HP ZCentral Software Licensing Guide

SUMMARY

This document describes licensing of HP ZCentral Remote Boost Software and HP ZCentral Connect Software. Remote Boost licensing applies to Remote Boost Sender only; Remote Boost Receiver can be used freely.

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Third-party software notice

Third-party source code and licenses are redistributed, if required, with HP ZCentral Software.

User input syntax key

Text that you must enter into a user interface is indicated by `fixed-width font`.

User input syntax key

Item	Description
`Text without brackets or braces`	Items you must type exactly as shown
`<Text inside angle brackets>`	A placeholder for a value you must provide; omit the brackets
`[Text inside square brackets]`	Optional items; omit the brackets
`{Text inside braces}`	A set of items from which you must choose only one; omit the braces
`|`	A separator for items from which you must choose only one; omit the vertical bar
`...`	Items that can or must repeat; omit the ellipsis

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1 ZCentral license types

The tables in this chapter outline the licenses available for ZCentral products.

For more information about purchasing a license, go to http://www.hp.com/go/zcentral.

Remote Boost license types

A Standard, Floating, Cloud Access Plus (CA+), or Trial license is required on each sender (remote) system or virtual machine (VM) except when you use an HP Z series desktop workstation or HP Zbook Mobile Workstation. HP Z workstations include Remote Boost licenses for no charge and are valid until 1 January 2023. After this date, you must obtain one of the previously listed licenses.

The Remote Boost Receiver does not require a license.

Table 1-1 Remote Boost license types

License type	Description	Product number
Standard license	Licenses Remote Boost for one system or VM.	9TS60AAE
Floating license	Licenses Remote Boost for multiple systems or VMs. Requires you to install a FlexNet license server in your environment. You purchase the Floating license for a specific number of concurrent Remote Boost systems.	9TS61AAE
Trial license	Free, 60-day trial of the Standard license.	9TS60ABE
Cloud Access Plus (CA+)	Licenses Remote Boost for multiple systems or VMs. Requires cloud access or a PCoIP license server installation in your environment. You purchase the CA+ license for a specific number of concurrent Remote Boost systems.	TCAP01YP

Connect license types

The table in this section describes ZCentral Connect license types that are available.

Table 1-2 Connect license types

License type	Description	Product number
License to use	Enables concurrent Connect sessions up to the quantity of licenses purchased.	9TS59AAE
Trial license	Free, 60-day trial license that supports up to 5 concurrent connections.	9TS59ABE

2 Remote Boost licensing overview

This section describes the licensing of HP ZCentral Remote Boost Software. Remote Boost licensing applies to the Remote Boost Sender only; you can use the Remote Boost Receiver freely.

NOTE: Remote Boost does not require a license on HP Z series desktop workstations or HP Zbook Mobile Workstations until 1 January 2023. After this date, HP Z workstations will require another valid license type.

For detailed Remote Boost information, see the latest version of the *HP ZCentral Remote Boost Software User Guide* that is bundled with HP ZCentral Remote Boost, available at http://www.hp.com/go/zcentral. This website might also contain a more recent version of this licensing guide.

Remote Boost floating and CA+ licenses

When you purchase floating or CA+ licenses, you receive a pool of licenses. These licenses dynamically allocate on a first-come, first-served basis when Remote Boost Receiver attempts to connect to Remote Boost Sender. You automatically check out a floating or CA+ license when you establish a connection to Remote Boost Sender and check it in when the connection ends.

NOTE: PC-over-IP (PCoIP) Cloud Access Plus Licensing is only available with Remote Boost 22.0 and later releases.

If multiple receivers connect to a single sender (for example, when conducting a collaboration session), Remote Boost Sender uses only one license. A license is checked out only when the first Remote Boost connection is established.

Floating or CA+ 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 attempt to establish connections with separate Remote Boost Senders simultaneously.

Floating licenses require a FlexNet license server, which you can install on one of the computers running Remote Boost Sender, or you can install the FlexNet license server on a separate computer. Remote Boost includes an installer for the FlexNet license server. For installation information, see Installing and configuring the Remote Boost FlexNet license server on page 7.

CA+ licenses require access to a PCoIP Cloud license server. If your deployment cannot use cloud licensing, either because the site is not connected to the public internet or local management of licenses is necessary, you can use a PCoIP Local License server instead. For further information, see Configuring PCoIP Local License Server licenses on page 14.

Remote Boost version number

The Remote Boost version number contains the three components shown in this section.

NOTE: The version numbering changed between HP Remote Graphics Software (RGS) and HP ZCentral Remote Boost. The last version of RGS is 7.7.x and the first version of Remote Boost is 20.0.

Figure 2-1 Remote Boost version number components

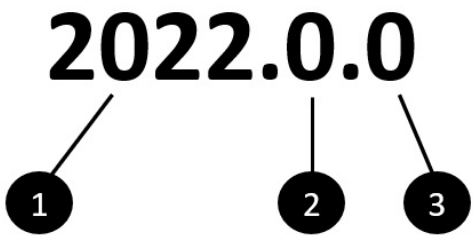

Table 2-1 Remote Boost version number components

Item	Description
1.	**Primary release number**—A primary release contains sufficient changes such that interoperability with the prior primary release is not guaranteed by HP. For example, a connection between different primary releases of HP ZCentral Remote Boost Sender and HP ZCentral Remote Boost Receiver might not function at an acceptable quality, or at all.
2.	**Minor release number**—When the number is not zero, it represents a minor release, which typically introduces new features or enhances existing functionality, and includes changes from any previous patch releases. A connection between different minor releases (but the same primary release) of HP ZCentral Remote Boost Sender and HP ZCentral Remote Boost Receiver should function at an acceptable level of quality.
3.	**Patch release number**—When the number is not zero, it represents a patch release, which is typically only for fixing major security issues or defects. A connection between different patch releases (but the same primary release) of HP ZCentral Remote Boost Sender and HP ZCentral Remote Boost Receiver should function at an acceptable level of quality.

