PCoIP License Server Administrators' Guide

23.12 (Online environments)

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Overview

PCoIP License Server 23.12 Online Administrators' Guide

This guide is intended for PCoIP system administrators who are deploying an online (internet-connected) PCoIP License Server as part of their Cloud Access Software solution.

The License Server can be used with or without a connection to the public internet. Since usage is different in each case, we've documented each environment separately.

> ❶ **These instructions are for users with internet-connected environments**
>
> **The instructions and specifications included are specifically written for deployments where the PCoIP License Server *does* have a connection to the public internet**.
>
> Users without a connection to the public internet should use the **Offline** Administrators' Guide instead.

The HP Anyware PCoIP License Server is a standalone service that handles both PCoIP session license registrations and PCoIP session request authorization.

This documentation assumes that you have a thorough understanding of virtual machines and networking concepts, including firewall configuration. Knowledge of Linux systems in general and RHEL or CentOS in particular will also be helpful, although all required Linux commands are included here.

> 🔥 **Important: The License server is only required for local license management**
>
> This software is not required for organizations using HP Anyware Cloud Licensing.

About the HP Anyware PCoIP License Server

Most PCoIP deployments use HP Anyware automatic Cloud Licensing Service, and do not need a local license server. If your deployment cannot use cloud licensing, either because the site is not connected to the public internet or you need to retain control of your own session licenses, the HP Anyware PCoIP License Server is required.

> ✏️ **Note: Session license types**
>
> HP Anyware cloud licensing uses *registration codes*, which are different than the *activation keys* used by the license server. The type of license is specified at purchase.

The HP Anyware PCoIP License Server is a standalone software service that and handles both PCoIP session license registrations and PCoIP session request authorization. The PCoIP License Server maintains its license activation and checkout states in a local trusted storage database.

When a PCoIP agent attempts to establish a new PCoIP session, it will first request authorization from its assigned PCoIP License Server. The PCoIP License Server checks to see if an activated PCoIP session license is available in its trusted storage, and authorizes the session if one is. Each PCoIP session activation consumes one PCoIP session license.

The PCoIP License Server can run as an online service with a connection to the outside internet, or in an offline environment without internet access. The installation and operation procedures are different in each use case.

This document explains how to use the PCoIP License Server as an **online** service.

About Online Environments

A PCoIP License Server that has a connection to the outside internet is considered to be an online environment. Since the PCoIP License Server can reach the internet, both software and license management can be done directly and no other resources are required.

About PCoIP Session Licensing

PCoIP session licenses are managed in pools, which are created at the time of purchase. Each new purchase of licenses is assigned an activation code, which will be used to activate, view, or return all the licenses in that purchase. You can use licenses from multiple activation codes simultaneously.

For example, when you purchase 30 licenses, you will receive an activation code that allows you to activate, view, or return those 30 licenses. If you subsequently purchased additional licenses, you would receive an additional activation code for each new bundle.

In this example, you own 60 licenses, managed by three different activation codes:
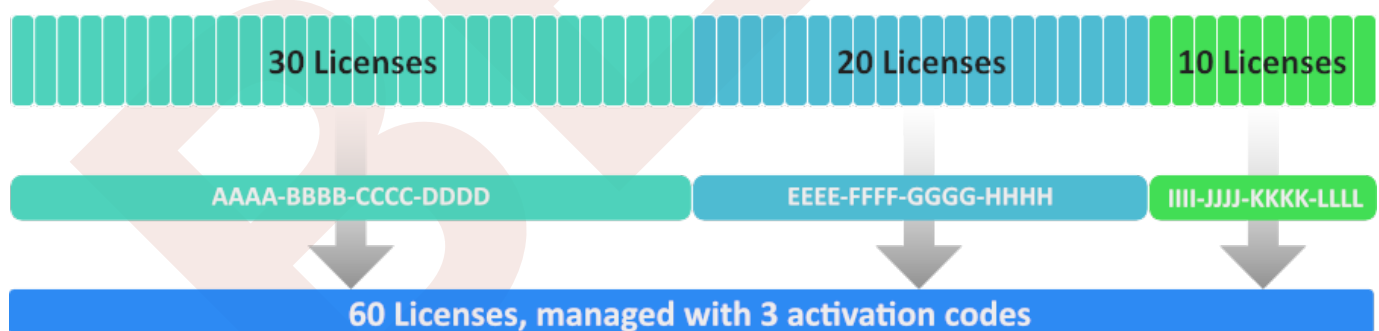
An example of three license pools. All of these licenses can be activated on the same license server, or spread across multiple servers.

> ✏️ **Cloud Licensing FAQ**
>
> For more information, including answers to frequently asked licensing questions, see FAQ - Licensing Cloud Access Software.

Using PCoIP Session Licenses

PCoIP session licenses must be activated on a PCoIP License Server before they can be used. You can activate licenses on one license server, or split them among multiple PCoIP License Servers depending on your deployment requirements.

Once installed and running, the PCoIP License Server will authorize new PCoIP sessions until it runs out of available active licenses.

About the Licensing Grace Period

PCoIP agents request validation from their PCoIP License Server each time a connection is established. Once a PCoIP agent has successfully established a licensed PCoIP session, it will continue to work even if the PCoIP License Server is subsequently unavailable or offline. This grace period extends 7 days from the first unsuccessful validation attempt. This enables you to perform system maintenance or upgrades without disrupting your existing PCoIP users.

Once a connection is re-established with the PCoIP License Server, the grace period is reset. The next failed connection will initiate another 7-day grace period.

There is no user-facing indication that a PCoIP agent is in a grace period. Administrators can check the status of individual PCoIP agents by referring to the PCoIP agent logs, or by using the `pcoip-validate-license` command on the PCoIP Agent machine.

