- The Rational Suite Release Notes are available in HTML.
- The Rational License Key Administrator online Help is available by clicking **Help** in the License Key Administrator program or by opening
`<Install Path>\Rational\Common\licadmin.hlp`.
- All manuals are available online, either in HTML or PDF format. The online manuals are on the Rational Solutions for Windows Online Documentation CD.
- If you install Rational Suite DevelopmentStudio – RealTime Edition, PDF versions of the manuals for Rose RealTime are installed in `%ROSET_HOME%\help`.
- For more information on training opportunities, see the Rational University Web site: <http://www.rational.com/university>.

Rational Suite Documentation Roadmap



Contacting Rational Technical Publications

To send feedback about documentation for Rational products, please send e-mail to our technical publications department at techpubs@rational.com.

Contacting Rational Technical Support

If you have questions about installing, using, or maintaining this product, contact Rational Technical Support as follows:

Rational Technical Support Information

Location	Contact Information	Notes
U.S. and Canada	800-433-5444 781-676-2450 support@rational.com	When sending e-mail: – Specify the product name in the subject line, for example, "Rational Suite". – For existing issues, include your case ID in the subject line.
Europe	+31 (0) 20 4546 200 support@europe.rational.com	
Asia Pacific	+61-2-9419-0111 support@apac.rational.com	
World Wide Web	http://www.rational.com	Click the Technical Support link.

Contacting Rational Licensing Technical Support

If you have questions about acquiring license keys for your Rational Software products, contact Rational Licensing Support.

Rational Licensing Technical Support Information

Region	Telephone	E-mail
North and South America	1-800-728-1212 FAX: 781-676-2460	lic_americas@rational.com
Europe (includes Israel and Africa)	Phone: +31 20 4546 200 Fax: +31 20 4546 202	lic_europe@rational.com
Asia Pacific	Phone: +612-9419-0111 FAX: +61-2-9419-0123	lic_apac@rational.com

1

Licensing Overview

This manual provides comprehensive information about licensing for Rational products. However, you do not need to read the entire book to successfully acquire and install licenses.

This chapter provides an overview of Rational software licensing, including descriptions of the types of licenses and license keys used with Rational software products.

The Rational Software Licensing Model

Rational Software uses FLEXlm, a software-based license management tool from GLOBEtrötter, Inc. FLEXlm provides users with a powerful and flexible mechanism for managing licensing resources.

The Rational Software installation procedure automatically installs the FLEXlm licensing software on client systems, allowing client systems to use either node-locked or floating licenses. (Table 1, License Types, on page 16 describes node-locked and floating licenses.)

Most end users configure their own systems for licensing using software provided by Rational. In cases where customers choose to use floating licenses, a system administrator typically configures a license server system for licensing, using software provided by Rational and GLOBEtrötter.

For additional information about Rational software licensing, see “Rational Software Client Licensing” on page 19 and “Rational Software Server Licensing” on page 25.

License Types and License Key Types

Table 1, License Types, describes the types of licenses supported by Rational licensing. Table 2, License Key Types, describes the types of license keys used by Rational licensing. The “Glossary of Licensing Terms” on page 83 defines the terms in this table, along with other licensing terms.

Table 1: License Types

License Type	Description	Notes
Node-locked	A license that permits a user to use the licensed software on a specified system. A node-locked license is configured for a specific system. To move a node-locked license to another system, you must remove the license key from the old system and request a new license key for the new system.	Use the Rational License Key Administrator to add or modify a node-locked license. Contact Rational Licensing Support for help with node-locked licenses; see See “Rational Licensing Technical Support Information” on page 13.
Floating	A floating license is installed on a license server system and permits a specified number of users to use the licensed software from client systems. Floating licenses are shared among all users of the licensed software.	A system administrator must install the FLEXlm License Server software on a server to set up floating licenses. Use the Rational License Key Administrator to set up floating licenses for your system. See “FLEXlm License Server Installation” on page 35.

Table 2: License Key Types

License Key Type	Description	Notes
Temporary	A time-limited license.	The expiration date for a temporary license key is noted on the temporary license key certificate included with your software media kit. You can use a temporary license key on any system.
Permanent	A license issued to a customer for running Rational products. Permanent licenses are keyed to a product and machine. Permanent Keys can be node-locked or floating. Node-locked Permanent Keys are installed on a client machine. Floating Permanent Keys are installed on a License Server machine.	Rational issues Permanent Keys upon request. Use the Rational License Key Administrator to prepare and send your license requests to Rational.
TLA (Term License Agreement)	Variation of a Permanent Key. TLAs are issued to allow users access to Rational software for a negotiated period of time.	TLAs are issued by the Rational Sales Team. To obtain TLAs for your organization, contact your local Rational Sales Team.

For More Information

“Before You Begin” in *Installing Rational Suite* provides a summary of the steps associated with installing and setting up license keys with Rational software products.

The online Help in the Rational License Key Administrator describes how to use the Rational License Key Administrator to review and modify your license configuration. The online Help also provides information about configuring the FLEXlm License Server software.

The Rational License Key Administrator online Help is available by clicking **Help** in the License Key Administrator program .

For more information about FLEXlm licensing, see the FLEXlm for Windows FAQ file on www.globetrotter.com.

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Rational Software Client Licensing

Rational supports both node-locked and floating licenses. Node-locked licenses are restricted to an individual system. Floating licenses can be shared by multiple users and multiple machines, with one person using a license at a time.

If your system administrator has configured your license keys on your system, you can immediately start using your Rational software product.

This chapter describes the following topics related to Rational software licensing services:

- Installing and configuring Rational Software node-locked license keys on a client system
- Installing or changing license keys after installing Rational software

The online Help in the Rational License Key Administrator describes how to use the Rational License Key Administrator to review and modify your license configuration.

The Rational License Key Administrator online Help is available by clicking **Help** in the License Key Administrator program or by opening <Install Path>\Rational\Common\licadmin.hlp.

Installing a Temporary License Key on a Client System

After you install Rational Suite, you may install a temporary license key, allowing you to use Rational Suite until you obtain your permanent license key. The temporary license key information is included with your software kit. The license key expiration date is noted on the license key certificate.

You can request permanent licenses keys, if available. The date that your permanent license key is available is noted on your temporary license key certificate. You can request the permanent key as soon as it is available, whether you have installed a temporary key or not.

To maintain uninterrupted use of your software, make sure you obtain and install your permanent license key before your temporary license key expires.

To install a temporary license key on a client system:

- 1 From the Windows **Start** menu, click **Programs > [your product] > Rational License Key Administrator**.
- 2 On the first License Key Administrator Wizard dialog box, select **Enter the data from a Rational Software License Certificate to install that license on this machine**.
- 3 On the next wizard dialog box, select **A Temporary License Key allows you to start running your Rational product without a Permanent License Key**.
- 4 On the next wizard dialog box, select **Node-Locked license keys are machine-specific and will not work on any other machine. They do not require a server**.
- 5 On the next wizard dialog box, choose the product you want to license from the Product and Version list box. Enter the Expiration Date and License Key for the license, using information found on the Temporary License Key Certificate.

Enter the information exactly as presented or the license key will not work. If you enter incorrect or incomplete information, the License Key Administrator reports the following message:

There is an error in the license key as it was entered.
Please check your entries for a possible typo.

Review and correct the information in each of the fields.

- 6 Click **Finish**.

When you complete this step, the License Key Administrator displays the temporary license key in the main window.

Configuring Your Client System to Use a Node-Locked License

If you are using a node-locked license, you do not need to set up or connect to a license server system; you simply install your license keys on your client system.

Configuring Your Client System to Use a Floating License

Before configuring your system to use a floating license, obtain the name of the license server system from your system administrator. (If you are the system administrator, see “Rational Software Server Licensing” on page 25 for information about setting up server-based floating licenses.)

After you have obtained the name of the license server system, proceed as follows:

- 1 Ensure that the FLEXlm license server software is running on the license server system. Contact your system administrator or see “Installing Rational License Server Software” on page 25.
- 2 Start the Rational License Key Administrator on the client system.
- 3 Select **Settings > Service Configuration**.
- 4 Under License Key Source, select **Use Single Server** and specify the name of the FLEXlm license server system in the text box.
- 5 Click **OK** to save the settings.

Acquiring a Node-Locked Permanent Key for Your Client System

This section summarizes the steps for acquiring a node-locked permanent license.

- 1 Use the License Key Administrator to prepare the license request. Review the topic “Requesting a permanent node-locked license key” in the online Help for assistance with this step.

- 2 Send the request to Rational. You may send the request to Rational:
 - electronically using the Rational License Key Administrator. You need to have an Internet connection to request license keys electronically with the Rational License Key Administrator.
 - by printing and faxing the request.
 - by printing the request and making your request by telephone.When you create a license key request, the request is sent to Rational electronically by default. To print or fax a license key request, clear the **Send all requests to Rational immediately** check box.

Notes

Make sure that the contact and account information is correct. The Rational License Key Administrator will identify any fields that are missing required information.

See *Contacting Rational Licensing Technical Support* on page 13 for contact information regarding licensing questions.

Receiving Your License Configuration

If you request a new license electronically, Rational will send you a license key via e-mail. If you request a license by fax and you have specified an e-mail address in your contact information, you will receive a license key file via e-mail.

If your system is not connected to the Internet, you can request license keys from another system with an Internet connection. See the License Key Administrator online Help for details about requesting license keys via proxy.

Reviewing Your License Configuration

Select **View > Show > Node Locked Licenses** to see the details of your node-locked license.

Licensing ClearQuest

If you purchase ClearQuest with a node-locked license, your ClearQuest Web access is limited to the ability to submit defects and to run one query (defined by your ClearQuest administrator). To get full ClearQuest Web access, you need to purchase a floating license.

3

Rational Software Server Licensing

This chapter describes the following topics related to Rational software licensing services:

- Installing Rational Software license management software
- Installing and configuring license keys on a server system
- Installing or changing license keys after installing Rational software
- Special procedures and restrictions

The information in this chapter is intended for system administrators or users who manage licenses.