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

Remote Boost license version date

Each release of Remote Boost has a license version date that the Remote Boost licensing uses. For example, the Remote Boost 20.0 license version date is 1 November 2019, which is formatted **2019.1101** (YYYY.MMDD). Viewing the license version date might assist in troubleshooting any licensing issues. Follow the steps outlined here to view the license version date.

1. Right-click the Remote Boost Sender icon in the Windows® notification area, and click **About**.
2. Locate the line **License Version Date** similar to the following example:

```
License Version Date: 2019.1101
```

NOTE: The license version date should not be confused with the build date. The build date is not used by the Remote Boost licensing mechanism.

Remote Boost license policy

You are only required to purchase a new license for Remote Boost when the version date changes, and the version date changes only for primary releases, such as RGS 7.0 and Remote Boost 20.0. Therefore, when you purchase a license for Remote Boost, you are entitled to free upgrades to all future minor and patch releases.

For example, if you purchased an RGS 7 license, you are entitled to free upgrades to versions 7.x.x. However, you would have to purchase a new license to upgrade to Remote Boost 20.0.

NOTE: Remote Boost licenses also work with older versions of RGS. For example, a Remote Boost 20.0 license can be used with RGS 7.

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

IMPORTANT: The values in this table might not match actual releases of Remote Boost or RGS.

Table 2-2 Remote Boost and RGS version number and license version date examples

Version number	Release type	License version date
22.1	Minor release	2021.1201
22.0.1	Patch release	2021.1201
22.0	Primary release	2021.1201
20.1	Minor release	2019.1101
20.0.1	Patch release	2019.1101
20.0	Primary release	2019.1101
7.1	Minor release	2014.0401
7.0.1	Patch release	2014.0401
7.0	Primary release	2014.0401

3 Installing a local license key file

This chapter describes how to install a local license key file. License key files are provided only for Standard and Floating licenses. CA+ licenses do not use license key files.

Configuring Remote Boost Sender to access a local license key file on Windows

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

Configuration during Remote Boost Sender installation

During Remote Boost Sender installation (as described in the *HP ZCentral Remote Boost User Guide*), you will be presented with a dialog box that asks you to install the Remote Boost 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 select **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 Remote Boost Sender installation directory:

Default location:

```
C:\Program Files\HP\Remote Graphics Sender
```

Configuration after Remote Boost Sender Installation

If, during Remote Boost 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 Remote Boost Sender installation directory:

Default location:

```
C:\Program Files\HP\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. In **Windows Search**, type `env`, and choose **Edit the system environment variables**.
2. Select **Environment Variables**.
3. Under **System variables**, click **New**. This opens the **New System Variable** dialog box.
4. Type `LM_LICENSE_FILE` as the variable name.

5. Enter the path to the local license key file as the variable value. You can enter multiple paths. Separate them by semicolons, such as:

   `C:\licenses;C:\backuplicenses`

   Remote Boost 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 Remote Boost Sender installation, it will be copied into the folder `C:\Program Files\HP\Remote Graphics Sender`. 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 Remote Boost Sender installation and is also specified by the `LM_LICENSE_FILE` variable, Remote Boost Sender will look in both locations for a valid local license key file at startup.

Configuring Remote Boost Sender to access a local license key file on Linux

For Remote Boost 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`

4 Installing and configuring the Remote Boost FlexNet license server

The FlexNet license server is required only if you are using the HP Remote Boost floating license.

Before you install the FlexNet license server

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

- The 64-bit version of the FlexNet license server is provided with Remote Boost.
- Remote Boost FlexNet server version 11.17.2.0 is required beginning with Remote Boost 20.2. If you have a previous version installed, you must uninstall it first. Previous versions of RGS and Remote Boost can still check out licenses from the newer license server. You can use licenses from older license servers on newer servers.

NOTE: You can run only the FlexNet license server included with Remote Boost on Windows and Linux® operating systems.

- The FlexNet license server is usually installed on a computer other than one of the computers running Remote Boost Sender. However, nothing prohibits you from installing the FlexNet license server on a Remote Boost Sender computer.
- The following processes run when the FlexNet license server is active on Windows:
  - `HPQ.exe`
  - `lmgrd.exe` (x2)

    NOTE: When two separate `lmgrd.exe` processes run, one runs as a service.

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

- The `HPQ.exe` vendor daemon interfaces with Remote Boost Sender and provides FlexNet license server functions specific to HP, such as counting Remote Boost floating licenses.

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

NOTE: Both processes, lmgrd and HPQ, might require port forwarding in firewalled environments. You can customize these ports in the license key file.

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

- During FlexNet license server installation on Windows, the FlexNet administration utility, LMTOOLS, is installed. LMTOOLS provides a graphical user interface that allows you to administer the FlexNet license server. See Using LMTOOLS on page 9.

FlexNet license server port configuration

For a Remote Boost Sender to connect to a FlexNet license server that is behind a firewall, two ports need to be opened. One port is needed for the license server manager and the other is for the vendor daemon. These ports can be specified in the floating license key file.

For the FlexNet license server manager port, if no TCP/IP port number is specified in the floating license key file, one of the default ports in the range of 27000 - 27009 is used.

For the vendor daemon port, if no TCP/IP port number is specified in the floating license key file, the port is chosen by the operating system at run-time. There is no set range.

To change the default ports, specify the ports in the floating license key file in this format:

```
SERVER MyLicenseServer.hp.com <manager port>
```

```
VENDOR HPQ PORT=<vendor port>
```

The following example sets the manager port to 27010 and the vendor port to 27020:

```
SERVER MyLicenseServer.hp.com 27010
```

```
VENDOR HPQ PORT=27020
```

IMPORTANT: Modify only the ports in the floating license key file. Further modifications can invalidate the license key.

Installing the FlexNet license server on Windows

To install the FlexNet license server, perform the following steps.

1. Locate the FlexNet installation executable file, `Setup.exe`, in the following location in the Remote Boost installation package:

   `/flexlm/Setup.exe`

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

3. Double-click **Setup.exe** to begin installation of the FlexNet license server. If an installation of an older version of the license server is detected, you are prompted to uninstall it. If you uninstall the older server this way, you might be prompted to restart after the uninstallation finishes. If you select to restart, you must restart the installation of the new server when the system starts up again. You can change the default installation folder, `C:\Program Files\HP\ZCentral Remote Boost FlexLM`, to another folder. If the installation is successful, a notification indicating **InstallShield Wizard Complete** is displayed.

Starting and stopping the FlexNet license server on Windows

You can start and stop the FlexNet license server using either of these methods.

- Using Windows Services—Open the Windows **Control Panel**, select **Administrative Tools**, and then select **Services**, which opens the **Services** dialog box. Next, open the properties dialog box for the Remote Graphics FlexLM License Server Service, and click **Start.** Because the FlexNet license server is installed with a Startup type of Automatic, the license server also starts when the computer is restarted. To stop the FlexNet license server, click **Stop**.
- Using the Service Control (SC) command—If you're running as an administrator, you can use the SC command in a Command Prompt window to start and stop the license server.

  ```
  sc start "Remote Graphics FlexLM License Server Service"

  sc stop "Remote Graphics FlexLM License Server Service"
  ```

Using LMTOOLS

You can run LMTOOLS from the Start menu as follows:

For Windows 7:

Start>All Programs>HP>Remote Graphics FlexLM>lmtools

For Windows 10:

Start >HP >lmtools

Use LMTOOLS for tasks such as the following:

- Configuring the FlexNet license server
- Adding licenses
- Rereading the license file
- Viewing system information and the FlexNet license server status
- Troubleshooting issues with the FlexNet license server

NOTE: Although LMTOOLS provides the **Start Server** and **Stop Server** buttons (under the **Start/Stop/Reread** tab), HP recommends that the FlexNet license server be started and stopped using the methods described in Starting and stopping the FlexNet license server on Windows on page 8.

For detailed information about this FlexNet license server and LMTOOLS, go to http://www.revenera.com.

NOTE: LMTOOLS is available on Windows only.

Installing the FlexNet license server on Linux

Follow the steps outlined here to install the FlexNet license server on Linux.

NOTE: The FlexNet license server requires that lsb is installed. Be sure that you meet this requirement before attempting to run the license server.

1. Copy the FlexLM server package to a directory (for example, `/opt/hpremote/licensing`).
2. Extract the tar archive with this command:

   ```
   /usr/bin/tar xvf flexlm-server.tar.gz
   ```

3. Change ownership of the directory and executable files to the user account that will run the daemon. FlexLM recommends using a non-root account.
4. Copy the license file or files to a directory that is accessible by the owner of the license tools, for instance, `/opt/hpremote/licensing`.
5. Create a script that launches lmgrd at boot time as described in the next steps.
6. On UNIX, or any SysV system, edit the appropriate boot script, which might be `/etc/rc.boot`, `/etc/rc.local`, `/etc/rc2.d/Sxxx`, or `/sbin/rc2.d/Sxxxx`. Include commands similar to the following example. See the notes section of the script for a full explanation.

```
/bin/su daniel -c 'echo starting lmgrd > /opt/hpremote/licensing/
boot.log'

/bin/nohup /bin/su daniel -c 'umask 022; \

/opt/hpremote/licensing/flexlm-server/64-bit/lmgrd -c \

/opt/hpremote/licensing/license.dat >> \

/opt/hpremote/licensing/boot.log'

/bin/su daniel -c 'echo exiting >> /opt/hpremote/licensing/boot.log'
```

7. On any UNIX or Linux SystemD computer (RHEL or CENTOS 7.* and up), create a new service unit file at `/etc/systemd/system/flexlic.service` with the following content:

```
[Unit]

Description= HP RGS Flexnet License Start Service

After=network.target

[Service]

Type=simple

ExecStart=/opt/hpremote/licensing/start.sh TimeoutStartSec=0

[Install]

WantedBy=default.target
```

   Run the `systemctl daemon-reload` and `systemctl enable flexlic.service` commands to allow service to start at the next, and every, system boot.

NOTE: An alternative method to creating a service enabled at boot is to set an `@reboot cron` job. However, the FlexNet license server will depend on the cron service working properly.

8. Create a boot script at `/opt/hpremote/licensing/start.sh` with commands such as those shown here:

```
#!/bin/bash

/bin/su daniel -c 'echo starting lmgrd > /opt/hpremote/licensing/
boot.log'

/bin/su daniel -c 'umask 022; \
```

```
/opt/hpremote/licensing/flexlm-server/64-bit/lmgrd -c \

/opt/hpremote/licensing/license.dat >> \

/opt/hpremote/licensing/boot.log'

/bin/su daniel -c 'echo exiting >> /opt/hpremote/licensing/boot.log'
```

Note the following points about these scripts:

- All paths must be specified in full because paths cannot be assumed at boot time.
- The `su` command is used to run lmgrd as a non-root user daniel. HP recommends that lmgrd not run as root because it is a security risk to run any program as root that does not require root permissions. lmgrd does not require root permissions.
- Daniel has a csh login, so all commands executed as daniel must be in csh syntax. All commands not executed as daniel must be in /bin/sh syntax to match that used by the boot scripts.

Accessing the Remote Boost floating license

This section describes how to access the Remote Boost floating license. After you obtain your floating license key file, store it on the FlexNet license server in accordance with the FlexNet license server configuration requirements.

NOTE: When you acquire a Remote Boost floating license key, you provide your FlexNet 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 invalidates the license key. If you need to change your license server hostname, contact the appropriate HP Regional License Center.

Configuring Remote Boost Sender to access a floating license

You can configure Remote Boost Sender to access a floating license by setting the `LM_LICENSE_FILE` environment variable to point to the Remote Boost FlexNet license server. Specify the location of the license server in this format:

```
<port>@<host>
```

NOTE: Ensure that this location matches the values from the SERVER line in the floating license file.

If you don't specify a port number, the default port 27000 is used. See the following examples:

```
@MyLicenseServer.hp.com

@15.2.21.129

27002@MyLicenseServer.hp.com
```

You can enter multiple server locations, separated by colons, as in the following example:

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

NOTE: Remote Boost Sender sequentially examines each listed FlexNet license server from left to right until it finds a license server containing a valid Remote Boost license.

Down, missing, or moved floating FlexNet license server

If a FlexNet license server is down, missing, or has been moved, a Remote Boost connection might fail. Depending on where the license server is listed in LM_LICENSE_FILE, Remote Boost might wait until a network timeout occurs when trying to communicate with the license server.

If the timeout is greater than Remote Boost Receiver's **Dialog** timeout (defaulted to 15 seconds), a connection is not be made because Remote Boost 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 a moved or nonexistent FlexNet license server in the LM_LICENSE_FILE environment variable. If the license server is down, resolve that issue and then retry using Remote Boost.

If you still experience issues, you might need to clean the Windows registry. See Cleaning registry references to the FlexNet license server on page 25 for more information.

Hosting multiple license key files

If you have multiple license key files, possibly due to purchasing a new Remote Boost version or even licenses from different vendors, they can be hosted in a few different ways.

- Multiple FlexNet license servers, each hosting one license file. Configure the client computers to look to all servers that host licenses.
- One FlexNet license server hosting multiple license files. Each license file and associated vendor application (HPQ.exe for Remote Boost) must be valid for the version of the license server. List the license files in a semicolon-delimited list when running lmgrd.

NOTE: If you are running the FlexNet license server as a service on Windows, you can edit the service parameters in LMTOOLS under **Config Services**. Select the **Service Name** to edit, and modify the **Path to the license file** to point to the directory where the license files are located. Select **Save Service** to save the changes. You must restart the service for changes to take effect.

The service does not allow a semicolon-delimited list of license file names. Instead, all licenses found in the specified path will be used.

- One FlexNet license server hosting a combined license file. To be able to combine licenses, they must have been originally created with the same server information. This means that the SERVER lines must be the same in all the license files. If the licenses meet these conditions, you can create a single file by copying the contents of all the files to a single file. Delete any redundant SERVER or VENDOR lines. Editing the content of the license file invalidates the license signature.

NOTE: To use multiple licenses of the same product, the license key file might have to be regenerated. This means that the FEATURE and INCREMENT lines in the license key file describe the license mode for a product. Only the first FEATURE line for a feature name is processed by the vendor daemon. If you want to have additional copies of the same feature, you must get the license key file regenerated with multiple INCREMENT lines instead.

For further information about FlexNet license server configurations, go to http://www.revenera.com.

5 Configuring PCoIP Cloud Access Plus Licenses

This chapter applies only when using PCoIP Cloud Access Plus (CA+) licenses.

NOTE: PCoIP Cloud Access Plus Licensing is available only with Remote Boost 22.0 and later releases.

Configuring PCoIP Cloud License Server Licenses

To use the PCoIP Cloud License Server on a Remote Boost deployment, you must register each Remote Boost Sender. You receive a registration code when you purchase licenses from Teradici. You can use this registration code multiple times.

Example of registration codes: **ABCDEFGH12@AB12-C345-D67E-89FG**. After you install the Remote Boost Sender, you receive a tool to register the device with the PCoIP Cloud License Server. You can use the Remote Boost licensing tool for the following tasks:

1. Register your device with the PCoIP Cloud License Server, using the register action.
2. Validate that you have the correct license entitlements on the server using the validate action.
3. List all available license entitlements using the list action.
4. Configure the sender to use a proxy service using the config action.

See Using the Remote Boost License Tool on page 16 to learn how to use the Remote Boost License Tool.

Creating allowlists for network blocks for PCoIP Cloud Licensing

If you use Cloud Licensing, you must include the following locations in the allowlist.

- teradici.flexnetoperations.com
- teradici.compliance.flexnetoperations.com

If you use an IP allowed list, HP recommends that you share the following network blocks to allowlist with your IT team:

- IPv4: 185.146.155.64/27
- IPv6: 2620:122:f005::/56

If you previously used the IP allowlist as in the following, HP recommends that you also keep the old allowlist until the new allowlist is in effect, and that you have tested it to verify that it is working:

- Production: 64.14.29.0/24
- Disaster Recovery: 64.27.162.0/24

License Remote Boost Sender with PCoIP Cloud License Server

Use the instructions outlined here to license Remote Boost Sender with the PCoIP Cloud License Server.

1. On the computer where the Remote Boost Sender is installed, from the command console, change to the installation directory.
   - Windows default location: `C:\Program Files\HP\Remote Graphics Sender\`
   - Linux default location: `/opt/hpremote/rgsender/`
2. Enter the following commands to stop the Remote Boost Sender service:
   - Windows: `net stop rgsender`
   - Linux: `systemctl stop rgsender`
3. Register with the Cloud License Server using the following command:
   - `rb-license-tool register --proxy-server x.x.x.x --proxyport xxxx --registration-code xxxxxxxxxxxx@xxxx-xxxx-xxxx-xxxx`

   NOTE: `--proxy-server` and `--proxy-port` are optional. These properties are required if you are running behind a proxy server.

   NOTE: `--registration-code` is required.

   NOTE: For a full list of optional parameters, refer to the Using the Remote Boost License Tool on page 16 section.
4. Restart the service:
   - Windows: `net start rgsender`
   - Linux: `systemctl start rgsender`
5. Validate or list licenses:
   - To validate licenses: `rb-license-tool validate`
   - To list licenses: `rb-license-tool list`

Configuring PCoIP Local License Server licenses

In deployments where Remote Boost Senders cannot access the internet, or where cloud-based licensing is not permitted or wanted, you can use a PCoIP Local License Server instead. You must install and configure a server called the PCoIP Local License Server. This PCoIP Local License Server manages Cloud Access Plus licenses in your private environment.

You can find these instructions in the email that you received with your registration code. For detailed instructions about installing, configuring, and managing a PCoIP Local License Server, see the following guides:

Teradici License Server (Offline Environments) 20.10:
https://www.teradici.com/web-help/pcoip_license_server/current/offline/

Teradici License Server (Online Environments) 20.10:
https://www.teradici.com/web-help/pcoip_license_server/current/online/

IMPORTANT: After you install your PCoIP Local License Server, you must configure your Remote Boost Sender to point to this server. You can use the Remote Boost Licensing Tool to perform any of the following tasks:

1. Configure your device to point to your PCoIP Local License Server using the config action and passing the `--license-server-url` parameter.
2. Confirm that you have the correct license entitlements on the server using the validate action and passing the `--license-server-url` parameter.
3. List all available license entitlements using the list action and passing the `--license-server-url` parameter.
4. Configure the sender to use a proxy service, if applicable, using the config action.

See Using the Remote Boost License Tool on page 16 for instructions about using the `config` command to set this URL.

License Remote Boost Sender with PCoIP Local License Server (for Windows or Linux)

Use the instructions outlined here to license Remote Boost Sender with PCoIP Local License Server.

1. On the machine where the Remote Boost Sender is installed, open the command console and change to the installation directory.
   - Windows default location: `C:\Program Files\HP\Remote Graphics Sender\`
   - Linux default location: `/opt/hpremote/rgsender/`
2. Enter the following commands to stop the Remote Boost Sender Service:
   - Windows: `net stop rgsender`
   - Linux: `systemctl stop rgsender`
3. Configure the PCoIP Local License Server URL. For example, enter this command: `rb-license-tool config --license-server-url http://<ip-address-or-hostname>:<port-default-7070>/request`
4. Restart the service:
   - Windows: `net start rgsender`
   - Linux: `systemctl start rgsender`
5. Validate or list licenses:
   - To validate licenses: `rb-license-tool validate --license-server-url http://<ip-address-or-hostname>:<port-default-7070>/request`
   - To list licenses: `rb-license-tool validate --license-server-url http://<ip-address-or-hostname>:<port-default-7070>/request`

NOTE: For a full list of optional parameters, see Using the Remote Boost License Tool on page 16.

Using the Remote Boost License Tool

The Remote Boost License Tool provides the administrator with the following actions.

- `register`: Registers your device with the cloud and configures the Remote Boost Sender settings to point to the cloud license service.
- `validate`: Verifies the system's licensing configuration. A successful response indicates that a valid license is found on the server.
- `list`: Lists your license entitlements from a PCoIP Cloud License Server or a PCoIP Local License Server.
- `config`: Allows you to configure a variety of Remote Boost Sender licensing settings.

You can find the `rb-license-tool` in the Remote Boost Sender installation directory.

Windows default location:

```
C:\Program Files\HP\Remote Graphics Sender\rb-license-tool.exe
```

Linux default location:

```
/opt/hpremote/rgsender/rb-license-tool
```

IMPORTANT: Run the `rb-license-tool` with administrative privileges.

NOTE: Running this tool generates a log file named `rb-license-tool.log`, which is also found in this directory.

NOTE: For a full list of command options, run `rb-license-tool -h`.

Register

Use the `register` command to register your device with the cloud and configure the Remote Boost Sender settings to point to the PCoIP Cloud License Service.

NOTE: You do not need to register the Remote Boost Sender if you are using a PCoIP Local License Server.

NOTE: Stop the Rgsender service before issuing this command, and restart it after the command is complete for the changes to take effect.

- Navigate to the Remote Boost Sender installation directory.
- Run the tool, and send the following command:

```
rb-license-tool register --proxy-server x.x.x.x --proxyport xxxx --
registration-code xxxxxxxxxxxx@xxxx-xxxx-xxxx-xxxx --no-vm-uuid --no-
write-properties --prioritize-cloud-checkout -vv
```

- `--proxy-server` and `--proxy-port` are optional. These properties are required if you are running behind a proxy server.

- `--registration-code` is required.
- `--no-vm-uuid` is optional. By default, VM UUID is used as host ID to register the Remote Boost Sender to the PCoIP Cloud License Server. If `no-vm-uuid` is included, the MAC address is used as the host ID to register the Remote Boost Sender.

NOTE: This applies only to a VM, not a physical computer.

- `-v` is optional. This flag stands for verbose and provides more information for the log file by changing the default of ERROR to INFO. This property can be helpful when troubleshooting.
- `-vv` is optional. This flag stands for extra verbose and provides even more information for the log file by changing the default of ERROR to INFO. This property can be helpful when troubleshooting.
- `--no-write-properties` is optional. Using this property skips the step to write new properties to the `rgsenderconfig` file.
- `--prioritize-cloud-checkout` is optional. Using this property configures the Remote Boost Sender to check out from the PCoIP Cloud License Server first.

NOTE: This property can save time at checkout if you prefer a PCoIP cloud license checkout.

Validate

Use the `validate` command to verify the system's licensing configuration.

- Navigate to the Remote Boost Sender installation directory.
- Run the tool, and send the following command:

```
rb-license-tool validate --proxy-server x.x.x.x --proxy-port xxxx  --
license-server-url https://xxx.xxxx.com:xxxx/request -vv
```

- `--proxy-server` and `--proxy-port` are optional. These properties are required if you are running the command behind a proxy server.
- `-l` or `--license-server-url` is optional. You can specify the extra PCoIP Local License Server in the command line for the license tool to validate the licenses against. If included, `validate` first looks for the PCoIP Cloud License Server for validation and then looks for a PCoIP Local License Server. If both are successful, both return a success.
- `-v` is optional. This flag stands for verbose and provides more information for the log file by changing the default of ERROR to INFO. This property can be helpful when troubleshooting.
- `-vv` is optional. This flag stands for extra verbose and provides even more information for the log file by changing the default of ERROR to INFO. This property can be helpful when troubleshooting.

List

Use the `list` command to list your license entitlements from a PCoIP Cloud License Server or a PCoIP Local License Server.

- Navigate to the Remote Boost Sender installation directory.
- Run the tool, and send the following command:

```
rb-license-tool list --proxy-server x.x.x.x --proxy-port xxxx --
license-server-url https://xxx.xxxx.com:xxxx/request -vv --detailed
```

- `--proxy-server` and `-proxy-port` are optional. These properties are required if you are running behind a proxy server.
- `-l` or `--license-server-url` is optional. You can specify the extra PCoIP Local License Server in the command line for license tool to list the license information against. If included, the list command first looks for PCoIP Cloud License Server to list licenses against and then looks for a local license server. If both are successful, both return successfully.
- `-v` is optional. This flag stands for verbose and provides more information for the log file by changing the default of ERROR to INFO. This property can be helpful when troubleshooting.
- `-vv` is optional. This flag stands for extra verbose and provides even more information for the log file by changing the default of ERROR to INFO. This property can be helpful when troubleshooting.
- `-d` or `--detailed` is optional. If included, the output has more details and is not well formatted.

Config

You can use several commands to configure license settings.

NOTE: Stop the Rgsender service before issuing this command, and restart it after the command is complete for the changes to take effect.

NOTE: Only the parameters that send are configured; the rest remain unchanged.

- Navigate to the Remote Boost Sender installation directory.
- Run the tool, and pass the following command:

```
rb-license-tool config --proxy-server x.x.x.x --proxyport xxxx --no-
vm-uuid --license-server-url https://xxx.xxxx.com:xxxx/request --no-
write-properties --prioritize-cloud-checkout
```

- `--proxy-server` and `--proxy-port` configures the proxy server settings. These settings are required if you are running behind a proxy server.
- `--no-vm-uuid` configures the Remote Boost Sender to use a MAC address, not a VM UUID.

NOTE: This property applies only to a VM, not bare metal.

- `-l` or `--license-server-url` configures the extra PCoIP Local License Server URL information for the sender to use. Configure this parameter to point to a local license server.
- `--no-write-properties` is optional. Passing this property skips the step to write the property values to the `rgsenderconfig` file.
- `--prioritize-cloud-checkout` configures the Remote Boost Sender to check out from the PCoIP cloud server first.

NOTE: This property can save time at checkout if you prefer a PCoIP cloud license checkout.

Licensing grace period

A successful license registration activates a grace period licensing mechanism in the Remote Boost sender. Grace period licenses allow the sender to check out a temporary license if the license server becomes unavailable or goes offline.

This grace period extends seven days from the first unsuccessful checkout attempt. This extension allows for system maintenance or upgrades without disrupting any existing Remote Boost users. After a connection is reestablished with the license server, the grace period is reset. The next failed connection initiates another seven-day grace period.

There is no visible indication that a sender is in a grace period. Administrators can verify the license checkout status of individual senders by referring to the rgsender logs, or by using the `rb-license-tool` validate command on the Remote Boost Sender system.

NOTE: If the license expired less than one day earlier, the sender may check out a license under the grace period. This behavior is intended and covers time-zone differences between the systems running the Remote Boost Sender and the license server.

NOTE: The grace-period behavior is the same for both Cloud and Local License Servers.

6 Connect licensing overview

This section describes licensing of HP ZCentral Connect Software. ZCentral Connect licensing applies to the Manager software only. Complimentary software, ZCentral Connect Agent and ZCentral Connect Client, can be installed and used without an additional license.

ZCentral Connect licensing is based on a license key file that is obtained from HP after you purchase a License to Use (LTU) license. The license file is checked by the Manager software each time a user starts a new session with a host. New sessions will be denied after the licensed maximum is reached. This number is defined in the license file, denoted as *Qty=N*.

NOTE: You can download, install, and run ZCentral Connect without a license. However, you cannot establish any new sessions between a user and host without a valid license file.

Connect version number

The ZCentral Connect version number contains the four components show in the following example.

Figure 6-1 ZCentral Connect version number components

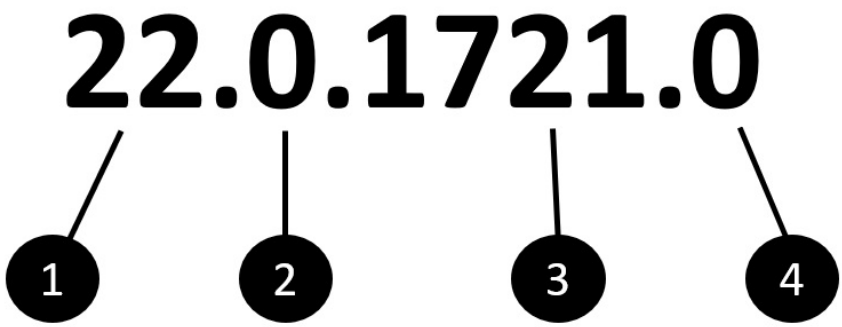

Table 6-1 ZCentral Connect version number components

Item	Description
1.	**Primary release number**—A primary release typically contains upgrades and changes significant enough that interoperability with previous primary releases is not guaranteed by HP.
2.	**Minor release number**—When the number is not zero, it represents a minor release, which typically introduces new features or enhances existing functionality, and includes changes from any previous patch releases.
3.	**Build number**—This number represents a build within a release. It is an incremental value that helps HP identify the specific build of a release.

Table 6-1 ZCentral Connect version number components (continued)

Item	Description
4.	**Patch release number**—When the number is not zero, it represents a patch release, which is typically only for fixing major security issues or defects.

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

NOTE: Connect and Remote Boost are part of the same software solution called ZCentral. While the best user experience requires customers to have the most up-to-date versions of ZCentral software, ZCentral Connect supports older versions of Remote Boost, formerly known as HP RGS. Using ZCentral Connect with an older Remote Boost version will limit some of its management and brokering functionality.

Connect license version date

The license version date in your license file can be located on the first FEATURE line. It is formatted as YYYY.MMDD and typically corresponds to the date your license was generated. This version date is used by the ZCentral Connect licensing mechanism to determine which primary release your license file supports.

NOTE: The license version date should not be confused with the build date. The build date is not used by the ZCentral Connect licensing mechanism.

Connect license policy

You are only required to purchase a new license for ZCentral Connect when a new primary version of the software is released, such as ZCentral Connect 20.0. Therefore, when you purchase a license for ZCentral Connect you are entitled to free upgrades to all future minor and patch releases.

For example, if you purchased a ZCentral Connect 20.0 license, you are entitled to free upgrades to versions 20.x.x.x. However, you would have to purchase a new license to upgrade to the next primary release of ZCentral Connect.

NOTE: You can view the version of your ZCentral Connect software by logging on to the Administrator Portal of the ZCentral Connect Manager and viewing the About section.

Providing a hostname and quantity

When you acquire a ZCentral Connect Manager license file, you will need to provide the server hostname where you intend to install and run the Manager on. To find the hostname of the server, type `hostname` into a Windows Command Prompt.

You will also need to provide a quantity that represents the number of concurrent sessions you want to support. The typical use case is to redeem the entire quantity purchased, however it is possible to redeem partial quantities to provide licensing for sessions in multiple ZCentral Connect Managers.

NOTE: The signature included in the license file reflects the hostname and quantity that you provided. Changing either field within the license file invalidates the license key. If you need to change your

Manager server hostname, or if you want to increase your number of connections, contact the appropriate HP Regional License Center: https://myhplicensing.hp.com/cwp-ui/static/contactus.

Installing a ZCentral Connect license file

Follow the steps outlined here to install a ZCentral Connect license file.

1. Copy the license file to the ZCentral Connect Manager data directory:

   `%PROGRAMDATA%\HP\ZCentralConnectManager`

2. As administrator, use the Services.msc app to restart the HP ZCentral Connect Manager service.

NOTE: The ZCentral Connect Agent and ZCentral Connect Client do not require a license file.

NOTE: License files must end with the .lic suffix.