For specific command information, refer to the appropriate PCoIP Agent guides:

- [Graphics Agent for Windows Administrators' Guide](#)
- [Graphics Agent for Linux Administrators' Guide](#)
- [Standard Agent for Windows Administrators' Guide](#)
- [Standard Agent for Linux Administrators' Guide](#)

What's New in This Release

Release 23.12 of the includes the following:

Complete Darksite Failover Configuration

Anyware PCoIP License Server 23.12 now supports Complete Darksite Failover Configuration.

Security Improvements

The binary contents of `request.bin` and `response.bin` can no longer be viewed.

System Requirements

The PCoIP License Server requires an environment with the following minimum specifications:

	Requirement
Available disk space	500 MB
Available RAM	4 GB minimum available RAM
CPU	2GHz (2 cores)
Supported virtual environments	Amazon EC2 VMware ESXi 6.5 QEMU-KVM 2.7 Google Compute Cloud instances Microsoft Azure (tech preview)[1]
Operating System	CentOS 7 RHEL 7, 8 Rocky Linux 8
Compatible PCoIP agents	2.11+ (any agent type)

⚠️ **Caution: Systems with less than 4GB of available RAM may fail**

You should have at least 4GB of available RAM on the License Server machine. Instances with insufficient memory may not work.

⚠️ **Caution: Don't install more than one type of license server on the same machine**

The PCoIP License Server version 23.12 cannot be installed on the same machine as the PCoIP License Server 1.x *or* an NVIDIA GRID License Server.

🔥 **Important: PCoIP agent compatibility requirement**

The PCoIP License Server 23.12 is compatible with all PCoIP agents version 2.11 or newer.

> 🔥 **Important: Network visibility**
>
> The PCoIP License Server must be visible on the network to any PCoIP agents that use it for license validation.

> ⚡ **Danger: Migrating from RHEL 7 to RHEL 8**
>
> If you have currently deployed a PCoIP License Server on RHEL 7 and wish to upgrade to RHEL 8, **do not upgrade the operating system in place**. Updating the operating system could invalidate your PCoIP licenses. See Migrating from RHEL 7 to RHEL 8 for a supported migration path.

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1. The PCoIP License Server 23.12 is currently supported as a technology preview on Microsoft Azure machines. It is intended for early adopters and may not work as expected in all situations. It is not appropriate for production systems. ↵

Frequently Asked Questions

Which password does the `pcoip-set-password` command set?

`pcoip-set-password` sets the PCoIP License Server Administrator's password, which controls access to the license server's trusted storage. Trusted Storage is a secured database where license keys and license server settings are stored. The password is required for administrators to add, remove, or view license information.

> ✎ **Note: The PCoIP License Server administrator's password is not the system user's password**
>
> The PCoIP License Server administrator's password controls access to privileged PCoIP License Server commands. It is not the same as your system user password.

Can I install multiple license servers?

Yes. We recommend using multiple license servers if you are deploying services in remote global regions, and want to optimize performance by having a license server located near your PCoIP host machines. Each license server must be activated separately with a pool of licenses.

How do I move licenses from one PCoIP License Server to another?

To move licenses between servers, you must first return all the licenses controlled by the origin server, then activate them on the destination server:

- Return the licenses as described in *Returning Licenses in Online Environments*.
- Activate the licenses as described in *Activating Licenses in an Online Environment*.

Can I check to see if the proxy is working?

Check the **pcoip-license-server.log** file in `/var/log/flexnetls-TERADICI`. If it contains an error message related to making a connection to FlexNet Operations, the proxy settings are incorrect.

If the proxy is working, the log will contain Updated Features or Updated License Server Instance messages.

You can view proxy settings by running the following command:

```
sudo pcoip-configure-proxy -v
```

How can I activate all the licenses available under an activation code?

You must explicitly state the number of licenses to activate for each activation code when invoking `pcoip-activate-online-license`. If you do not know the number of licenses available, consult the verification email you received when purchasing the bundle of licenses.

What happens when PCoIP session licenses expire?

PCoIP agents relying on expired licenses will no longer establish PCoIP connections. This does not affect the remote host machine; only the ability to connect to it using PCoIP.

Can I upgrade my PCoIP License Server without impacting my users?

Yes. When an active PCoIP agent—an agent which has established at least one successful PCoIP session—cannot validate its license for any reason, it will enter a 7-day grace period. During the grace period, PCoIP agents will continue to work normally.

You can safely take the PCoIP License Server offline and update the software without affecting users during this 7-day grace period. Once the PCoIP License Server is back online, the PCoIP agents exit the grace period.

Are there tools available to help use the PCoIP License Server?

HP Anyware maintains a public Github repo with open-source scripts that you can use in conjunction with the PCoIP License Server. For more information, see Additional Tools.

Can I use a failover server?

Yes, you can set up a second PCoIP License Server to act as a backup in case the primary server is down or unreachable. Setting up a failover server requires an internet connection. For more information, see Using a Failover PCoIP License Server.

How do I know if a PCoIP agent has entered a grace period?

PCoIP agents that have entered grace periods will indicate their status in their logs. You can also use the `pcoip-validate-host` command on the PCoIP Agent machine to check the status of an individual PCoIP agent.

What is the Unique Identifier Associated with my License Server's VM?

In some debugging or support scenarios, you may need to find the unique identifier of your License Server's machine. To get the ID number, use the `pcoip-get-license-server-id` command.

This command requires the License Server password. You can include it with the command using the `-p` option. If you omit the password, you will be prompted for it.

Do any addresses need to be in the allowlist for outgoing connections?

> ✏️ **Allowlist Specific Configuration**
>
> You can skip the following configuration steps if you are not configuring your firewall to allowlist specific network traffic.