If you are using node-locked licenses on a client system, you can skip this chapter. See “Rational Software Client Licensing” on page 19 for information about setting up node-locked licenses on a client system.

The steps required to use floating licenses are described in the following sections:

- 1 Install the FLEXlm license server software on the license server system. See *FLEXlm License Server Installation* on page 35 for additional information.
- 2 Configure the license server software. The online Help also provides information about configuring the FLEXlm License Server software.
- 3 Install the floating license keys on the license server system.
- 4 Configure the client to use license keys from the server.

Installing Rational License Server Software

Chapter 5, *FLEXlm License Server Installation* on page 35, describes how to install the FLEXlm license server software.

Configuring the License Server Software

After installing the FLEXlm License Server software, use the FLEXlm License Manager to provide the following information about your configuration:

- Location of the license key file. We recommend that you leave this file in its default location.
- Location of licensing executables.
- Location of log files. You can use the debug log files to diagnose configuration problems and daemon software errors.

To configure the license server software:

- 1** Click **Start** and choose **Settings > Control Panel**.
- 2** Open the FLEXlm License Manager control panel.
- 3** Click the Setup tab to see the location of the `lmgrd.exe` file. The default location is
<Install Path>\Program Files\Rational\Common\

The Setup tab also shows the location of the license key files on your license server computer (`rational_server_perm.dat`, the permanent license key file, and `rational_server_temp.dat`, the temporary license key file). The default location is
<Install Path>\Program Files\Rational\Common\

4 Enter the location of the license debug log file. The default location is <Install Path>\Program Files\Rational\Common\

5 Select the **Use NT Services** check box to start the FLEXlm License Server software as a Windows NT service.

If you select the **Use NT Services** check box, you may also select the **Start Server at Power Up** check box. If you do not select the **Start Server at Power Up** check box, you must start the FLEXlm License Server manually each time you start your computer.

Important We recommend that you select both check boxes to start your license server as a Windows NT service automatically each time you boot your system.

To start the FLEXlm License Server manually, on the Control tab of the FLEXlm License Manager control panel, click the **Start** button.

- 6 If you wish, click the **Status** button to confirm that the license server has started.
- 7 Click **OK** to save this information and exit.

Configuring Redundant License Server Systems

You can configure your licensing environment to use up to three license server systems to ensure availability of license keys.

See the License Key Administrator online Help for information about setting up redundant license servers.

Installing a Temporary License Key on a Server System

You may install a temporary license key, giving client systems an interim way to use floating licenses from the server until you get your permanent license keys.

You can request permanent license keys, if available. Your temporary license key certificate indicates the date that your permanent license key is available. You may request the permanent key as soon as it is available, whether you have installed a temporary key or not.

Review the information on the Temporary License Key Certificate, included with your software media kit. Your temporary license key certificate indicates the temporary license key expiration date.

To install a temporary license key on a server system:

- 1 From the Windows **Start** menu, select **Programs > Rational License Key Administrator**.
- 2 Select **License > Enter a License**.
- 3 On the first License Key Certificate Wizard dialog box, select **Temporary License Key**.
- 4 On the next wizard dialog box, select **Floating License Key**.
- 5 On the next wizard dialog box, provide information based on the columns on the temporary license key certificate. Enter the information exactly as presented or the key will not work.
- 6 Click **Finish**.

When you complete this step, the License Key Administrator creates a file containing a temporary license and displays the temporary license key in the main window.

Acquiring Permanent Floating License Keys for Your Server System

This section summarizes the steps for acquiring permanent floating license keys.

- 1 Use the License Key Administrator to prepare the license request. Review the topic “Requesting a permanent floating license key” in the online Help for assistance with this step.
- 2 Send the request to Rational. You may send the request to Rational:
 - electronically using the Rational License Key Administrator. You need to have an Internet connection to request license keys electronically with the Rational License Key Administrator.
 - by printing and faxing the request.
 - by printing the request and making your request by telephone.

When you create a license key request, the request is sent to Rational electronically by default. To print or fax a license key request, clear the **Send all requests to Rational immediately** check box.

Notes

Make sure that your contact and account information is correct. The Rational License Key Administrator will identify any fields that are missing required information.

See *Contacting Rational Licensing Technical Support* on page 13 for contact information regarding licensing questions.

Receiving Your License Configuration

If you request a new license electronically, Rational will send you a license key via e-mail. If you request a license by fax and you have specified an e-mail address in your contact information, you will receive a license key file via e-mail.

If your system is not connected to the Internet, you can request license keys from another system with an Internet connection. See the License Key Administrator online Help for details about requesting license keys via proxy.

Reviewing Your License Configuration

Select **View > Show > Floating Licenses** to see the details of your floating licenses.

Understanding the FLEXlm License Server

The following sections provide information about the FLEXlm license server, including descriptions of the license daemons running on the server systems.

FLEXlm Components

The FLEXlm license configuration includes these major components, which are described in the following sections:

- License manager daemon
- Vendor daemon
- License key file
- Application program

License Manager Daemon (lmgrd)

The *license manager daemon* (`lmgrd`) handles the initial contact with the client application programs, passing the connection on to the appropriate vendor daemon. It also starts, stops, and restarts vendor daemons.

Vendor Daemon

In FLEXlm, licenses are granted by running processes. There is one process for each software vendor (for example, Rational) which has a FLEXlm-licensed product on the network. This process is called the *vendor daemon*. The vendor daemon keeps track of how many licenses are checked out, and who has them.

If the vendor daemon terminates for any reason, all users lose their licenses. (This does not mean the applications suddenly stop running. Users can save their work and exit safely.) Users normally regain their license automatically when `lmgrd` restarts the vendor daemon, although the applications may exit if the vendor daemon remains unavailable.

Client programs communicate with the vendor daemon, usually through TCP/IP network communications. The client application and the daemon processes (the license server) can run on separate nodes on your network, across any size wide-area network.

The format of the traffic between the client and the vendor daemon is machine-independent, allowing for heterogeneous networks. This means the license server and the computer running an application can use different hardware platforms or even different operating systems (for example, Windows NT as a server system and Windows 95 as a client).

License Key File

Licensing data is stored in a text file called the *license key file*. The license key file is created by the software vendor and is edited and installed by the License Key Administrator. It contains information about the server nodes and vendor daemons, and at least one line of data (called FEATURE or INCREMENT lines) for each licensed product. Each FEATURE line contains a license key based on the data in that line, the *hostids* specified in the SERVER lines, and other vendor-specific data.

In some environments, you can combine the licensing information for several vendors into a single license key file. The FLEXlm default location is:

```
<Install Path>\license.dat           (Windows)
/usr/local/flexlm/licenses/license.dat (Unix)
```

See Table 3, License Key Files, on page 32 for details about the files used by Rational.

If your site has software from multiple vendors with incompatible license key files (due to different sets of servers), manage these files with multiple server processes. See “Multiple License Server Processes” on page 81 for more details.

LM_LICENSE_FILE Variable

The LM_LICENSE_FILE variable is used on UNIX systems and on systems with multiple license key files to set the location of the license file.

You will not typically need to set the LM_LICENSE_FILE variable in order to use Rational software products. We strongly recommend that you keep a copy of the license key file in the vendor's default location, so that users do not need to set LM_LICENSE_FILE to run their applications.

On Windows systems, if you *do* need to set the variable LM_LICENSE_FILE, go to the Environment tab of the System control panel.

Application Program

The application program (for example, Rational TestStudio) using FLEXlm is linked with the program module (called the FLEXlm client library). The program module provides communication with the license server. On Windows, the program module is called LMGRxxx.DLL, where xxx indicates the FLEXlm version. During execution, the application program communicates with the vendor daemon to request a license.

License Activation Process

When you run a 'counted' FLEXlm-licensed application, such as a Rational Suite product that uses a floating license, the following occurs:

- 1** The license module in the client application finds the license key file, which lists the host name of the license server and the port number of the license manager daemon, lmgrd.
- 2** The client establishes a connection with the license manager daemon (lmgrd) and specifies the appropriate vendor daemon.
- 3** lmgrd determines which machine and port correspond to the master vendor daemon and returns that information to the client.
- 4** The client establishes a connection with the specified vendor daemon and sends its license request.

- 5 The vendor daemon checks in its memory to see if any licenses are available and sends a grant or denial back to the client.
- 6 The license module in the application grants or denies use of the feature, as appropriate.

'Uncounted' features, where the number of licenses is '0' (zero), do not require a server and the FLEXlm client library routines in the application grant or deny usage based solely upon the license contents. Node-locked licenses, for example, set the license number to 0 (zero).

License Key Files

As a system administrator, you need to be aware of the files used by Rational software licensing. You will need access to them only when you are changing your license configuration. Table 3, License Key Files, on page 32 describes the license key files.

All files are installed in <Install Path>\Rational\Common\ unless otherwise noted. Client files are installed during the installation of Rational software products with the Rational Software Setup program. Server files are installed on the license server system during the installation of the FLEXlm license software.

Table 3: License Key Files

File Name	Description	Notes
rational_temp.dat	Contains all client node-locked temporary license keys.	You must obtain a permanent license key to continue to use your Rational software product past the temporary key expiration date.
rational_perm.dat	Contains all client node-locked permanent license keys.	Run the License Key Administrator program on your client system to request new permanent keys.

Table 3: License Key Files (Continued)

File Name	Description	Notes
rational_redirect.dat	Used on a client to specify the name of the license server system that manages floating licenses.	This file is initially empty. The Rational License Key Administrator updates this file with the name of your license server(s) when you select server-based licensing.
rational_server_temp.dat	Contains all temporary floating license keys on a license server.	You must obtain a permanent license key to continue to use your Rational software product.
rational_server_perm.dat	Contains all permanent floating license keys on a license server.	Run the License Key Administrator program on your license server system to request new permanent license keys.

