# HP Remote Graphics Software

## Licensing Guide

# Acknowledgments

**HP Remote Graphics Software was developed using several third party products including, but not limited to:**

**OpenSSL:** This product includes software developed by the OpenSSL Project for use in the OpenSSL Toolkit (http://www.openssl.org/). This product includes software written by Tim Hudson (*tjh@cryptsoft.com*). This product includes cryptographic software written by Eric Young (*eay@cryptsoft.com*)

The HP Remote Graphics Sender for Windows uses Microsoft Detours Professional 2.0. Detours is Copyright 1995-2004, Microsoft Corporation. Portions of the Detours package may be covered by patents owned by Microsoft corporation.

This product includes software developed by the Apache Software Foundation (http://www.apache.org/).

Portions of this software were originally based on the following: software copyright (c) 1999, IBM Corporation, http://www.ibm.com.

Where required, related source code and licenses are re-distributed with HP Remote Graphics Software.

# About this guide

This guide might use one or more of the following styles to distinguish elements of text:

| Style | Definition |
|---|---|
| `<variable>` | Variables or placeholders are enclosed in angle brackets. For example, replace `<pathname>` with the appropriate path, such as `C:\Windows\System`. When typing the actual value for the variable, omit the brackets. |
| `[optional parameters]` | Optional parameters are enclosed in square brackets. When specifying the parameters, omit the brackets. |
| `"literal value"` | Command line text that appears inside quotation marks should be typed exactly as shown, including the quotation marks. |

# Table of contents

# 1    RGS licensing overview

This document describes licensing of HP Remote Graphics Software (RGS). RGS licensing applies to the RGS Sender only; the RGS Receiver can be used freely.

**NOTE:**    RGS does not require a license on HP desktop Z series workstations, HP EliteBook mobile workstations, or HP ZBook mobile workstations.

For detailed RGS information, see the latest version of the *HP Remote Graphics Software User Guide*, available at http://www.hp.com/go/rgs. This website may also contain a more recent version of this licensing guide.

RGS Sender licensing is based on a license key that is obtained from HP after your purchase of RGS. The license key is saved in a license key file, which is checked each time an RGS connection is established.

You can download, install, and run the RGS Sender to verify connection without a license key file. If the license key file is missing or invalid, you will still be able to view and interact with the remote desktop, but a dialog will be displayed in your viewing window indicating that the RGS Sender is unlicensed.

## License types

The following RGS license types are available:

- **Local license**—A local license key file must be stored on each computer running the RGS Sender. The following local license types are available:

  - **Standard license**—This license type fully activates a single instance of the RGS Sender on any supported computer.

  - **HDI license**—This license type for HP Moonshot follows the same installation process and functions the same as the standard license, but it can only be used for HP Moonshot systems.

    **NOTE:**    The license file is good for a single HP Moonshot 1500 Chassis, but it must be installed on each server within the system.

  - **Trial license**—HP also offers a free, 60-day trial license for the RGS Sender.

- **Floating license**—Floating licenses are stored on a license server. This license type is ideal for deployments with many potential RGS users but limited simultaneous use. Licenses are checked out on a concurrent-use basis up to the number purchased. A more detailed explanation of floating licenses may be found in Floating licenses on page 2.

For information on downloading RGS and purchasing a license, go to http://www.hp.com/go/rgs.

**NOTE:**    Except for the 60-day trial license, RGS licenses never expire. However, a new license purchase is required to upgrade to a newer major version of RGS. For more information, see RGS license policy on page 3.

# Floating licenses

With floating licenses, a pool of RGS licenses is purchased. These licenses are dynamically allocated on a first-come, first-served basis whenever an RGS Receiver attempts to connect to an RGS Sender. A floating license is checked out when a connection is established to the RGS Sender and is checked in when the connection terminates.

If multiple RGS Receivers are connecting to a single RGS Sender (for example, when conducting a collaboration session), only one license is consumed by the RGS Sender—when the first RGS connection is established.

Floating licenses allow a company to purchase, for example, 75 licenses, but support a user community of perhaps hundreds of users, as long as no more than 75 users ever attempt to establish connections with separate RGS Senders simultaneously.

Floating licenses require a license server, which can be installed on one of the computers running the RGS Sender, or the license server can be installed on a separate computer. The RGS product includes a `Setup.exe` file that installs the FLEXnet license server. For installation information, see Installing and configuring the FLEXnet license server on page 6.