Our third-party licensing vender has scheduled an IP block change in March 2023. Please ensure to update your network allowlist by the end of February 2023 to avoid any licensing service disruption.

If you are using HP Anyware Cloud Licensing, you will need to allowlist the following:

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

If you use an IP allowed list, we recommend sharing the following network blocks to allowlist with your IT team:

- **IPv4**: 185.146.155.0/24
- **IPv6**: 2620:122:f003::/48

If you previously used the allowlist, we recommend removing the old allowlist only after March 31, 2023:

- **Production**: 64.14.29.0/24

- **Disaster Recovery**: 64.27.162.0/24

Installation Guide

Installing the PCoIP License Server

To get up and running quickly with the PCoIP License Server in an online (internet-connected) environment, follow these instructions.

> 🔥 **Important: Migrating from RHEL 7 to RHEL 8**
>
> If you have currently deployed a PCoIP License Server on RHEL 7 and wish to upgrade to RHEL 8, **do not upgrade the operating system in place**. Updating the operating system could invalidate your PCoIP licenses. See [Migrating from RHEL 7 to RHEL 8](#) for a supported migration path.

> ⚠️ **Caution: Don't install more than one type of license server on the same machine**
>
> The PCoIP License Server version 23.12 cannot be installed on the same machine as the PCoIP License Server 1.x *or* an NVIDIA GRID License Server.

Keeping Passwords Secure

Some commands documented in this guide allow the use of the `-p` flag to provide password values inline, rather than stopping for a user input prompt. Although the PCoIP License Server does not log or distribute passwords provided this way, it can be difficult to tell whether other system loggers (like `/var/log/secure` and bash history) are capturing them, leading to inadvertent disclosures. For this reason, HP Anyware strongly discourages the use of the `-p` flag (or the related `-n` flag used by `pcoip-set-password`).

The PCoIP license server supports the use of system environment variables to securely store and recall the license server password. To register the password as an environment variable, open a

console window and run the following commands, substituting your password for
`your_license_server_password`:

```
export HISTIGNORE="export*"
export HP ANYWARE_LICENSE_SERVER_PASSWORD=<your_license_server_password>
```

If the PCoIP License Server password is registered in this way, the PCoIP License Server can use it automatically without needing the `-p` flag.

> ⚡ **If you must use the `-p` flag**
>
> If you prefer to use these flags, or have no alternative, you should run `sudo -i` first. This changes to the Linux root user, and may avoid logging your password into `/var/log/secure`. You may also run `export HISTIGNORE="sudo pcoip-*"` to avoid logging password into bash history.

To install the PCoIP License Server:

1. SSH into your License Server machine.

2. For RHEL/CentOS 7, install wget and yum-utils *(skip this step for RHEL/Rocky Linux 8)*:

```
sudo yum install wget
sudo yum install yum-utils
```

3. Install the HP Anyware `pcoip-license-server` repository, using the shell script available [here](). The script will discover your operating system and configure the repo appropriately.

4. Install Java:

   • **For RHEL/CentOS 7**:

```
sudo yum install java-11-openjdk
```

   • **For RHEL/Rocky Linux 8**:

```
sudo dnf install java-11-openjdk
sudo dnf install tzdata-java
```

5. Install the license server:

- **For RHEL/CentOS 7**:

```
sudo yum install -y pcoip-license-server
```

- **For RHEL/Rocky Linux 8**:

```
sudo dnf install -y pcoip-license-server
```

> ✏️ **Note: Wait for the PCoIP License Server to start**
>
> Before proceeding, wait for the PCoIP License Server to start. This is typically done within 30-60 seconds.
>
> You can verify that the PCoIP License Server is running by using the following command:
>
> ```
> sudo systemctl status flexnetls-TERADICI
> ```

6. Set your PCoIP License Server administrative password with `pcoip-set-password`.

> ⚠️ **Change the default password immediately**
>
> Until the default password is changed, commands can be issued to the license server without your knowledge.

> ℹ️ **Info: Password Rules**
>
> Passwords should be surrounded with single quotation marks like 'password', and must conform to the following rules:
>
> - Must be between 8 and 30 characters long
>
> - Must contain at least one lowercase letter
>
> - Must contain at least one uppercase letter
>
> - Must contain at least one digit
>
> - Must contain at least one symbol, excluding **'** (single quote), **"** (double quote), **** (backslash), and spaces.

> ✏️ **Note: Default password**
>
> The default password in new installations is `1P@ssw0rd!`, where the leading `1` is a numeral one and `0` is a zero. When setting the password on a clean installation, use this as your curent password.

- To set the new password:

```
sudo pcoip-set-password
```

You will be prompted for the old and new passwords.

> 🔥 **Register your password as an environment variable**
>
> We recommend that you register your password as a system environment variable, which will allow you to run commands without providing the password inline via the `-p` flag. **Providing the passwords inline can have security implications** and We recommend against it. See [Keeping Passwords Secure](#) at the top of this page for more information and methods for mitigating the security concerns.
>
> To register the PCoIP password as an environment variable, run the following commands, replacing `<your_license_server_password>` with your license server password:
>
> ```
> export HISTIGNORE="export*"
> export
> TERADICI_LICENSE_SERVER_PASSWORD=<your_license_server_password>
> ```

You can specify the old and new passwords inline, by including the `-p` and `-n` flags; to do this, you would enter `sudo pcoip-set-password -p <old_password> -n <new_password>`. This method may expose your password via system loggers, and HP Anyware strongly discourages it.

7. If possible, enable HTTPS/TLS for communication with the PCoIP License Server, as described [here](#).

8. Configure your firewalls:

- Configure your corporate firewall to **block all incoming external connections**. The PCoIP License Server does not need to accept incoming connections from the outside internet.