4

FLEXlm License Server Installation

This chapter describes how to use the Rational Software Setup wizard to install FLEXlm License Server, a software-based license server that:

- Provides flexible installation and maintenance of license keys
- Supports standard networking protocols

To install floating licenses, you must first install and configure the FLEXlm License Server.

Before You Start the FLEXlm License Server Installation

The following sections describe how to prepare for installing the FLEXlm License Server.

Installation Requirements

Table 4, FLEXlm License Server Requirements, lists the system and software requirements for installing FLEXlm License Server:

Table 4: FLEXlm License Server Requirements

Item	Requirement
Operating System	Microsoft Windows NT 4.0, SP3
Processor	133 MHz or greater
Memory	64 MB
Disk space	1.8 MB
Privileges	Windows NT administrator privileges on the local system

Make sure that you have a current backup of your Registry and system directories before running the Rational Software Setup program.

Installing FLEXIm License Server with the Rational Software Setup Procedure

Preparing to Install FLEXIm License Server

The Rational Software Installation procedure uses `C:\Program Files\Rational` as the default install path. If your `C:\` drive lacks sufficient free disk space, you may either specify another drive or make space available on the default drive.

Caution We recommend that you allow an installation to run to completion. Interrupting an installation that is in progress may leave your system in an indeterminate state. If you try to close the Rational Software Setup window while the installation is in progress, you are asked to confirm that you want to exit from the incomplete installation.

Typical Installation

The Rational Software Setup wizard guides you through the software installation. The **Save** button lets you copy the contents of the setup wizard message window to a file. The **Copy** button copies the contents of the message window in the setup wizard to the Windows clipboard. The **Copy** and **Save** buttons are enabled on wizard pages that display the license agreement or installation messages.

This section describes a Typical installation of FLEXIm License Server.

- 1 Insert the Rational Solutions for Windows CD into your system's CD drive.

The setup program starts automatically.

If autorun is disabled on your system, use Windows Explorer to locate and run the `SETUP.EXE` file on the Rational Solutions for Windows CD.

- 2 The Rational Software Setup wizard guides you through the software installation.

Click **Browse** to review Rational product information. You must have a Web browser installed to view the product gallery.

- 3 The Select Installation Option dialog box displays the available installation options. Choose **Install License Server**.
- 4 The License Agreement page displays the Rational Software license agreement. Choose to accept or not accept the license agreement.

If you accept the license agreement, the installation continues installing Rational Suite on your system.

If you do not accept the license agreement, the installation does not let you proceed further. If you exit from the installation by clicking **Cancel** at this point, no changes are made to your system.

- 5 The Setup Configuration dialog box displays the setup options for the software. The only choice available for the License Server is **Typical**.
- 6 The Upgrade Compatibility dialog box appears if you have additional, older, Rational products installed on your system. Because Rational tools share files and components, this installation can cause the older Rational products to stop working. You will see no visual clue to indicate that the older products may be compromised.

For each of the additional, older products listed, we strongly recommend that you take one of the following actions:

- **Upgrade it:** Complete this installation, and then restart the Setup wizard to upgrade the next product. Upgrading a product updates all necessary files, registry entries, startup menu items, and shared components on your system.
- **Remove it:** Complete this installation, and then use the Control Panel's Add/Remove Programs tool to remove the next product. Removing a product deletes files, registry entries, and startup menu items from your system.

A Web site exists to provide more details about interactions between specific products. To visit the Web site, please see <http://www.rational.com>. Click **Technical Support, Patches and Upgrades**, and then click **Upgrade Compatibility**.

- 7 The Confirmation dialog box displays the product features that will be installed.
- 8 The Error Summary dialog box displays errors from the first part of the software installation. If the installation is successful, you do not see this dialog box.

The Rational Software Setup program writes a log of installation activities. The log file is located in
<Install Path>\Rational\RSSetup\RSsetup.log.

Note

If files required for the installation are in use during the installation procedure, the Rational Software Setup program may need to reboot your system to complete the installation.

After rebooting, log on as the same user to complete the installation procedure. Part 2 of the installation automatically starts on your system.

- 9 Click **Finish** to exit from the Rational Software Setup wizard. The Rational License Key Administrator starts automatically.

After you finish installing the FLEXlm License Server software, you must configure your license server. See “Configuring the License Server Software” on page 26.

For a more detailed description of the installation procedure, see “Using the Rational Software Setup Program” in *Installing Rational Suite*.

Removing FLEXlm License Server

This section describes how to remove FLEXlm License Server from your system.

Preparing to Remove FLEXlm License Server

Make sure that no one is using FLEXlm License Server or any associated files. You cannot remove files that are in use.

To remove FLEXlm License Server from a Windows NT system, you must have Windows NT administrator privileges on the local machine.

To Remove FLEXlm License Server

Use the Windows **Add/Remove Programs** control panel to select and remove FLEXlm License Server. The Rational Software Setup program removes FLEXlm License Server from your system. It does not remove directories that contain files that you have created while using Rational Suite products.

Note When you remove a Rational Suite product, the FLEXlm License Server is **not** removed because someone else may be using the license server.

5

FLEXlm Features and Configuration

GLOBEtrotter's FLEXlm license management software offers software vendors a wide variety of features and options. This allows vendors such as Rational Software to selectively build a customized licensing model by implementing the FLEXlm features that best meets their business needs.

This chapter describes the FLEXlm features and options Rational Software has implemented with Rational Common Licensing. The information in this document pertains to products licensed using Rational Common Licensing for Windows (the License Key Administrator) unless otherwise noted. The FLEXlm information in this document does not apply to products not licensed using the Common Licensing paradigm.

The term "supported" refers to a licensing configuration that Rational has tested and guarantees will work under normal operating conditions. This applies to configurations that the software was designed to handle. This also applies to configurations for which the software was not specifically designed, but with which it will work with some manual intervention.

Many of the tasks in this chapter are not recommended for the casual or novice user. Attempt them only if you are familiar with your operating system (or systems), Rational Common Licensing, and GLOBEtrotter's FLEXlm.

Table 5: Pointers to Information about Rational Licensing

For more information about	See
Supported license key types	<i>Supported License Key Types</i> on page 42
The FLEXlm options supported by Rational Common Licensing	<i>Supported FLEXlm License Key Type Options</i> on page 44

Table 5: Pointers to Information about Rational Licensing

For more information about	See
The license key types not used by Rational	<i>Other Common License Key Types not Used by Rational</i> on page 50
Components of the FLEXlm SERVER line	<i>The FLEXlm SERVER line</i> on page 51
Components of the FLEXlm DAEMON or VENDOR line	<i>The FLEXlm DAEMON or VENDOR line</i> on page 51
Combining license files	<i>Combining License Files</i> on page 54
Running more than one FLEXlm server on the same machine	<i>Running Multiple FLEXlm Servers on the Same Machine</i> on page 56
Setting up the FLEXlm Options File	<i>Setting up the FLEXlm Options File</i> on page 57
Redundant servers	<i>FLEXlm Redundant Servers</i> on page 58
Configuration on the client side	<i>Client Configuration</i> on page 59
How a Windows client can use a UNIX server	<i>Windows Clients Using UNIX Servers</i> on page 59
Various network configurations with regard to floating licenses	<i>Networking Configurations</i> on page 61
Diagnostic tools	<i>Diagnostics</i> on page 62
Supported common license	<i>Common Licensing Configurations</i> on page 63

Supported License Key Types

Rational currently offers customers two FLEXlm license key types: floating and node-locked.

Floating License Keys

Rational offers standard FLEXlm floating license keys. Floating keys must be managed by a FLEXlm server.

Node-locked License Keys

With FLEXlm, vendors can deliver two types of node-locked license keys: uncounted and counted. All node-locked license keys are specific to a certain host and can be used on that machine only.

Uncounted Node-Locked Licenses

Rational currently supports uncounted node-locked licenses for Windows products only. Standard Rational terminology refers to uncounted node-locked license keys for Windows products simply as *node-locked license keys*.

You do not need a FLEXlm server to be installed and running to use an uncounted node-locked license key. Uncounted node-locked licenses contain a 0 (zero) in the license count field in the FLEXlm feature line.

Because uncounted license keys do not use a server, the user may run multiple sessions of a Rational product concurrently using a single key.

Counted Node-Locked Licenses

Node-locked Rational products on UNIX (that use Rational Common Licensing) are licensed with counted node-locked license keys.

- Unlike uncounted node-locked licenses, you manage counted node-locked licenses with a FLEXlm license server.
- Unlike floating license keys, uncounted node-locked keys have DISKID of the machine in the FLEXlm feature line and can only be used on the machine for which they are licensed.

Clients connect to the license server and acquire a counted node-locked license specific to their machine. This process is the same as the one used to acquire floating license keys.

Essentially, a counted node-locked license key is a floating license key that can only be used on a specific host.

License Key Definition

The information below details the FLEXlm features or options Rational uses in the Common Licensing FLEXlm license key definition. This section also discusses common FLEXlm features that Rational did not elect to use.

Supported FLEXlm License Key Type Options

The following sections describe common FLEXlm options that Rational Software supports in the Common Licensing FLEXlm license key definition.

INCREMENT

The string INCREMENT tells FLEXlm that the information that follows in the line defines a FLEXlm license key. Other vendors often define license keys using the FEATURE option instead of INCREMENT. All Rational license keys use INCREMENT because it supports the use of the SUPERSEDE option.

SUPERSEDE

All Rational license keys include the SUPERSEDE option. This option tells FLEXlm to use the most recent INCREMENT line in situations where two license keys with the same INCREMENT name appear in the same license file.

ISSUED

All Rational license keys include the ISSUED option. The value of the option is the date on which the license key was encrypted.

VENDOR_STRING

All Rational license keys include the VENDOR_STRING option. This option allows Rational to include company-specific information in the key, which is generally product-related. For example, Rational defines the point products in a Suite using the VENDOR_STRING.