# RGS version number

The RGS version number contains the three components shown in Figure 1-1 RGS version number components on page 2.

**Figure 1-1**  RGS version number components
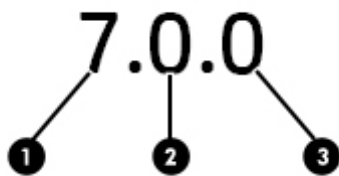


**Table 1-1**  RGS version number components

| 1. | **Primary release number**—A primary release contains sufficient changes such that interoperability with the prior primary release is not guaranteed. For example, RGS Sender version 6.x.x is not guaranteed to interoperate with RGS Receiver version 7.x.x. |
| --- | --- |
| 2. | **Minor release number**—Minor releases introduce new RGS features and functionality. Minor releases will also include (roll up) the changes in any prior patch releases. |
| 3. | **Patch release number**—Patch releases are generated only for a security issue or for a major defect in a feature. A patch release is indicated by this number being non-zero. |

**NOTE:**    Each release of RGS is a complete release of the entire product, regardless of which components have changed.

# License version date

Each release of RGS has a license version date that is used by the RGS licensing mechanism. For example, the RGS 7 license version date is April 1, 2014, which is formatted **2014.0401** (YYYY.MMDD). Viewing the license version date might assist in troubleshooting any licensing issues.

To view the license version date:

1.  Right-click the RGS Sender icon in the Windows notification area, and click **About**.

2.  Locate the line **License Version Date** like in the following example:

    ```
    License Version Date: 2014.0401
    ```

> **NOTE:** The license version date should not be confused with the build date. The build date is not used by the RGS licensing mechanism.

# RGS license policy

You are only required to purchase a new license for RGS when the version date changes, and the version date only changes for primary releases, such as RGS 6.0 or RGS 7.0. Therefore, when you purchase a license for RGS, you are entitled to free upgrades to all future minor and patch releases.

For example, if you purchased an RGS 6 license, you are entitled to free upgrades to versions 6.x.x. However, you would have to purchase a new license to upgrade to RGS 7.

> **NOTE:** RGS licenses also work with older versions of RGS. For example, an RGS 7 license can be used with RGS 6.

The following table demonstrates example RGS version numbers and license version dates.

> **IMPORTANT:** The values in this table might not match actual releases of RGS.

**Table 1-2** RGS version number and license version date examples

| RGS version number | Release type | License version date |
| --- | --- | --- |
| 7.1 | Minor release | 2014.0401 |
| 7.0.1 | Patch release | 2014.0401 |
| 7.0 | Primary release | 2014.0401 |
| 6.1 | Minor release | 2013.0113 |
| 6.0.1 | Patch release | 2013.0113 |
| 6.0 | Primary release | 2013.0113 |

# 2 Installing a local license key file

This chapter describes how to install a local license key file.

## Configuring the RGS Sender to access a local license key file on Windows

The RGS Sender can be configured to access a local license key file either during installation or after installation.

### Configuration during RGS Sender installation

During RGS Sender installation (as described in the *HP Remote Graphics Software User Guide*), you'll be presented with a dialog that asks you to install the RGS Sender license. For local licenses, select **Install a license file on this system**, and click **Next**.

Browse to the location where you saved your license key file, select it, and click **Open**.

> **NOTE:** License key files must end with the .lic suffix.

The license key file will be copied from the location you specified to the RGS Sender installation directory:

- For 32-bit Windows systems:

  `C:\Program Files\Hewlett-Packard\Remote Graphics Sender`

- For 64-bit Windows systems:

  `C:\Program Files (x86)\Hewlett-Packard\Remote Graphics Sender`

### Configuration after RGS Sender installation

If, during RGS installation, you select **I do not yet have a license file**, you can specify the location of the license key file post-installation in one of two ways.

The first way to specify the location of the license key file post-installation is to copy the license file into the RGS Sender installation directory:

- For 32-bit Windows systems:

  `C:\Program Files\Hewlett-Packard\Remote Graphics Sender`

- For 64-bit Windows systems:

  `C:\Program Files (x86)\Hewlett-Packard\Remote Graphics Sender`

The second way to specify the location of the license key file post-installation is by using the `LM_LICENSE_FILE` environment variable. To set this environment variable:

1. Click **Start > Control Panel > System**.

2. Click **Advanced system settings**, and then click **Environment Variables**.

3. Under **System variables**, click **New**—this opens the New System Variable dialog.

4. Enter the path to the local license key file. Multiple paths may be entered, separated by semicolons, such as:

   `C:\licenses;C:\backuplicenses`

   The RGS Sender will sequentially examine each folder from left to right until it finds a folder containing a valid local license key file.