NOTE: The ZCentral Connect licensing mechanism is limited to checking out a single license file at a time. After upgrading your license, it is recommended that you keep only the latest license in the data directory.

Adding additional connections to a license file

To add additional connections to an existing license, purchase the additional quantity for the same major version that your current license supports. Then generate a new license key file containing the combined quantity of new and existing connections.

1. To generate the combined license key, you must first redeem the newly purchased license file. Use the same host name as your original license.
2. After you redeem the license file, send a request for a combined license key to e-sw-ops-support@hp.com. In the request, include one of the following proofs of purchase for the license files that you are combining:
   - EON (Entitlement Order Number)
   - Entitlement Certificate, a pdf file that you receive after you redeem a license
   - A copy of the EDR (electronic delivery receipt)
3. After you receive the new license key containing the combined quantity of licenses, remove the original license key file from the `%PROGRAMDATA%` file, and replace the original file with the new file.
4. Follow the steps in Installing a ZCentral Connect license file on page 22 to install the new license file.

A Troubleshooting licensing

In this section, you learn how to troubleshoot licensing issues.

Troubleshooting Remote Boost Sender licensing

To help debug licensing problems, Remote Boost Sender records licensing failures in a log file.

TIP: The default log file is `rg.log`, but it might vary if you did custom logging configuration. See the *HP ZCentral Remote Boost User Guide* for more information about Remote Boost Sender logging.

If licensing fails, the string **FlexLM** will be added to the log file. The remainder of the entry indicates where Remote Boost Sender is searching for the license key file.

- For local licenses, the location is the path you specified either during or after installation (see Installing a local license key file on page 5).
- For floating licenses, the location is the hostname and port number used to contact the FlexNet license server (see Accessing the Remote Boost floating license on page 11).

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

Troubleshooting the FlexNet license server

To help debug licensing problems, check the FlexNet license server log file.

NOTE: The log file name and location can vary based on installation.

- For Windows FlexNet license servers, you can use LMTOOLS to view the log file and server status. You can query the current status of the license server under **Server Status**. For license servers running as a service, you can view the service logs under **Config Services**.
- For Linux FlexNet license servers, the log file is specified in the script that launches lmgrd.

Troubleshooting PCoIP Cloud Access Plus licensing

To help debug licensing problems, Remote Boost Sender records licensing failures in a log file.

TIP: The default log file is rg.log, but the name might vary if you made a custom logging configuration. See the *HP ZCentral Remote Boost User Guide* for more information about Remote Boost Sender logging.

If licensing for PCoIP Cloud Access Plus fails, see the log file for detailed error messages.

To debug environments that are configured to use PCoIP Cloud Access Plus licenses, use the license tool provided to gain insight to license rights and other license issues. See Using the Remote Boost License Tool on page 16 for more details about usage.

To debug a local PCoIP license server deployment, see Troubleshooting licensing on page 23.

Teradici License Server (Offline Environments) 20.10:
https://www.teradici.com/web-help/pcoip_license_server/current/offline/

Teradici License Server (Online Environments) 20.10:
https://www.teradici.com/web-help/pcoip_license_server/current/online/

Troubleshooting Connect licensing

There are several reasons licensing can fail for the service account:

1. The license file is not located in the correct directory. Verify that the license file is located here:

   `%PROGRAMDATA%\HP\ZCentralConnectManager`

2. The license file is expired. Check your license file for its expiration date found on the first line, in the format DD-MMM-YYYY.

NOTE: This applies only to a trial license type.

3. The current software version is not supported by the license file. See Connect license version date on page 21 for details.
4. The license file has been edited. If any of the text in the license file has been edited, the signature becomes invalid.
5. The license file has a hostname other than the server where you are running the Manager. Verify that the server where you installed the Manager has the same hostname that you provided during the license redemption process. See Providing a hostname and quantity on page 21 for details.

NOTE: A trial license does not require a hostname.

To help debug licensing problems, ZCentral Connect Manager records licensing checkout failure warnings in a log file. The log file, Manager.log, is located here:

`%PROGRAMDATA%\HP\ZCentralConnectManager`

If a licensing checkout fails, an entry containing the string `License Checkout warning for feature:` will be added to the log file. The remainder of the entry indicates which checkout error occurred.

NOTE: These warnings are intended to provide insight. For example, sometimes you must have a license warning written to the log. The system can write a warning about failure to check out an LTU license, but successfully check out a Trial license anyway. This is the intended behavior.

Contacting HP for licensing support

If you have questions or need assistance with Remote Boost licensing, follow this link:

https://myhplicensing.hp.com/cwp-ui/static/contactus

B Cleaning registry references to the FlexNet license server

This appendix provides supplemental information about removing FlexLM references from the Windows registry. The registry keys listed in this appendix are not removed during uninstallation of Remote Boost and might need to be removed manually if you are experiencing issues using a FlexNet 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 adds the FlexNet 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, FlexLM might use other registry entries. To find them, search the registry for keys named either LM_LICENSE_FILE or HPQ_LICENSE_FILE. The values of these keys are the license server paths, as specified by the environment variables. See Configuring Remote Boost Sender to access a floating license on page 11 for details about these values and how they are set.

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

C Uninstalling the FlexNet License Server on Windows

Follow this step to uninstall the FlexNet License Server on Windows.

- Open the **Programs and Features** item in **Control Panel**, and uninstall the entry corresponding to HP Remote Graphics FlexLM.

D Uninstalling the FlexNet License Server on Linux

Follow this step to uninstall the FlexNet License Server on Linux.

- Remove the lmgrd, lmutil, and hpq files that were provided in the FlexLM server package. Other cleanup steps might be required, depending on how the FlexNet license server was installed (see Installing the FlexNet license server on Linux on page 9).