Note that the VENDOR_STRING options and values are encrypted into the key. Addition or removal of any characters in the VENDOR_STRING will invalidate the key.

DISKID

With Rational Common Licensing, the default DISKID value on a Windows systems is the diskid of the user's boot drive, for example:

```
DISKID=12345678
```

In cases where the Windows machine is configured to run multiple operating systems, the DISKID routine continues to return the value of the boot drive's diskid by default. Rational software licensed to a particular diskid may not work if the act of booting various operating systems results in changes to the boot drive's diskid, depending on the operating system used. In those cases, customers can license the software to the machine's ethernet card instead of the diskid.

Rational also allows customers to license the software to the value returned by GLOBEtrotter's `lmhostid` command. This is supported on Windows and is the default for Rational software licensed to UNIX systems. In most cases `lmhostid` returns the ethernet address (network ID) of the machine and is written in the format `HOSTID=nnnnnnnnnnnn`.

FLEXlm allows for multiple values of HOSTID to be defined within a single key, but Rational currently does not support this configuration.

DUP_GROUP

Rational currently supports the use of the DUP_GROUP feature in license keys. The DUP_GROUP allows the vendor to control the behavior of the key under specific circumstances.

OVERDRAFT

The OVERDRAFT feature is supported in Rational floating license keys with the value of 0 (zero) only. This feature enables the vendor to allow their customers to check out more floating licenses than they actually have purchased. The OVERDRAFT value for Rational products is set to zero.

Vendor_info

All Rational license keys include the `vendor_info` option. This option allows Rational to include customer-specific licensing information in the license key such as the customer's account number.

`Vendor_info` information is *not* encrypted into the license key.

NOTICE

All Rational license keys include the NOTICE feature. The value of the NOTICE field is the customer's name which is encrypted into the key.

Rational FLEXlm License Key Examples

This section provides examples of Rational FLEXlm license keys for node-locked and floating products.

Node-locked License Key for Windows

```
INCREMENT RationalSuiteEnterprise rational 1.0 31-dec-1999 uncounted \  
3665A1B59899 \  
VENDOR_STRING="3121-08470|NodeLocked||ClearQuest:1.1, \  
RequisitePro:4.0, soda_word:3.5, rose_enterprise_windows:6.0, \  
TestFactory:7.1, Robot:7.1, TestManager:7.1, LogViewer:7.1, \  
VisualPureCoverage:6.0, PurifyNT:6.0, VisualQuantify:6.0, \  
UnifiedProcess:5.1 " DISKID=14760cf6 SUPERSEDE \  
vendor_info="43999S-0-728|Rational Suite Enterprise 1.0|1.0" \  
ISSUED=23-Jun-1999 NOTICE="EBIZ Company" ck=60
```

Where:

Item in License Key	Explanation
INCREMENT	Tells FLEXlm that the information that follows defines a license key.
RationalSuiteEnterprise	Defines the FLEXlm "feature name". FLEXlm uses this value as the name of the license key.

Item in License Key	Explanation
rational	The name of Rational's license server daemon. It is defined for both floating and node-locked licenses.
1.0	The license key release number.
31-dec-1999	The license key expiration date. License keys with the string "permanent" or "1-jan-0" in this field do not expire.
uncounted	The license count field. Node-locked products on Windows have "uncounted" in this field.
3665A1B59899	The license key code. This code is specific to all the information in the license key with the exception of the value of the "vendor_info" field. The key becomes invalid if any of the information in the key is changed (with the exception of the vendor_field).
VENDOR_STRING	Allows the vendor to encrypt vendor-specific information into the key.
3121-8470 NodeLocked Clear Quest:1.1,RequisitePro:4.0, soda_word:3.5,Rose_enterprise_windows:6.0,TestFactory:7.1,Robot:7.1,TestManager:7.1,LogViewer:7.1,VisualPureCoverage:6.0,PurifyNT:6.0,VisualQuantify:6.0,UnifiedProcess:5.1	The value of the VENDOR_STRING for a Rational Suite Enterprise license. 3121-8470 represents the product part number; "node-locked" indicates the product is node-locked. The remainder of the VENDOR_STRING value lists the Suite point products.
DISKID=14760cf6	By default this is the diskid of the host machine on Windows systems.
SUPERSEDE	All Rational license keys include this option. Tells FLEXlm to use the most recent INCREMENT line in situations where two license keys with the same INCREMENT name appear in the same license file.
vendor_info="43999S-0-728 Rational Suite Enterprise 1.0 1.0 "	The customer's account number and the product are defined in this field. These values are not encrypted into the license key code.

Item in License Key	Explanation
ISSUED=23-Jun-1999	Defines the date on which the license key was encrypted by Rational.
NOTICE="EBIZ Company"	Defines the customer's company name.

Floating License Key for Windows

```
INCREMENT AnalystStudio rational 1.0 02-mar-2000 2 D292AB08B025 \
  VENDOR_STRING="3121-08471|Floating|0|ClearQuest:1.1, \
  RequisitePro:4.0, soda_word:3.5, rose_modeler_windows:6.0, \
  UnifiedProcess:5.1" OVERDRAFT=0 SUPERSEDE DUP_GROUP=UH \
  vendor_info="999999-0-999|Rational Suite AnalystStudio \
  1.0|<B.0.V.>" ISSUED=31-aug-1999 NOTICE="EBIZ Company" ck=88
```

Where:

Item in License Key	Explanation
INCREMENT	Tells FLEXlm that the information that follows defines a license key.
AnalystStudio	Defines the FLEXlm "feature name". FLEXlm uses this value as the name of the license key.
rational	The name of Rational's license server daemon. It is defined for both floating and node-locked licenses.
1.0	The license key release number.
02-mar-2000	The license key expiration date. License keys with the string "permanent" or "1-jan-0" in this field do not expire.
2	The license count field. The FLEXlm server allows two users to use this license at one time because the value of the field in this example is "2".

Item in License Key	Explanation
D292AB08B025	The license key code. This code is specific to all the information in the license key with the exception of the value of the "vendor_info" field. The key becomes invalid if any of the information in the key is changed (with the exception of the vendor_field).
VENDOR_STRING	Allows the vendor to encrypt vendor-specific information into the key.
3121-08471 Floating 0 ClearQuest:1.1,RequisitePro:4.0,soda_word:3.5,rose_modeler_windows: 6.0,UnifiedProcess:5.1	The value of the VENDOR_STRING for a Rational Suite Enterprise license. 3121-8471 represents the product part number, "floating" indicates the product is node-locked. The remainder of the VENDOR_STRING value lists the Suite point products.
OVERDRAFT	Defines the number of licenses FLEXIm allows the customer to use when the license pool for that feature has been exhausted. The value of the OVERDRAFT field is "0" for all floating products.
SUPERSEDE	All Rational license keys include this option. Tells FLEXIm to use the most recent INCREMENT line in situations where two license keys with the same INCREMENT name appear in the same license file.
DUP_GROUP=UH	Defines the configuration in which FLEXIm allows the user to run multiple sessions with the license key. The value UH allows the same user on the same host to run multiple instances of Rational Analyst Studio with a single license key.
vendor_info="999999-0-999 Rational Suite AnalystStudio 1.0 <B.0.V.>	The customer's account number and the product are defined in this field. These values are not encrypted into the license key code.
ISSUED=31-aug-1999	Defines the date on which the license key was encrypted by Rational.
NOTICE="EBIZ Company"	Defines the customer's company name.

Other Common License Key Types not Used by Rational

The information below describes common FLEXlm options that other software vendors commonly include in their FLEXlm implementations. Rational chose not to use these options because they did not meet a specific license enforcement need.

FEATURE

FLEXlm allows license keys to be defined using the FEATURE option instead of INCREMENT. Rational uses INCREMENT instead of FEATURE because INCREMENT supports multiple license keys with the same name in the license file. Rational does not ship license keys using FEATURE.

UPGRADE

Rational does not use the UPGRADE feature in the INCREMENT line. To define upgraded products, Rational uses a combination of INCREMENT and SUPERSEDE.

SUITE

Rational does not use the SUITE option to define Rational Suite license keys. Suite point products are defined using the VENDOR_STRING in the Rational Suite INCREMENT lines.

Server Setup

This section explains each line used to set up a server, and what you need to configure different server setups.

The FLEXlm SERVER line

A typical Rational FLEXlm SERVER line is similar to the example below:

```
SERVER      curley  DISKID=123123
```

Item in SERVER Line	Explanation of Item
SERVER	Tells FLEXlm that the license file will be used for floating or counted node-locked licenses. This is needed in a floating license file along with a VENDOR or DAEMON line.
curley	The hostname of the license server machine. FLEXlm allows the license server's hostname or IP address to populate the hostname field in the SERVER line. Rational also allows both values. The hostname value is not encrypted into floating license keys.
123123	The diskid of the license server machine. The default value is the diskid of the user's boot drive. The DISKID value is encrypted into floating license keys.

TCP/IP Port

FLEXlm allows the vendor to specify a default TCP/IP port on the SERVER line after the DISKID field. The TCP/IP port is used for client/server communication for floating licenses.

Rational does not specify a port in the SERVER line; instead, the default FLEXlm port of 27000 port is used. However, Rational supports specifying a TCP/IP port by manually adding the port number to the SERVER line after the DISKID field.

Note that if you specify a unique TCP/IP port in the SERVER line of the license file, you need to update the client's `rational_redirect.dat` file to reflect the same value.

The FLEXlm DAEMON or VENDOR line

Rational specifies the path to the `rational.exe` vendor daemon using the FLEXlm DAEMON line. Rational also supports specifying the path to the FLEXlm options file on the DAEMON line after the path to the vendor daemon.