📝 **NOTE:** If a license key file is specified and found during RGS Sender installation, it will be copied into the folder `C:\Program Files\Hewlett-Packard\Remote Graphics Sender` or `C:\Program Files (x86)\Hewlett-Packard\Remote Graphics Sender`, according to your operating system. License key files found in folders specified by the `LM_LICENSE_FILE` environment variable are not copied; they are read in-place.

If a license key file location is specified during RGS Sender installation and is also specified by the `LM_LICENSE_FILE` variable, the RGS Sender will look in both locations for a valid local license key file at startup.

# Configuring the RGS Sender to access a local license key file on Linux

For the RGS Sender on Linux to find the local license key file, it must be saved in this directory on the remote computer:

`/etc/opt/hpremote/rgsender`

# 3 Installing and configuring the FLEXnet license server

The FLEXnet license server is required only if you're using the HP RGS floating license.

## Before you install the license server

This section provides information to help you plan your installation of the FLEXnet license server.

- The 32-bit version of the FLEXnet license server for Windows is provided with RGS.

- A Linux version of the FLEXnet license server is available from HP. Please contact your HP sales representative if you need the Linux version of the FLEXnet license server.

**NOTE:** The FLEXnet license server included with RGS can be run only on Windows and Linux operating systems.

- The license server is usually installed on a computer other than one of the computers running the RGS Sender. However, nothing prohibits installing the license server on an RGS Sender computer.

- When the license server is active on Windows, the following processes will be running:
  - lmtools.exe
  - HPQ.exe
  - lmgrd.exe (x2)

    **NOTE:** Two separate lmgrd.exe processes will be running, one as a service.

**NOTE:** The FLEXnet license server for Linux has two associated processes, lmgrd and HPQ.

- The HPQ.exe "vendor daemon" interfaces with the RGS Sender and provides license server functions specific to HP, such as counting RGS floating licenses.

  **NOTE:** Other products, such as HP OpenView, also have a vendor daemon named HPQ.exe. The different HPQ.exe executables may not be interchangeable. Furthermore, only one HPQ.exe can execute at a time on the license server computer. Therefore, a single computer cannot run two FLEXnet license servers simultaneously.

- The RGS license does not support FLEXnet's three-server redundancy capability, also known as *triad license* servers.

- During license server installation, the FLEXnet administration utility, LMTOOLS, is installed. LMTOOLS provides a graphical user interface that allows you to administer the license server. See Using LMTOOLS on page 8.

## Installing the license server on Windows

To install the license server, perform the following steps:

1. Locate the FLEXnet installation executable, Setup.exe, in the following location in the RGS installation package:

   `win32/flexlm/Setup.exe`

2. Move the `Setup.exe` file to your license server computer.

3. Double-click **Setup.exe** to begin installation of the license server. If desired, change the installation folder to a different folder than the default folder `C:\Program Files\Hewlett-Packard \Remote Graphics FlexLM`. If the installation is successful, a dialog indicating **InstallShield Wizard Complete** will be displayed.

4. Next, the license server needs to be installed as a Windows service. To do this, run the `installs.exe` command (located in `C:\Program Files\Hewlett-Packard\Remote Graphics FlexLM`) from a Command Prompt window, with the options shown below.

   **NOTE:** These options, although shown on separate lines for clarity, are options to the `installs` command and need to be entered as a single command, even if the command spans multiple lines in the Command Prompt window.

   Full path names are required and, if a path name contains spaces, the path name must be enclosed in double quotes.

   ```
   installs –e "C:\Program Files\Hewlett-Packard\Remote Graphics FlexLM
   \lmgrd" –c C:\mylicenses\sample.lic –n "Myvendor License Manager"
   ```

   - `–e` needs to include the full path name to the `lmgrd.exe` file, even if you're currently in the directory where `lmgrd.exe` is located. If the path name has spaces, it must be enclosed in double quotes.

   - `–c` needs to include the full path name to the license file. If the path name has spaces, it must be enclosed in double quotes.

   - `–n` specifies the name you want to use to identify the `lmgrd.exe` executable in the Services applet. If the name has spaces, it must be enclosed in double quotes. If -n is not specified, "FLEXlm License Manager" is used as the service name.