- On the PCoIP License Server machine, first **block all incoming TCP connections**, then allow incoming connections *only* on these specific ports:

  - **Allow PCoIP agent subnets to connect on your configured listening port**

    By default, the PCoIP License Server listens on port 7070 using HTTP. If you have not modified the default and have not enabled HTTPS/TLS, then open port 7070; if you have modified the default installation then adjust the port number accordingly.

    If you change the default listening port for the PCoIP License Server, you must also change the port configuration on all PCoIP agents that use it.

  - **If using SSH to administer the server**, allow your administrative subnet to connect on port 22.

  - Open port 443 to outgoing connections. If you are using a proxy server, this requirement may be different; review your proxy server configuration.

9. If you block outgoing connections over the internet, you will need to whitelist our licensing service addresses.

> 🔥 **Restart the system after making changes**
>
> If you make changes to the PCoIP License Server configuration settings, you will have to restart the server to apply your changes. To restart the server, use the following command:
>
> ```
> sudo systemctl restart flexnetls-TERADICI.service
> ```

Migrating from RHEL 7 to RHEL 8

If you have an exisitng PCoIP License Server on RHEL 7 and wish to upgrade to RHEL 8, you must create a new machine and transfer the license activations to it. You cannot upgrade the operating system in place.

To migrate licenses from a RHEL 7 to a RHEL 8 PCoIP License Server:

1. On the existing RHEL 7 machine, record the number of activated licenses using the `pcoip-list-licenses` command:

   ```
   sudo pcoip-list-license
   ```

   Note the number of licenses returned by this command; we will use it to verify the migration in the last step.

2. Create a new internet-connected RHEL 8 machine.

3. Follow the instructions [above](#) to install the PCoIP License Server on the new machine.

4. Return the licenses on the RHEL 7 machine, using the instructions [here](#).

   The command will provide the number of licenses returned; note this value. We'll use it in the next step.

5. On the new RHEL 8 machine, activate the same number of licenses that were returned in the previous step, using the instructions [here](#). When following these instructions, use the number returned in the previous step for `<license count>`.

6. Repeat steps 4 and 5 for each of your activation codes, until all licenses have been returned from the old machine and re-activated on the new one.

7. On the new machine, verify that all the licenses have been successfully activated with the `pcoip-list-licenses` command:

   ```
   sudo pcoip-list-license
   ```

   The value returned by this command should match the total number of licenses returned on the old license server.

Updating the PCoIP License Server

> ✏️ **Check the location of .jks file before upgrade license server**
>
> If you enable HTTPS, please ensure .jks file is not placed under `/opt/flexnetls/TERADICI/` folder, which may be overwritten by future upgrades, as described [here](#). You may reset the .jks file to another location before upgrade.

You can update the license server by issuing the following commands:

- **For RHEL/CentOS 7**:

```
sudo yum update
```

- **For RHEL/Rocky Linux 8**:

```
sudo dnf update
```

While an upgrade is in progress, the License Server will be offline. Current PCoIP sessions will not be affected, and existing users will still be able to establish PCoIP connections. New users and connections that do not already have validated licenses will be unable to connect until the upgrade is complete.

After the upgrade finishes, check the following items:

- Run the following commands, the reported version number should match the expected installer version.

   - **For RHEL/CentOS 7**:

```
yum info pcoip-license-server
```

   - **For RHEL/Rocky Linux 8**:

```
dnf info pcoip-license-server
```

- Run [pcoip-list-licenses](#) to verify that current licenses were not impacted by the upgrade procedure.

> ⚠️ **Warning: Downgrading is not supported**
>
> Downgrading the PCoIP License Server to a previous version may result in application failure or corrupted data, and is not supported.

Configuration Guide

Configuring the PCoIP License Server

The PCoIP License Server requires minimal configuration. This section describes the configuration settings and options available.

> ⚠️ **Use HTTPS/TLS whenever possible**
>
> We strongly recommend that you change the default protocol from http to https, as described in [Enabling TLS](#).

> 🔥 **Important: Configure PCoIP Agents and Connection Managers**
>
> The PCoIP License Server URL must be provided to the *Connection Manager* managing your PCoIP agents, or to each of your *PCoIP Agents* if you are not using a Connection Manager. The License Server URL format is:
>
> ```
> https://<license-server-address>:<port>/request
> ```
>
> If you have not configured your PCoIP License Server to use HTTPS/TLS, use http:// instead of https://.

Setting the License Server's Administrator Password

The License Server administrator's password is set using the `pcoip-set-password` command. You must have superuser (sudo) permissions to use `pcoip-set-password`.

> **ⓘ Info: Password Rules**
>
> Passwords should be surrounded with single quotation marks like 'password', and must conform to the following rules:
>
> - Must be between 8 and 30 characters long
>
> - Must contain at least one lowercase letter
>
> - Must contain at least one uppercase letter
>
> - Must contain at least one digit
>
> - Must contain at least one symbol, excluding ' (single quote), " (double quote), **** (backslash), and spaces.

To set the PCoIP License Server Password:

1. Invoke `pcoip-set-password` to set your new password.

   > **✎ Note: Default password**
   >
   > The default password in new installations is `1P@ssw0rd!`, where the leading `1` is a numeral one and `0` is a zero. When setting the password on a clean installation, use this as your curent password.

   - If you do not supply any flags, you will be prompted for your current and new passwords:

     ```
     sudo pcoip-set-password
     ```

   - You can also supply the current and new password inline, by using `-p` and `-n` flags:

     ```
     sudo pcoip-set-password -p <current password> -n <new password>
     ```

Configuring the License Server's Listening Port

The PCoIP License Server listens for communication from PCoIP agents in your deployment on a defined listening port. By default, this listening port is set to 7070, but can be changed by specifying the PORT setting in the `/opt/flexnetls/TERADICI/local-configuration.yaml` configuration file.