A typical Rational DAEMON line for Windows appears as:

```
DAEMON rational "D:\Rational\common\rational.exe"
```

Where:

Item in DAEMON Line	Explanation
DAEMON	Tells FLEXlm that the vendor's license daemon name and path are specified in this line.
rational	The name of Rational's license server daemon. Both floating and node-locked licenses have this value defined in the DAEMON string.
D:\Rational\common\rational.exe	The path to Rational's FLEXlm server executable. The default value is: <rational_directory>\ common\rational.exe

The License Manager Daemon (lmgrd) and the Vendor Daemon

FLEXlm uses two daemons (or processes) to manage floating licenses:

- `lmgrd`, the license manager daemon
- The "vendor daemon"

The `lmgrd` daemon and the vendor daemon work together to manage the license keys.

The `lmgrd` daemon handles the initial contact with the client application programs, passing the connection on to the appropriate vendor daemon. It also starts and restarts the vendor daemons.

The vendor daemon is a program developed by the software vendor implementing FLEXlm. The vendor daemon keeps track of how many licenses are checked out and who has them. Rational's vendor daemon (called `rational.exe`) is customized to behave in a specific manner. Other vendors may customize their vendor daemons to behave differently.

lmgrd Versions

Rational currently ships `lmgrd` version 6.1 or later with Rational Common Licensing on Windows and FLEXlm 6.0 or later with UNIX products. FLEXlm allows the end user to replace the `lmgrd` version with a more recent version of `lmgrd` (you can download the latest version from the GLOBEtrrotter Web site), and Rational supports this configuration.

lmgrd as a Windows NT Process

By default, the Rational FLEXlm server on Windows starts as a Windows NT *process*, and not as a Windows NT *service*. See the next section for more details.

lmgrd as a Windows NT Service

Rational supports running `lmgrd` as a Windows NT service, as follows:

- 1 Select **Start > Settings > Control Panel** and double-click the FLEXlm License Manager icon.
- 2 Select **Use NT Services** on the Setup tab and click **Apply**.
- 3 You can also elect to start the server automatically upon reboot by selecting **Start Server at Power-Up** and clicking **Apply**.

Although this configuration is currently not the default, it is recommended and supported.

- 4 Click **OK** when you are finished.

Multiple lmgrd Daemons Running on One System

You may need to configure your license servers to serve Rational products and non-Rational products that are all licensed using FLEXlm. In these cases, you will need to manage multiple vendor daemons. Each vendor daemon requires that an `lmgrd` daemon be running in order to operate.

In this case, you have two choices:

- You can run a separate `lmgrd` daemon for each vendor daemon (recommended). By default, Rational installs and runs a separate `lmgrd` daemon.
- You can configure a single `lmgrd` daemon to communicate with multiple vendor daemons.

Important Technically, FLEXlm supports both configurations. **However, Rational and GLOBEtrotter recommend running a separate `lmgrd` instance for each vendor daemon.** Configuring the system to use a single `lmgrd` daemon offers you no advantage over running separate instances (that is, Rational's default configuration), and only results in additional work for you.

The FLEXlm License File

The license file is a text file that stores the license keys. Rational creates the license file; it is installed when you install either a node-locked product or the FLEXlm license server.

Combining License Files

You may need to configure your license server to serve Rational products and non-Rational products that are all licensed with FLEXlm. In these cases, you will likely have been given a license file for each vendor daemon.

If the `SERVER` lines for each license file have the same hostname and `hostid`, the license keys in each license file can be combined into a single license file with multiple `DAEMON` lines. FLEXlm supports this configuration.

However, Rational and GLOBEtrotter recommend keeping the license keys in separate files.

Example 1: You may have a FLEXlm server for a product called “MyProduct.” We recommend that you keep the license files separate. The SERVER and DAEMON lines for each vendor are as follows.

Rational’s license file:

```
SERVER      goofy DISKID=12345666
DAEMON      rational  "C:\rational\common\rational.exe"

INCREMENT  (for Rational license key)
```

MyProduct’s license file:

```
SERVER      goofyDISKID=12345666
DAEMON      MyProduct
              "C:\myproduct\licensing\obj\myproduct.exe"

INCREMENT  (MyProduct license key)
```

Example 2: You may want to combine license files for floating Rational permanent keys and floating Rational evaluation keys.

Permanent license file:

```
SERVER      goofy DISKID=12345666
DAEMON      rational  "C:\rational\common\rational.exe"

INCREMENT  (for permanent license key)
```

Evaluation license file:

```
SERVER      goofy DISKID=ANY
DAEMON      rational  "C:\rational\common\rational.exe"

INCREMENT  (for evaluation license key)
```

In this case, you cannot combine the license files because the values for the DISKIDs in each SERVER line are different. You must keep these keys in separate license files.

Running Multiple FLEXlm Servers on the Same Machine

You may need to install Rational's FLEXlm server on a machine that is currently running FLEXlm for another vendor (company). This is a supported configuration and should work without incident if configured properly.

When running multiple FLEXlm servers on a single host, you need to consider three items: the `lmgrd` process, the vendor daemon, and the vendor license file. Each standalone FLEXlm server uses those three integral items.

The `lmgrd` daemon communicates with the vendor daemon which uses the vendor license file.

To run multiple FLEXlm servers on a single host, Rational recommends that you install the Rational FLEXlm server without combining `lmgrd` daemons or license files with the other vendor. To do this, install the FLEXlm server from the Rational CD.

There is no need to combine `lmgrd` daemons. Technically, FLEXlm supports combining `lmgrd` daemons, **however, Rational and GLOBEtrouter recommend running a separate `lmgrd` instance for each vendor daemon.** Configuring the system to use a single `lmgrd` daemon offers no advantage over running separate instances (Rational default configuration) and only results in additional work for your license server administrator.

There is also no need to combine license files. Refer to "Combining License Files" on page 54 for additional information.

The FLEXlm Options file

Rational's current implementation of FLEXlm provides the least restrictive licensing environment possible. By default, the server does not restrict access to any client requesting a license key. This configuration works best for most customers.

If you want a more controlled floating license environment, you can use the FLEXlm options file to reserve or deny licenses for certain users, hosts, displays, groups, or IP addresses. You can also limit the number of licenses each user or group can access.

Rational supports using the FLEXlm options file with Rational Suite 1.1 and higher. Please note this applies only to floating licenses.

Setting up the FLEXlm Options File

To use FLEXlm options, create a text file, `rational.opt`, in the `<rational flexlm dir>\common` directory. Restart the FLEXlm server in order for the server to recognize the file or any changes made to it.

Details on FLEXlm options are located on the GLOBEtrrotter Web site at <http://www.globetrotter.com/chap6.htm>.

FLEXlm Options File Examples

This section gives two simple examples of how the FLEXlm options file can be used.

Example 1. You may have 10 floating licenses of Rational ClearQuest. You want to ensure that users Greg and Peter always have a license of ClearQuest available for their use. Set up the FLEXlm options file as follows:

```
RESERVE      1  ClearQuest  USER  greg
RESERVE      1  ClearQuest  USER  peter
```

Where:

Item in Options File	Explanation
RESERVE	Tells the FLEXlm server to reserve a license
1	Is the number of licenses to reserve
ClearQuest	Is the name of the license to reserve
USER	Tells FLEXlm to reserve a license for a specific user id
greg	Is the userid for which the license will be reserved

Example 2: You have 10 floating licenses of Rational ClearQuest. You want to ensure that user Bob does not have access to a ClearQuest license. Set up the FLEXlm options file as follows:

```
EXCLUDE          ClearQuest  USER      bob
```

Restart the FLEXlm server after you modify the license file.

FLEXlm Redundant Servers

FLEXlm license servers can be set up to run in a fault-tolerant configuration known as *redundant servers*. Redundant servers are a system of three FLEXlm servers that work as a team to manage a single pool of floating license keys. If one of the server machines goes down, the other two license servers automatically continue managing the license pool.

Example: You have purchased 25 floating licenses of Enterprise Suite and wish to set up a redundant server configuration. You request permanent keys for the redundant servers using the License Key Administrator (available in Rational Suite) and install FLEXlm on each of the three redundant server partners; machines A, B, and C. These three servers work as a team to manage all 25 floating licenses in unison. Now suppose you have 20 license keys checked out to your users and machine A crashes. Machines B and C continue to manage the 25 licenses. The recovery effort is completely transparent to the end users who have the 20 licenses checked out.

Caution It is a common misperception that separating redundant server partners across multiple sites (for example, one partner in Munich, one in London, one in Paris) provides maximum fault tolerance. This is not the case. Redundant server partners should always be at the same site and on the same subnet.

Rational supports redundant servers on Windows systems only.

Client Configuration

License Server or License File Specification

The hostname of the license server or license file is written to the file `rational_redirect.dat` in the `<rational>\common` directory on the client. Rational does not use the `LM_LICENSE_FILE` option to specify the location of the license source.

LM_LICENSE_FILE

Rational Common Licensing on Windows does not use the `LM_LICENSE_FILE` variable to specify the location of a license server or file.

Specifying Multiple Servers in Serial

You may want to specify multiple license servers in serial. Example: You want to configure a client to acquire a license key from server A. If there are no available licenses on server A, you want the software to automatically request a license key from server B. This configuration is not possible with the current Rational licensing implementation.

Special Configurations

Windows Clients Using UNIX Servers

This configuration works and is supported by Rational. Before setting up this configuration, please read the information below.

Although this configuration has been tested and works, Rational Common Licensing was not specifically designed to support the case where a FLEXlm server on a UNIX machine serves licenses to Rational products on Windows platforms. Setting up this licensing environment requires manual intervention as outlined below.

The items below outline the steps to take to set up this configuration. These items are not specific instructions but are guidelines.

- 1 Install a Rational FLEXlm server on the UNIX machine.
- 2 Install a FLEXlm server on a Windows machine. The server does not need to be configured to serve licenses, but the server software must exist on a Windows machine to complete the next step.
- 3 Run the LKAD (Rational Suite 1.5 required) on the Windows machine in proxy mode and request license keys for the Windows products that will be served from the UNIX server.
- 4 When the Rational Back Office fulfills the license request, edit the license file on the UNIX license server and add the keys for the Windows products.
- 5 Restart or refresh the UNIX FLEXlm server using the `lmutil lmreread` command.
- 6 Install the Rational products on the Windows clients and configure them to acquire license keys from the UNIX server.