# Starting and stopping the license server on Windows

The license server can be started and stopped in two ways:

- Using Windows Services—Open the Windows **Control Panel**, select **Administrative Tools**, then select **Services**, which brings up the Services dialog. Next, open the properties dialog for the license server service using the name you supplied with the `installs` command `–n` option (if you didn't use the `–n` option, the service will have the default name of **FLEXlm License Manager**), and click **Start.** Because the license server is installed with a Startup type of "Automatic", the license server will also start when the computer is restarted. To stop the license server, click **Stop**.

- Using the Service Control (SC) command—The SC command can be used in a Command Prompt window to start and stop the license server. The Service name listed in the properties dialog is used with the SC command—in this example, the Service name is the default name, "FLEXlm License Manager". If you used the `installs –n` command option to specify a name for the license server service, the specified name will be listed in the Service name dialog and should be used with the SC command. If the Service name contains spaces, it must be enclosed in double quotes.

   ```
   sc start "FLEXlm License Manager"

   sc stop "FLEXlm License Manager"
   ```

# Using LMTOOLS

LMTOOLS can be executed from the start menu as follows:

**Start > All Programs > HP > HP Remote Graphics Software > lmtools**

LMTOOLS can be used for tasks such as the following:

● Configuring the license server

● Adding licenses

● Re-reading the license file

● Viewing system information and the license server status

● Troubleshooting issues with the license server

**NOTE:** Although LMTOOLS provides the **Start Server** and **Stop Server** buttons (under the **Start/Stop/ Reread** tab), HP recommends that the license server be started and stopped using the methods described in Starting and stopping the license server on Windows on page 7.

# Configuring the license server

Describing how to configure and administer the FLEXnet license server is beyond the scope of this guide—it is assumed you are experienced with the FLEXnet license server. For detailed information on this license server and LMTOOLS, go to http://www.flexerasoftware.com.

# Accessing the RGS floating license

This section describes how to access the RGS floating license. After you've obtained your floating license key file, store it on the license server in accordance with the FLEXnet license server configuration requirements.

**NOTE:** When you acquire an RGS floating license key, you'll provide your license server hostname. The signature included in the license key file reflects the hostname that you provide; changing the hostname within the license key file to a different license server will invalidate the license key. If you need to change your license server hostname, contact the appropriate HP Regional License Center.

# Configuring the RGS Sender to access a floating license on Windows

During RGS Sender installation (as described in the *HP Remote Graphics Software User Guide*), you'll be presented with a dialog that asks you to install the RGS Sender license. Select **Acquire license from a license server**, and click **Next**.

Next, you'll be prompted for the port number and hostname of the license server—this will allow the RGS Sender computer to communicate with the license server. If you provide just the hostname, the default port of **27000** is used.

If, during RGS installation, you select **I do not yet have a license file**, you can specify the location of the RGS license server post-installation using the `LM_LICENSE_FILE` environment variable. To set this environment variable:

1. Click **Start > Control Panel > System**.

2. Click **Advanced system settings**, and then click **Environment Variables**.

3. Under **System variables**, click **New**—this opens the New System Variable dialog.

4. Specify the location of the license server in this format: `portnumber@hostname`

   If a port number isn't specified, the default port 27000 is used. See the following examples:

   ```
   @MyLicenseServer.hp.com (uses default port 27000) @15.2.21.129 (uses
   default port 27000) 27002@MyLicenseServer.hp.com
   ```

   Multiple server locations can be entered, separated by semicolons, as shown below:

   ```
   27000@15.232.16.2;@MyLicenseServer.hp.com;27002@BackupServer.hp.com
   ```

   The RGS Sender will sequentially attempt to contact each listed license server from left to right until it finds a license server containing a valid RGS license.

## Configuring the RGS Sender to access a floating license on Linux

The RGS Sender on Linux can be configured to access a floating license by setting the `LM_LICENSE_FILE` environment variable to point at the RGS license server.

Specify the location of the license server in this format: `portnumber@hostname`

If a port number isn't specified, the default port 27000 is used. See the following examples:

```
@MyLicenseServer.hp.com (uses default port 27000) @15.2.21.129 (uses
default port 27000) 27002@MyLicenseServer.hp.com
```

Multiple server locations can be entered, separated by colons, as shown below:

```
27000@15.232.16.2:@MyLicenseServer.hp.com:27002@BackupServer.hp.com
```

The complete command on Linux would appear as follows:

```
export LM_LICENSE_FILE=27000@15.232.16.2:@MyLicenseServer.hp.com:
27002@BackupServer.hp.com
```

The RGS Sender will sequentially examine each listed license server from left to right until it finds a license server containing a valid RGS license.