> ⚠️ **Enable HTTPS/TLS**
>
> we strongly recommend enabling HTTPS/TLS for secure communications with the PCoIP License Server. For instructions, see [Enabling TLS](#).

> 🔥 **PCoIP agents and License Server must use the same port**
>
> PCoIP agents are configured to use port 7070 by default. If you change the license server port, you must also change the configuration of all PCoIP agents that use it.

To change the license server listening port:

1. Open `/opt/flexnetls/TERADICI/local-configuration.yaml` in a text editor.

2. Locate the port assignment line:

   ```
   ...

   \# HTTP listening port. Default is 7070\. You can bind to an interface
   with this syntax: '[127.0.0.1].7070'.

   port: 7070
   ...
   ```

3. Change the value of `port` to the new value. The port number must be an integer between 1 and 65535.

   > 🔥 **Reserved port numbers**
   >
   > Port numbers below 1024 are reserved for processes running as root unless you are using port forwarding, or tools like *setcap*, *setuid*, or *authbind*.

4. Save the file and exit the editor.

5. Restart the license server for the new value to take effect:

   ```
   sudo systemctl restart flexnetls-TERADICI
   ```

6. Update the configuration of any PCoIP agents that communicate with this PCoIP License Server. For instructions, see one of the following guides:

- [HP Anyware PCoIP® Graphics Agent for Windows Administrators' Guide](#)

- [HP Anyware PCoIP® Graphics Agent for Linux Administrators' Guide](#)

- [HP Anyware PCoIP® Standard Agent for Windows Administrators' Guide](#)

- [HP Anyware PCoIP® Standard Agent for Linux Administrators' Guide](#)

Configuring Proxy Settings

The license server can access the Internet via a proxy to activate, return, and update its licenses. The proxy server is specified by its address and port number.

Proxy settings are configured using the `pcoip-configure-proxy` command. Only a user with superuser privileges may invoke this command.

Configure and Use a Proxy

Use `pcoip-configure-proxy` with `-s` and the following information:

- The address and port number of the proxy server, formatted as `<address>:<port>`

- If the proxy server requires authentication, provide the username and password with the `-u` and `-p` options.

For example, to configure the license server to proxy internet traffic via a proxy server at *proxy.domain.local* on port *1234:*

```
sudo pcoip-configure-proxy -s proxy.domain.local:1234
```

This example configures the license server to proxy internet traffic via a proxy server at *192.168.0.12* on port *10443*, and provides credentials using `-u` and `-p`.

```
sudo pcoip-configure-proxy -s 192.168.0.12:10443 -u username -p password
```

View Proxy Settings

Use `pcoip-configure-proxy` with `-v`. For example:

```
sudo pcoip-configure-proxy -v
```

Clear Proxy Settings

To clear proxy settings, which will stop the PCoIP License Server from using a proxy, use `pcoip-configure-proxy` with `-c`. For example:

```
sudo pcoip-configure-proxy -c
```

Enable HTTPS/TLS for PCoIP License Server

> 🔥 **Important: Always use HTTPS**
>
> The following instructions document the use of HTTPS with TLS. The default communication protocol is HTTP, which is less secure than HTTPS. we strongly recommend using HTTPS when communicating with the local PCoIP license server.

> ⚠️ **Warning: Only internal network usage is supported**
>
> The PCoIP License Server only supports company internal network usage. It is not designed to receive connections from the public internet.

> ✏️ **TLS 1.1 on RHEL/Rocky Linux 8**
>
> TLS 1.1 is disabled by default in RHEL/Rocky Linux 8. Attempts to use it in those operating systems may result in errors.
>
> **TLS 1.1 is insecure and we strongly recommend that you do not enable it.** If you *must* enable TLS 1.1, understanding that it is not secure, you must first update the CentOS security policy to `LEGACY`.
>
> To view the current security policy, run the following command:
>
> ```
> update-crypto-policies --show
> ```
>
> To set the policy to `LEGACY`, run the following command:
>
> ```
> update-crypto-policies --set LEGACY
> ```
>
> Once this policy is set, you can proceed with the following instructions.

To use HTTPS/TLS on the PCoIP License Server:

1. Get a valid certificate and accompanying private key, and save them in JKS (Java Key Store) format. Ensure that the JKS file has a keystore password and storepass, and they both are the same.

> ✏️ **Using a self-signed certificate (not recommended)**
>
> We recommend using a CA-signed certificate whenever possible, but you can use a self-signed certificate if required.
>
> If you must use a self-signed certificate, generate one using the following command. Replace `<password>` with your own password, and `<License Server address>` with the IP address or FQDN of the license server:
>
> ```
> keytool -genkey -keyalg RSA -alias teradiciLicenseServer -keystore
> teradiciLicenseServer.jks -storepass <pasword> -validity 365 -keysize
> 2048 -noprompt -dname "CN=<License Server address>, OU=Teradici PCoIP
> License Server, O=Teradici Corp, L=Vancouver, ST=BC, C=CA" -keypass
> <password>
> ```
>
> ```
> keytool -importkeystore -srckeystore teradiciLicenseServer.jks -
> destkeystore teradiciLicenseServer.p12 -deststoretype pkcs12
> ```
>
> PCoIP agents can't validate self-signed certificates for HTTPS connections unless the public certificate is installed on the machine's trust store. For more information, see the RHEL instructions on [this page](#).

2. Create a new `/opt/flexnetls/certs` directory, and copy the `.jks` file into it. Do not place `.jks` file under `/opt/flexnetls/TERADICI/`, which may be overwritten by future upgrades.