Rational recognizes the importance of supporting this configuration and is working to provide better tools and processes for making this configuration easier to use.

Firewalls

Rational's FLEXlm implementation is supported with a firewall. As with any FLEXlm server, the Rational daemon must be given a specific TCP/IP port to run on. You can do this by specifying a TCP/IP port number on the DAEMON line after the path to the Rational vendor daemon executable:

```
SERVER <hostname> <lmgrd port number optional>
DAEMON rational <path to rational.exe> port=<port number>
```

Example:

```
SERVER server1
DAEMON rational C:\rational\common\rational.exe port=5566
```

The `lmgrd` port number and the vendor daemon port number can each exist without the other. However, if you use both ports, do not set them to the same value.

Disconnected Use of Floating Licenses

Rational does not currently support disconnected use of floating licenses. Disconnected use involves acquiring a floating license on a laptop, disconnecting from the network, then using the software (with the borrowed license) remotely. This configuration is also known as license borrowing.

Rational is currently working to provide a solution. To request this feature, please contact Rational's Licensing Product Manager. As a workaround, you can use node-locked licenses for this situation.

Home Use

If you buy a seat of software for a machine at your workplace and you want a second seat of software for use on your system at home, you must purchase an extra copy of the software.

Rational Products and Windows Terminal Server, Citrix, and Windows 2000 Server

- These platforms are not supported with the current version of Rational Suite. The standalone products Rational Rose and Rational RequisitePro do install and run on these systems.
- Rational Suite and all standalone products on the Rational Solutions for Windows CD can be installed and run on these platforms if the software is installed and used on the server. Rational Rose2000 and Rational SoDA for Word run in a remote session with floating license keys only.

Networking Configurations

WAN Support

Rational floating licenses can be used over a wide area network if this is in compliance with the geographical allowance of the License Agreement.

If you choose to run licenses over a WAN, be aware of how your systems resolve hostnames. Rational recommends, but does not require, that you always use the fully qualified domain names in the SERVER line and on the clients. This technique tends to reduce the number of issues with hostname resolution.

Novell Support

Rational's FLEXlm implementation does not support Novell Netware 5.0 or later directly with floating licenses. Rational floating licenses can be used in a Novell 5.0 environment that is configured with TCP/IP and/or IPX.

Node-locked licenses with Novell 5.0 are supported.

Diagnostics

lmtools

The `lmtools` application from GLOBEtrotter is designed to help diagnose FLEXlm issues. It is available on Windows only. Rational installs this application with all products in the `<rational>\common` directory. If the FLEXlm license server is installed, you can use the License Tools **Start** menu shortcut to the `lmtools` GUI.

lmutil

By default, Rational installs the `lmutil` program in the `<rational>\common` directory. `lmutil` is fully supported with Rational's implementation and has a number of useful options. More information can be found at <http://www.globetrotter.com/chap7.htm>.

lmreread

The `lmutil lmreread` command is a supported option that forces the FLEXlm server to source the license file without having to shut down the server. This allows systems administrators to make changes to the license file without stopping and restarting the server.

License Monitoring

You may need to monitor and report on license usage. GLOBEtrotter offers a robust solution for license usage reporting called SAMreport. SAMreport is designed specifically for reporting on FLEXlm server activity. SAMreport offers a full set of administrative tools that generates reports, graphs, high-water marks, and even sets alarms to notify individuals when a server has gone down or the license pool is nearly exhausted. SAMreport works with any vendor's FLEXlm server, not just Rational's. It is available only through GLOBEtrotter. Detailed information on SAMreport can be found at: <http://www.globetrotter.com/samreport.htm>.

Common Licensing Configurations

Node-locked license key in a file; Windows client

This configuration is fully supported by Rational and the License Key Administrator (LKAD) as of Rational Common Licensing 1.0.

Node-locked license key in a file; UNIX client

This configuration is fully supported by Rational and with Rational Common Licensing 1.0 and beyond.

FLEXlm server and Rational products installed on a single Windows system

This configuration is fully supported by Rational and the LKAD as of Rational Common Licensing 1.5.

FLEXlm server and Rational products installed on a single UNIX system

This configuration is fully supported by Rational Common Licensing 1.0.

Floating licenses with Windows redundant license servers; Windows clients

This configuration is fully supported by Rational and the LKAD as of Rational Common Licensing 1.5. Rational does not support counted or uncounted node-locked licenses in this configuration.

Floating licenses with Windows redundant license servers; UNIX clients

This configuration is not yet officially supported by Rational.

Floating licenses with UNIX redundant servers; UNIX clients

Redundant servers are not supported on UNIX platforms as of Rational Common Licensing 1.5. This support is planned for a future release.

Floating licenses for UNIX products. Licenses to be served from a Windows FLEXlm server

This configuration is not yet officially supported by Rational.

Floating licenses for Windows products. Licenses to be served from a UNIX FLEXlm server

This configuration is supported with Rational Common Licensing 1.5. See section 4.5.1 for details.

6

Troubleshooting Licenses

This chapter provides troubleshooting examples based on questions commonly asked about licensing. An alphabetical list of error messages and possible solutions is in Table 6, *Back Office Error Messages*, on page 67, and in Table 7, *Licensing Error Messages*, on page 70.

Node-locked Licenses

What exactly is a node-locked license? How many users does it support at one time? Altogether? Does each additional user cost as much as the first?

A node-locked license supports a single user on a single system. Contact your Rational Sales office for information about pricing for node-locked licenses.

Does the node-locked software use the IP address as the hostid? We have DHCP using Windows NT and the software is Rational Rose 98i.

Node-locked licenses use the diskid for the licensed system, not the IP address. Using DHCP or static IP addresses does not affect your Rational Software licenses.

Does a change in the IP address and internet address affect the node-locked license?

Node-locked licenses use the hostid of the computer for the licensed system. Therefore, a change in the IP address or a change in Internet address does not affect your Rational Software license. However, you should notify Rational Licensing Support if the Internet address of the license contact has changed.

License Key Administration

Can we request permanent license keys without entering a temporary key?

Yes, you can use the Rational License Administrator to request permanent license keys without first installing your temporary licenses.

How long does it take to obtain the license key? When we reinstall an OS on a machine, the user has to request the deletion of the license key for each product. If we want to move the license to another machine, then it would first have to be deleted through a request to Rational, and then we would have to request the license key again from the new machine. What would happen if I did a clean install of the operating system, on my machine (which would wipe out all the license keys currently on it), without deleting the license key first? Would it be easy to obtain a new license key or a replacement for this key?

The request for move and for a new license usually takes no longer than your initial license request, as long as you have all the information filled out correctly and pick the right product. The whole process for moving a license key takes less than 10 minutes.

If you install a new version of the operating system or initialize the disk where your license keys are stored, you can request a replacement license key from Rational. Contact Rational Licensing Support for assistance.

Does an administrator handle all the details of requesting and deleting the license keys?

Yes. A system administrator installs the FLEXlm License Server software on a license server system and manages the license keys on that system.

For a floating license, you or your administrator need to set up the server by installing GLOBEtrouter FLEXlm License Manager on it. Then request your permanent license key from the server system.

Error Messages

Table 6, Back Office Error Messages, lists Back Office error messages and their solutions. The Back Office is an automated system that manages the supply of license keys and supplies them in response to license key requests.

Table 6: Back Office Error Messages

Message or Condition	Description and Action
EMAIL ADDRESS REQUIRED FOR LICENSE AND RENEWAL CONTACT Please enter a valid email License Contact and/or a valid email Renewal Contact.	Enter the email address under License Contact, then re-send your license request.
ERROR IN CREATION OF RENEWAL ADDRESS. The following Oracle error occurred: ORA-01536: space quota exceeded for tablespace 'VANINDEX'. Please contact Rational. Error in creating Reg Product: 3121-08626, requested license quantity not available with customer. Please contact Rational.	This is a Rational internal error. Resubmit your request later. If the problem persists, contact Rational Licensing Support.
ERROR IN CREATION OF UPGRADE ADDRESS The following Oracle error occurred: ORA-01536: space quota exceeded for tablespace 'VANINDEX'. Please contact Rational.	This is a Rational internal error. Resubmit your request later. If the problem persists, contact Rational Licensing Support.
ERROR IN LICENSE CONTACT, MULTIPLE LICENSE CONTACTS FOUND Please contact Rational.	Rational's records for your account shows multiple entries for the license keys that you requested. Contact your Rational Sales Office for assistance.
ERROR IN SYSTEM CREATION The following Oracle error occurred: ORA-00001: unique constraint (SWB.RSSYSTEM04) violated. Please Contact Rational.	This is an internal Rational error. Resubmit the license request. If the error occurs again, contact Rational License Support.