# Down, missing, or moved floating license servers

If a license server is down, missing, or has been moved, an RGS connection may fail. Depending on where the license server is listed in LM_LICENSE_FILE, this could result in RGS waiting until a network timeout occurs when trying to communicate with the license server.

If the timeout is greater than the RGS Receiver's **Dialog** timeout (defaulted to 15 seconds), then a connection will not be made because RGS expects the connection to be made before the timeout is reached.

To correct this issue, increase the timeout to 60 seconds or remove the reference to moved or nonexistent license servers in the LM_LICENSE_FILE environment variable. If the license server is down, resolve that issue and then retry using RGS.

If you still experience issues, you might need to clean the Windows registry. See Cleaning registry references to the FlexLM license server for RGS on page 11 for more information.

# A   Troubleshooting licensing

## Using the RGS Sender log file for troubleshooting

To help debug licensing problems, the RGS Sender logs licensing failures to a log file.

☀ **TIP:** The default log file is **rg.log**, but it might vary if you did custom logging configuration. See the *HP Remote Graphics User Guide* for more information on RGS Sender logging.

If licensing fails, an entry containing the string **FlexLM** will be added to the log file. The remainder of the entry will indicate where the RGS Sender is searching for the license key file.

● For local licenses, the location will be the path you specified either during or after installation (see Installing a local license key file on page 4).

● For floating licenses, the location will be the hostname and port number used to contact the license server (see Accessing the RGS floating license on page 8).

However, in both cases, the log entry does not identify the specific cause of a licensing failure. For local licenses, failure to locate the RGS license key file is not differentiated from an RGS license key file that is found but contains an invalid license. Likewise, for floating licenses, failure to contact the license server is not differentiated from a license server that is contacted but has an invalid RGS license.

## Contacting HP for licensing support

If you have questions or need assistance with RGS licensing, go to http://licensing.hp.com.

# B Cleaning registry references to the FlexLM license server for RGS

This appendix provides supplemental information on removing FlexLM references from the Windows registry. The registry keys listed in this appendix are not removed during uninstallation of RGS and might need to be removed manually if you are experiencing issues using a FlexLM server.

⚠ **CAUTION:** Back up the registry prior to making any changes. See Windows documentation for more information.

When a FlexLM license server is used with RGS, the FlexLM libraries will add the license server information to the following registry keys:

- `HKLM\SOFTWARE\FLEXlm License Manager\HPQ_LICENSE_FILE`

- `HKLM\SYSTEM\ControlSet001\Control\Session Manager\Environment\LM_LICENSE_FILE`

- `HKLM\SYSTEM\ControlSet001\Control\Session Manager\Environment\HPQ_LICENSE_FILE`

- `HKLM\SYSTEM\ControlSet002\Control\Session Manager\Environment\LM_LICENSE_FILE`

- `HKLM\SYSTEM\ControlSet002\Control\Session Manager\Environment\HPQ_LICENSE_FILE`

- `HKLM\SYSTEM\CurrentControlSet\Control\Session Manager\Environment\LM_LICENSE_FILE`

- `HKLM\SYSTEM\CurrentControlSet\Control\Session Manager\Environment\HPQ_LICENSE_FILE`

- `HKEY_USERS\.DEFAULT\Software\FLEXlm License Manager\LM_LICENSE_FILE`

📝 **NOTE:** Some keys might not be present in your registry.

In some cases, there may be other registry entries that are used by FlexLM. To find them, you will need to search the registry for keys named either "LM_LICENSE_FILE" or "HPQ_LICENSE_FILE". The value of these keys will be the license server paths, as specified by the environment variables. See Configuring the RGS Sender to access a floating license on Windows on page 8 for details on these values and how they are set.

⚠ **CAUTION:** Any registry keys named "LM_LICENSE_FILE" may be used by any application that accesses a FlexLM license server on the system. If other applications besides RGS are using a FlexLM license server, they may be adversely impacted by any changes made to the LM_LICENSE_FILE registry entries. Any registry keys named "HPQ_LICENSE_FILE" may be used by any HP application that accesses a FlexLM license server. If other HP applications besides RGS are using a FlexLM license server, they may be adversely impacted by any changes made to the HPQ_LICENSE_FILE registry entries.