3. Give the `.jks` file appropriate permissions:

   ```
   sudo chmod 440 /opt/flexnetls/certs/teradiciLicenseServer.jks
   ```

   ```
   sudo chown root.pcoip_license_server /opt/flexnetls/certs/
   teradiciLicenseServer.jks
   ```

4. Create an obfuscated password using Flexera's password obfuscation tool, replacing `<password>` with your password:

```
cd /opt/flexnetls/TERADICI/
```

```
java -jar flexnetls.jar -password <password>
```

The output from this command shows the original password and the obfuscated password. Copy the obfuscated password (including `OBF:`) for use in the next step.

5. Configure the Local License Server settings to use the JKS:

   a. Open `/opt/flexnetls/TERADICI/local-configuration.yaml` in a text editor using sudo.

   b. Edit the following lines, replacing `<obfuscated password>` with the password you copied in the previous step. The configuration options are described next:

```
# local-configuration.

# HTTP listening port. Default is 7070. You can bind to an interface
with this syntax: '[127.0.0.1].7070'.
port: 7070

...

# HTTPS server mode
https-in:
  # Set to true to enable
  enabled: true
  # HTTPS listening port
  port: 7071
  # Path to keystore
  keystore-path: /opt/flexnetls/certs/teradiciLicenseServer.jks
  # Keystore password. You can obfuscate this with java -jar
flexnetls.jar -password your-password-here
  keystore-password: <obfuscated password>

...
```

   The options are:

   `port`: HTTP listen port. This is required to run the license server commands internally on the license server host. You can safely block this port externally.

   `https-in/enabled`: HTTPS-in enable. Set this to true to enable HTTPS for incoming connections to the license server.

`https-in/port`: HTTPS-in port number. Set this to the HTTPS listening port for the license server.

`https-in/keystore-path`: Set this to the full path for the JKS file that will be used for encryption.

`https-in/keystore-password`: Set this to the keypass/storepass, *preferably the obfuscated password you created earlier*.

6. Restart the license server:

```
sudo systemctl restart flexnetls-TERADICI
```

7. When the server comes back up, verify that the system is listening on the configured HTTP and HTTPS ports (replace the ports in this example with your own as needed):

```
sudo netstat -tulpn | grep -e 7070 -e 7071
```

A positive response will look similar to the following example:

```
tcp6       0      0 :::7071                 :::*
LISTEN      3083/java
tcp6       0      0 :::7071                 :::*
LISTEN      3083/java
```

8. Verify that you can still view licenses:

```
pcoip-list-licenses
```

If you can view licenses, you will see output similar to the following example:

```
================================================================
Name            Count          Version        Type
Expiration
================================================================

Agent-Graphics  1              2019.0209      CONCURRENT
2019-02-09
Agent-Session   1              2019.0209      CONCURRENT
2019-02-09


Total number of features : 2



================================================================
Feature ID      Feature Name           Feature Version   Feature Count
Used/Available
================================================================
1               Agent-Graphics             2019.0209         0/1
2               Agent-Session              2019.0209         0/1
================================================================

Device Information:

----------------------------------------------------------------
Device Name                     Feature Registered(Used Count)
----------------------------------------------------------------
================================================================

        Total feature count        : 2
        Total feature count used   : 0
        Total uncounted features   : 0
================================================================
```

9. Verify that the license server setting in the Connection Manager [is configured correctly](#).

   When using HTTPS, it should be configured as follows (replace `<License-Server-IP-or-FQDN>` with the IP or FQDN of your license server, and `<https-listen-port>` with the port number you specified in step 5):

   ```
   LicenseServerAddress = https://<License-Server-IP-or-FQDN>:<https-listen-
   port>/request
   ```

10. Verify that the PCoIP Agents can check out licenses.

    a. Move to a PCoIP Agent desktop machine that will use this license server.

    b. Verify that the License Server's firewall is open by opening a browser and visiting `https://<License-Server-IP-or-FQDN>:<https-listen-port>/api/1.0/health`.

        • If the page loads, the firewall configuration is correct.

        • If the page loads but throws a certificate error, the port is open but the certificate is invalid; see below for guidance.

        • If the page does not load, the port is most likely closed.

    c. Verify that the PCoIP Agent machine can view license information from the License Server:

```
pcoip-validate-license
```

If a Certificate Fails to Validate

If the certificate fails to validate, it is likely because the Common Name for the certificate is invalid -- either incorrect, or not issued by a trusted Certificate Authority. Follow the instructions provided here to install or import certificates.

• On PCoIP Agent for Linux machines, follow the instructions [here](#) to install or import the certificate.

• On PCoIP Agent for Windows machines, follow the instructions [here](#) to install or import the certificate.

Administration Guide

Managing PCoIP Session Licenses

PCoIP session licenses are purchased in bundles from HP. Each bundle is given an activation code at purchase, which controls activation and return of its session licenses. Licenses are validated by Flexera FlexNet Operations, and stored on the PCoIP License Server's trusted storage.

Activated licenses remain linked to their license server until they are returned. No other license server instance can activate licenses that are already allocated.

> ⚠️ **Licenses can be lost**
>
> If a system hosting a PCoIP License Server is destroyed or becomes corrupted, any licenses registered to it can no longer be returned and are effectively lost. If this happens, open a ticket with HP Global Support Services at the [Support Center](#).

Activating Licenses in an Online Environment

PCoIP session licenses can be activated directly when the license server is connected to the internet by using the `pcoip-activate-online-license` command. To activate licenses, you must supply the activation code for a group of licenses and the total number of licenses to activate under that activation code.

This command requires the PCoIP License Server's administrative password. You will be prompted for it.