Table 6: Back Office Error Messages (Continued)

Message or Condition	Description and Action
<p>ERROR WHEN USING 9999 AS A QUANTITY FOR LICENSE KEY REQUEST</p> <p>Your email reference number for this request is 7496 for 4124US-0-728. The quantity 9999 requested for product 3121-08626 exceeds the available amount. Please re-submit your request with a reduced quantity or please contact the Licensing Support group for your area. Please see the License Administrator Online Help file for contact information.</p>	<p>You used the default value in the License Key Administrator for your license key request. Provide the appropriate number of license keys, as specified on your License Key Certificate, and resubmit the request.</p>
<p>FLOATING LICENSES NOT AVAILABLE</p> <p>Your email reference number for this request is <i>nnnnn</i> for <i>nnnnnn-n-nnn</i>. According to our records, the product requested, part number <i>nnnn-nnnnn</i> <product-name> of license type Floating, has not been purchased for Rational Account Number <i>nnnnnnnn</i>. Please choose another product and resubmit a new request. In order to resubmit a new request you will need to delete your existing pending request. In order to do so, please launch the License Key Administrator. Go to the License Keys(s) tab. Click on the pending request line.</p>	<p>You are requesting a type of license that you have not purchased. Review the License Key Certificate to confirm the type of license key you have purchased. If you have further questions about the type of licenses you have purchased, contact your Rational Sales Office.</p>
<p>INVALID HOSTID</p> <p>See URL. Please specify the correct Host ID and send again.</p>	<p>Your license key request contained an invalid or missing hostid. You may have initialized your system disk and the system disk does not have a unique ID.</p>

Table 6: Back Office Error Messages (Continued)

Message or Condition	Description and Action
<p>PRODUCT NOT REGISTERED FOR YOUR COMPANY Your email reference for this request is <i>nnnn</i> for <i>nnnnn-n-nnnn</i>. The product requested, Part #: <i>nnnnn-nnnnn</i> is not registered for your company.</p>	<p>When you submitted your license request, you selected a product that your company has not purchased. In the License Key Administrator, right-click on the pending request to delete it. Then submit a new license request with the correct product.</p> <p>If you believe that your company has purchased the product for which you are requesting a license, contact the Rational Licensing support group for your area for further assistance; see <i>Contacting Rational Licensing Technical Support</i> on page 13.</p>
<p>QUANTITY NOT AVAILABLE Error in creating Reg Product: 3121-08478, requested license quantity not available with customer. Please contact Rational.</p>	<p>Your system requires more licenses than you currently have; check the number of licenses available to you.</p>
<p>RATIONAL SOFTWARE LICENSING SYSTEM IS TEMPORARILY UNAVAILABLE Please try again later or you can contact us directly. Please see the License Administrator Online Help file for contact information.</p>	<p>The Back Office is down. Try again later. To contact Licensing Support, see <i>Contacting Rational Licensing Technical Support</i> on page 13.</p>
<p>REQUEST EXCEEDS THE AVAILABLE AMOUNT Your email reference number for this request is <i>nnnnn</i> for <i>nnnnnn-n-nnn</i>. The quantity 1 requested for product <i>nnnnn-nnnnn</i> exceeds the available amount. Please re-submit your request with a reduced quantity or please contact the Licensing Support group for your area. Please see the License Administrator Online Help file for contact information.</p>	<p>You have requested more license keys for this product than are available to you, based on the number that your company has purchased and already requested.</p> <p>Contact your manager or the person responsible for purchasing your licenses and confirm the number of license keys available for your use. If you have further questions, contact Rational License Support.</p>

Table 6: Back Office Error Messages (Continued)

Message or Condition	Description and Action
REQUESTED AN INCORRECT LICENSE KEY TYPE	You have requested and received a floating license for a product. You discover that a node-locked license is required. Contact your Rational Sales Office for assistance.
THERE ARE NO LICENSE KEY REQUESTS TO BE SENT	Confirm that there are pending license key requests in the License Key Administrator.

Note

Startup license key information is included with your Rational Suite software media kit. The startup license expiration date is noted on your startup license key certificate. For additional licensing information, see the Rational License Key Administrator online Help.

Table 7, Licensing Error Messages, lists licensing error messages and their solutions.

Table 7: Licensing Error Messages

Message or Condition	Description and Action
CANNOT FIND SERVER HOSTNAME Cannot find SERVER hostname in network database. The lookup for the hostname on the SERVER line in the license file failed.	When starting an application, you receive the following message: Failed to check out a <product-name> key: This often happens when NIS or DNS or the hosts file is incorrect. Workaround: Use IP-Address (for example, 123.456.789.123) instead of hostname. Confirm with your system administrator that you have access to the license server system that you specified on the Settings dialog box of the License Key Administrator.

Table 7: Licensing Error Messages (Continued)

Message or Condition	Description and Action
<p>HOSTID REQUIRED FOR UNCOUNTED FEATURE 29802.inc:line 1:Invalid parameter Context: DISK_SERIAL_NUM5d14e6 FLEXlm error: -42,298 29802.inc:line 1: "INCREMENT ClearQuest rational 1.1 permanent uncounted 28D89D739A6..." Hostid required for uncounted feature Invalid license file syntax FLEXlm error: -2,269</p>	<p>You receive FLEXlm errors when starting an application. (These errors are in the context of other messages.)</p>
<p>INVALID (INCONSISTENT) LICENSE KEY You must enter the temporary license key number EXACTLY as it is printed on the Temporary License Key Certificate. Your Rational account number should also be printed on this certificate.</p>	<p>When you enter a temporary license key number, you receive this message. Confirm that you are entering the license key information correctly.</p>
<p>INVALID OR INCONSISTENT LICENSE KEY FLEXlm error: Invalid (Inconsistent) license key The license-key and data for the feature do not match. This usually happens when a license file has been altered. Feature: <FeatureName> License path: C:\WINDOWS\TEMP\LICD120.TMP FLEXlm error: -8,130</p>	<p>Your license key certificate has been edited. Import the original license key that you received from Rational.</p>
<p>MUST RUN LICENSE ADMINISTRATOR TOOL TO REQUEST PERMANENT LICENSE User cannot run the License Key Administrator on an Windows NT 3.51 system.</p>	<p>See the installation instructions for your product to ensure that your system meets the operating system and hardware requirements.</p>

Table 7: Licensing Error Messages (Continued)

Message or Condition	Description and Action
<p>NO SUCH FEATURE EXISTS Failed to check out a <product-name> key.</p>	<p>The client is unable to obtain a floating license for the product. This can happen, for example, when the license server goes down before the license has been added to the server. Verify that you are pointing at the correct license server.</p>
<p>TEMPORARY LICENSE DIDN'T WORK Future license file format or misspelling in license file. The file was issued for a later version of FlexIm than this program understands. Feature: <product-name> License path: <path> FLEXIm error: -90,313</p>	<p>Contact Rational license support for assistance.</p>
<p>THE LICENSE FOR THIS PRODUCT WILL EXPIRE... The license for this product will expire in 29 days. If you are using a temporary key, please use the Rational License Key Administrator to request and install a permanent key. If you have a term license agreement (TLA) with Rational, please contact your Rational Sales Support team to renew the agreement. Click OK to run the product. If you are evaluating this product, please contact your nearest Rational Software Sales office. For a listing, please check http://www.rational.com.</p>	<p>Your startup license key is nearing its expiration date. To continue using the product, request a new permanent license key. The warning message appears each time you start the application until you install the updated license key.</p>

FLEXlm Server Questions

How do I identify who checked out a license?

It is possible to find who checked out or checked in which license and when the user did it. Select **Start > Settings > Control Panel**, then open the FLEXlm License Manager. The Setup tab contains a Debug Log File entry. Locate the file and open it in Notepad. This file displays the information.

How do I set up the license server?

The customer has not installed the GLOBEtrrotter FLEXlm License Manager on a computer that will act as a server.

A system administrator installs the FLEXlm License Server software on a license server system and manages the license keys on that system.

For a floating license, first set up a server by installing Globetrotter FLEXlm License Manager on it. Then request your permanent license key from the server system.

Hostid Questions

Why isn't Hostid ffffffff valid? ffffffff is the value listed in the hostid field in the FLEXlm License Manager.

When you initialized your disk, your disk did not receive a diskid. Rational's licensing services regards this value as invalid.

You can reset your diskid by using third-party disk utility tools such as those by Norton. Alternately, use your Ethernet card address instead of your diskid.

Changing file system from FAT to NTFS - why doesn't my diskid work? I changed my file system from FAT to NTFS, which changed my diskid. Could you please change my key to make it work again? I changed my system disk and licenses no longer work. I recently changed the disk on my PC and now <product> doesn't work.

```
"PurifyNT" v6.0, vendor: rational
uncounted nodelocked license, locked to Disk serial
number
"DISK_SERIAL_NUM=nnnnnn" no expiration date
This license cannot be checked out because:
Invalid host
The hostid of this system does not match the hostid
specified in the license file
Feature:          <product>
Hostid:           DISK_SERIAL_NUM=nnnnnn
License path:     C:\Program
Files\Rational\common\rational_perm.dat
FLEXlm error:    -9,57
```

Contact Rational License Support to obtain corrected license keys; see *Contacting Rational Licensing Technical Support* on page 13. In the future, see the topic “How do I move a license from one system to another?” in the License Key Administrator online Help.

Upgrades

Upgrades and startup license key expiration dates. We received two upgrade packets but chose not to upgrade immediately because we were in the middle of pre-release testing. The license key certificate says, however, that the key expires on <date>.

Contact your Rational Sales Office to obtain temporary license keys when you are ready to upgrade your system.

Requesting a License Key

How do I submit fax requests for license keys? Please give me the fax number to which I can send my request for permanent node-locked licenses. Not all team members have Internet or e-mail so requests need to be centrally controlled.

See *Contacting Rational Licensing Technical Support* on page 13 for the appropriate fax number.

Installation and Licensing

How do I install licensed software on a second disk? I have a second disk on my machine and I have requested a floating license for <product>.

You can install Rational software on the appropriate disk for your system. Review the online Help in the Rational Software Setup program. You can request license keys for your system, regardless of where your Rational software product is installed.

License Key Administrator Data Entry

What is my Rational Account Number (Primary)? I just downloaded the upgrade to <product>. I am now unable to run the software. I do not know my "Rational Account Number (Primary)" which is a required field in the Rational License Key Administrator.

Use the Rational Account number specified on your License Key Certificate.

How do I enter the issued date?

What is the format for the date in "Issued date" when requesting a license key?

DD-MMM-YYYY – 07-JUL-1999, for example.

Moving License Keys

How do I move a node-locked license mistakenly installed on a server to a client machine? We purchased two node-locked client licenses. I made a mistake and requested and installed one of the licenses on the database/repository server. I cannot install this license on the second client because it is machine-specific.

See the topic “How do I move a license from one system to another?” in the License Key Administrator online Help.

I'm trying to remove my node-locked license in order to install the license on another machine. How can I remove the current license installation?

See the topic “Requesting to remove a permanent or TLA node-locked license key” in the License Key Administrator online Help.

How do I transfer a license to another computer? I need to move the following license to another PC.

See the topic “How do I move a license from one system to another?” in the License Key Administrator online Help.

What does “The license was not intended for this server” mean? I tried to import a license key file and received a message that reported “The license was not intended for this server.”

You are trying to install the license key on a system other than the one for which the license key was generated. The `license.upd` file specifies the machine for which the license is intended; the key can be installed only on that machine. Check the mail header for the server name.

Technical Notes

The Rational Web site contains Technical Notes concerning licensing topics and issues. For example, you can use a Technical Note to find out how to:

- Set up floating licensing to use server's IP address instead of the hostname.
- Set up Rational Common Licensing on a system that has a third-party product using FLEXlm.
- Determine a Windows NT machine's FLEXlm hostid.
- Use the FLEXlm options file to exclude certain users.
- Troubleshoot the FLEXlm License Server Setup for floating licenses.
- Troubleshoot the FLEXlm License Server when it is not running and cannot be started.

New Technical Notes appear on a regular basis. Go to <http://www.rational.com>. Click **Technical Support**, then **Technical Notes** to see the Technical Notes page on the Rational Web site.

To see the Technical Notes listed under the “Licensing” topic, click the link to **Licensing**.

For Technical Notes related to licensing that are listed under the “Rational Suites” topic, go to the technical notes page and click **General** or **Rational Suite Enterprise**, under Rational Suite.

7

Additional Licensing Information

FLEXlm Technical Information

For a summary of questions regarding FLEXlm, see the FLEXlm FAQ file at <http://www.globetrotter.com>.

Licensing Messages

For a description of FLEXlm error messages, see the FLEXlm message documentation at <http://www.globetrotter.com/chap12.htm>.

Sample License Key File

For a detailed description of the license key file format, see the FLEXlm documentation at <http://www.globetrotter.com/chap3.htm>.

Note The FLEXlm documentation refers to the license key file as `license.dat`. Table 3, License Key Files, on page 32 lists the files used by Rational software licensing.

Windows Registry Information

This section describes the Windows Registry settings for Rational Software licensing.

Warning Use extreme caution when editing the Windows Registry! Incorrect edits can render your system unusable!

Windows Registry entries are located in:

HKEY_LOCAL_MACHINE\SOFTWARE\Rational Software\Licensing\1.0

Table 8: Rational Licensing Registry Entries

Key and Description	Default Value
UseLicenseServer Is this system using a license server to obtain its license keys?	FALSE
LicenseRequest Path of license request file	<Install Path>\common\rational_request.dat
LicenseTemp Path of temporary license key file	<Install Path>\common\rational_temp.dat
LicensePerm Path of permanent license key file	<Install Path>\common\rational_perm.dat
LicenseServer Path of file containing name of license server	<Install Path>\common\rational_redirect.dat
LicenseRequestAddress E-mail address for sending license requests to Rational	auto-licensing@rational.com
LicenseServerName Name of system used as a license server	
ClientInstalled Does this system have client software installed?	TRUE
ServerInstalled Is this system a license server?	FALSE

<Install Path> refers to the path specified during installation.
The default value is C:\Program Files\Rational.

Multiple License Server Processes

You can configure your license server system to support multiple configurations of both Rational and non-Rational products that use FLEXlm licensing.

The two products do share the DLL `lmgr326a.dll` in the system directory. The DLL is backward compatible, so there should be no disruption to either product if a newer version of the DLL is installed. By default, Rational Software Setup replaces any older versions of the DLL with the version on the Rational Solutions for Windows CD-ROM. If the DLL in the system directory is newer, it will not be replaced.

If you are using node-locked licenses, then there is minimal interaction between the licensing components of the two products. This is because Rational Common Licensing does not use the default FLEXlm license file, `c:\license.dat`, or the environment variable `LM_LICENSE_FILE`. All Rational Common license files are in `<Install Path>\common`.

If floating licensing is used for both the Rational product and the third-party product, you can minimize interactions by running the license servers for the two products as separate services. The Rational License Key Administrator does not support license files with multiple vendor tokens. Do not merge Rational license files with third party vendor files. Doing so may result in loss of third-party licensing information.

Some products using FLEXlm licensing may not provide the FLEXlm License Manager to their customers. In that case, there is even less interaction between the two applications; the only FLEXlm file shared by the applications is `lmgr326a.dll`. As long as the latest version of that DLL is in your system directory, you may proceed with standard setup for the FLEXlm License Manager, as outlined in “Configuring the License Server Software” on page 26.

If the third-party product also installs FLEXlm License Manager (`flexlm.cpl`) for management of its license server:

- 1 Set up third-party vendor licensing by following the instructions provided by that vendor.
- 2 Install Globetrotter's FLEXlm License Server. At this point, if the other vendor provided you with a version of Globetrotter's FLEXlm License Manager (the file `flexlm.cpl` in the system directory), it is replaced by the version provided by Rational.
- 3 In the Control Panel, open the FLEXlm License Manager.
- 4 On the Setup tab, check that the entries in the Service Name, `lmgrd`, and License File fields are appropriate for the third-party product that was previously installed.
- 5 Replace the name of the third-party FLEXlm service in the Service Name field with a name for the Rational FLEXlm service. You have now created a new FLEXlm service.
- 6 Enter the path to `lmgrd.exe`. The default path is `C:\Program Files\Rational\common\lmgrd.exe`. Do not use the same `lmgrd` executable provided by the third-party vendor because it may be older than the one provided by Rational.
- 7 Enter the path to your Rational floating license file. The default path is `<Install Path>\common\rational_server_perm.dat` or `rational_server_temp.dat`, depending on whether you have a permanent or temporary key installed.
- 8 Optionally, enter a path to a log file to store FLEXlm server output.
- 9 Go to the Licenses tab (before you leave the Setup tab, you will be asked to save your settings; click **Yes**). Click **Show License File** and confirm that the license file listed contains the Rational tokens you intend to serve with this license server.

You have now set up a separate license service for Rational products. You can manage this service through the FLEXlm License Manager, or through the Services applet if you have defined this license service as a Windows NT service. To shift the FLEXlm License Manager between the different license services, go to the Setup tab and select the appropriate service from the Service Name list.

Glossary of Licensing Terms

ANY-HOST

A license key issued for ANY-HOST will run on any system, and is not tied to the customer's system ID.

Back Office

An automated system that manages the supply of license keys and supplies them in response to license key requests.

Emergency Key

A temporary key that lets a customer use Rational software for a fixed period of time if they cannot use their own license for some reason. The duration of the Emergency Key is 5 days.

Emergency Keys can be node-locked or floating. Emergency Keys are distributed by the Licensing Support Group and run on any host.

Evaluation Key

A temporary key that lets a customer use and evaluate Rational software for a fixed period of time. Rational Software determines the duration of the Evaluation Key. Evaluation Keys can be node-locked or floating. Evaluation Keys are distributed by the Sales team and run on any host.

Floating License

A license type that links products to a License Server system. Client systems obtain licenses from the License Server system when they need to run a copy of Rational software. Multiple clients can share the pool of floating licenses; one license is granted per client per product. Floating licenses on License Servers are typically administered by System Administrators.

GLOBEtrrotter FLEXlm Server

Software license manager for Windows 95/98/2000, Windows NT, UNIX, Java, and VMS.

Key Type

Node-locked and floating licenses can be enforced by different types of license keys. The types of license keys are Startup and Permanent. Evaluation and Emergency keys are variations of Startup keys, and Term License Agreements (TLAs) are a variation of Permanent keys. Each type of key has different business rules and policies.

License

A legal right to use a product. A customer receives a license when they purchase the product. However, they need a License Key to actually associate the product and the system on which it is running with a license.

License Key

Generic term used in this document to describe keys that enable licenses on a customer system. The types of License Keys are: permanent, temporary, evaluation, emergency, and Term License Agreement (TLA).

License Key Administrator

A program written by Rational Software which provides a customer interface to Rational's Licensing system. The License Key Administrator is installed whenever a Rational software product is installed on a Windows system. For hosting floating licenses, the License Key Administrator is installed when the Globetrotter FLEXlm server is installed on a License Server system.

License Key Code

An encrypted code used to enforce a license agreement.

License Type

The valid types of licenses are node-locked licenses and floating licenses. See also **Key Type**.

LKAD

Stands for License Key Administrator.

Node-Locked License

A type of license that links a product to a system. Typically, one node-locked license is issued per software copy.

Permanent Key

A license issued to a customer for running Rational products. Permanent Keys have expiration dates that vary by product, but generally cover two product cycles. Permanent Keys can be node-locked or floating. Node-locked Permanent Keys are installed on a client system. Floating Permanent Keys are installed on a License Server system. Obtain Permanent Keys from the Rational Back Office.

Permanent Key Code

The FLEXlm encrypted code that lets a customer run a particular Rational product using a Permanent Key.

Temporary Key

A short-term license key that lets a customer run Rational software products. Temporary licenses are not keyed to a specific system. Temporary Keys can be node-locked or floating. Node-locked Temporary Keys are installed on a client system. Floating Temporary Keys are installed on a License Server system. Temporary Keys are issued by the Rational Back Office and run on any host until the specified expiration date.

Temporary Key Code

The FLEXlm encrypted code that lets a customer run a particular Rational product using a Temporary Key.

Temporary License Key Certificate

A piece of paper or an electronic file that contains information a customer needs to begin using Rational software with a license. The Temporary License Key Certificate is shipped to the customer with the software installation media.

Term License Agreements (TLAs)

Variation of a Permanent Key. TLAs are issued to a site to let their employees use Rational software for a negotiated period of time. TLAs are issued by Rational Sales and have an expiration date.

Vendor

A software supplier using the GLOBEtrotter FLEXlm license server. For example, Rational Software is a license server vendor.

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