For example:

```
pcoip-activate-online-license -a <activation-code> -c <license count>
```

> ✏️ **Note: License count (`-c`) sets the total number of active licenses for each activation code**
>
> The license count (`-c`) sets the *total number of licenses* that will be active for a given activation code. It does not add *c* additional licenses.
>
> For example, if you use `pcoip-activate-online-license -a 1234567890 -c 5` and then `pcoip-activate-online-license -a 1234567890 -c 10`, you will have 10 active licenses—not 15.

To activate licenses:

1. SSH into your PCoIP License Server machine.

2. Invoke `pcoip-activate-online-license`, supplying the following arguments:

   - `-a` followed by the activation code to use

   - `-c` followed by the number of licenses to activate under the specified activation code.

   - Optionally, provide the license server password on the command line with `-p` followed by the password. If you omit this option, you will be prompted for the password.

   For example, this command would activate 50 licenses with the activation code 1234-ABCD-EF12-5678. Since the `-p` option is not used, you would be prompted for the password:

   ```
   pcoip-activate-online-license -a 1234-ABCD-EF12-5678 -c 50
   ```

3. If you have licenses belonging to multiple activation codes, invoke `pcoip-activate-online-license` again for each license pool.

4. Verify your license activations:

   ```
   pcoip-list-licenses
   ```

Returning Licenses in Online Environments

Licenses are registered to the license server where they are activated. In order to activate them on a different license server, they must first be *returned*, or released, back into the available license pool.

Return all the licenses for a given activation code by invoking `pcoip-return-online-license`.

This command requires the PCoIP License Server's administrative password. You can provide the password inline using `-p`. If you do not provide the password on the command line, you will be prompted for it.

To return licenses:

1. Use `pcoip-list-licenses` to view information about your current license usage.

```
pcoip-list-licenses
```

2. Use `pcoip-return-online-license` to return all of the licenses for an activation code. This will return all the licenses belonging to the given activation code *on this license server*; if there are activated licenses belonging to the same code on a different license server, they must be returned on that server.

```
pcoip-return-online-license -a 1234-ABCD-EF12-3456
```

> 🔥 **Returning a subset of licenses**
>
> `pcoip-return-online-license` returns all licenses associated with an activation code. If you want to return a portion of the licenses instead, you can use `pcoip-activate-online-license` with a reduced total license count (-c), which effectively returns the remainder.

Viewing License Information

To view the current status of your managed licenses, use `pcoip-list-licenses`. This command provides information about the PCoIP session licenses that have been activated on the HP Anyware PCoIP License Server.

This command requires the PCoIP License Server's administrative password. You can provide the password inline using `-p`. If you do not provide the password on the command line, you will be prompted for it.

```
pcoip-list-licenses
```

The information returned by `pcoip-list-licenses` includes:

- The number of licenses that have been activated

- The number of licenses that have been used

- The expiration dates of features or session licenses.

Migrating Licenses to Another Server

A license may only be used on one license server instance at a time. To migrate licenses, you must return them on the first PCoIP License Server and then activate them on the second.

Reference

Locating License Server Files

License server files are in the following locations. Directories are denoted with a trailing '/'.

File or directory	Location
Log files	`/var/log/flexnetls-TERADICI/`
Server configuration file	`/opt/flexnetls/TERADICI/local-configuration.yaml`
Service configuration files	`/etc/systemd/system/flexnetls-TERADICI.service` `/etc/systemd/system/flexnetls-TERADICI.service.d/` `flexnetls.conf`
Executable files	`/opt/flexnetls/TERADICI/`
Trusted storage	`/var/opt/flexnetls/TERADICI`
Support bundle file	`/tmp/pcoip-license-server-support-bundle-<datetime>.tar.gz`
Temporary files	`/opt/flexnetls/TERADICI/`

> ✏️ **Changing the temporary file location**
>
> If needed, you can change the temporary file location by editing `opt/flexnetls/TERADICI/local-configuration.yaml` and providing a new path in the `jni-helper-directory` property.

Command Reference

For detailed information about all of these commands, including options and special forms, view the embedded man page documentation on the license server machine:

```
man <command-name>
```

You may use -p or -n flags to provide password for scripting license server commands. We recommend omitting the -p and -n flags if possible, as they can cause the provided values to be logged into /var/log/secure and bash history. The PCoIP License Server provides the following commands for configuring the license server and managing licenses in online environments:

pcoip-activate-online-license

Activates licenses when the PCoIP License Server is connected to the internet. See [Activating Licenses in an Online Environment](#).

```
pcoip-activate-online-license -a <activation-code> -c <license count>
```

pcoip-configure-proxy

Views, sets, and clears proxy configuration for the PCoIP License Server. See [Configuring Proxy Settings](#).

Task	Command
Set proxy configuration:	`sudo pcoip-configure-proxy -s proxy.domain.local:1234`
Clear proxy configuration:	`sudo pcoip-configure-proxy -c`
View proxy configuration:	`sudo pcoip-configure-proxy -v`
## pcoip-return-online-license	

Returns all previously activated PCoIP session licenses associated with the specified activation code using an internet connection. See [Returning Licenses in Online Environments](#).

```
pcoip-return-online-license -a 1234-ABCD-EF12-5678
```

pcoip-list-licenses

Provides information about the PCoIP session licenses that have been activated on the HP Anyware PCoIP License Server. See [Viewing License Information](#).

```
pcoip-list-licenses
```

This command was formerly `pcoip-view-license`. To ensure backward compatibility, both commands will work.

pcoip-set-password

Sets the PCoIP License Server's administrative password. See [Setting the License Server's Administrator Password](#).

```
sudo pcoip-set-password
```

pcoip-support-bundler

Gathers information useful to HP Anyware support in troubleshooting and diagnosing problems. See [Creating Support Bundles](#).

```
sudo pcoip-support-bundler
```

Using a Failover PCoIP License Server

You can add a second standalone PCoIP License Server to your system, which will act as a backup in case the main PCoIP License Server fails. The two servers are registered as a pair called a *failover pair*, in which the main server periodically updates the backup server to keep it in sync.

In a failover situation, when the main PCoIP License Server is down or is unreachable, the backup PCoIP License Server can validate sessions.

> 🔥 **Important: Failover requires manual changes in PCoIP Connection Managers and PCoIP Agents**
>
> Switching from the main to the backup PCoIP License Server requires manual configuration changes in your PCoIP Connection Managers and your PCoIP agents. The change is not automatic. See [Failover behavior](#) for more information.

> ✏️ **Note: Backup PCoIP License Servers do not synchronize data**
>
> The backup PCoIP License Server does not synchronize data with the main PCoIP License Server, so information about usage will be unreliable as long as failover lasts.

Installing and Configuring a Failover Pair

A failover pair consists of a primary (main) PCoIP License Server and its backup. Creating a failover pair involves the following steps:

> 🔥 **Enable HTTPS/TLS**
>
> The examples that follow assume that you have enabled HTTPS/TLS, as described [here](#). If you have not, use `http://` instead of `https://`.

1. [Install the backup PCoIP License Server](#)

2. [Set the host ID of the backup server on the main server](#)

3. <u>Register the PCoIP License Servers with HP Anyware</u>

4. <u>Enable failover support on the backup server</u>

5. <u>Configure response reference information on the main server</u>

6. <u>Activate licenses on the main server</u>

7. <u>Verify failover configuration</u>

1: Install the Backup PCoIP License Server

First, install the new PCoIP License Server that will act as your backup. **Do not** register it with HP Anyware yet (we'll do that later). Keep the following guidelines in mind:

- The two PCoIP License Servers must be the same version.

- Both PCoIP License Servers should be configured identically, with some allowable differences. For example, you can specify different PORT values for the two PCoIP License Servers.

- The two servers should be in different physical locations if possible, or at least on independent hypervisors. One incident or failure should not be able to take down both servers.

- The clocks of the main PCoIP License Server and backup PCoIP License Server must be accurate, synchronized, and in the same time zone. If they are not, unpredictable behavior can occur.

- You must configure the main PCoIP License Server with the failover information *before* the backup server is registered with HP Anyware. If the backup PCoIP License Server is registered with HP Anyware before configuration is complete, create a ticket with HP Anyware Support for assistance.

2: Set the Host ID of the Backup Server on the Main Server

The main PCoIP License Server needs to know the backup server's ID, which will be used to register with HP Anyware and create a failover pair. We'll get the ID from the backup server and then add that ID to the configuration file on the main server.

1. Start the backup PCoIP License Server.

2. On the backup PCoIP License Server, run the following command and note the backup server's host ID in the response:

```
pcoip-get-license-server-id
```

3. Stop the *backup* PCoIP License Server.

```
sudo systemctl stop flexnetls-TERADICI.service
```

4. Switch to the *main* PCoIP License Server and start it.

```
sudo systemctl start flexnetls-TERADICI.service
```

5. On the *main* PCoIP License Server, use a text editor to edit `/opt/flexnetls/TERADICI/local-configuration.yaml`. Set the `backup-hostid` to the backup server's host ID you recorded in step 2.

> ✏️ **Host IDs must be of the same type**
>
> The host ID for both the main server and backup server must be the same type (for example, you can use two VM UUIDs or two Ethernet MAC addresses, but not one of each).

6. Save and exit the editor.
7. Shut down the *main* PCoIP License Server.

```
sudo systemctl stop flexnetls-TERADICI.service
```

At the end of this process, *both PCoIP License Servers should be shut down*.

3: Register the PCoIP License Servers

Next we'll create the failover pair by registering the servers with HP Anyware.

1. Start the *main* PCoIP License Server.

```
sudo systemctl restart flexnetls-TERADICI.service
```

2. Run the following command:

```
pcoip-list-licenses
```

You don't need the output of this command; we're using it to push the configuration to HP Anyware, which will find the new backup server ID in your configuration and create a failover pair association.

3. Once you see a valid response from `pcoip-list-licenses`, start the backup PCoIP License Server.

4: Enable Failover Support on the Backup Server

Next, we'll change a few settings on the backup server, configuring it to act as a backup and sync with the main server.

> 🔥 **Important: About `flexnetlsadmin.sh`**
>
> The following sections use the PCoIP License Server Administrator command-line tool, which is a utility provided at `/opt/flexnetls/TERADICI/admintools/flexnetlsadmin.sh`. You can invoke it by providing its full file path on the command line.
>
> If you'd like to invoke the tool as `flexnetlsadmin.sh` (omitting the full path), add `/opt/flexnetls/TERADICI/admintools` to your machine's $PATH variable and restart your console application.
>
> The examples that follow use the shorter command form, as if you had modified your system $PATH. If you haven't, replace `flexnetlsadmin.sh` with `/opt/flexnetls/TERADICI/admintools/flexnetlsadmin.sh` in all of these sample commands.

> ✏️ **Passwords**
>
> You will be prompted for a password when using these commands. The password is the PCoIP License Server administrative password, as set by `pcoip-set-password`.

On the *backup* server, use `flexnetlsadmin.sh` to set the following PCoIP License Server policy settings:

- `fne.syncTo.mainUri`: Set this to the URI of the main PCoIP License Server, using the format: `https://<licenseServerHostName>:<port>/fne/bin/capability`.

  For example (replace the *backup host name*, *main PCoIP License Server host name*, and *port numbers* in this example with your own):

  ```
  flexnetlsadmin.sh -server https://localhost:7071 -authorize admin -
  passwordConsoleInput -config -set fne.syncTo.mainUri=https://
  <MainLicenseServerHostName>:7071/fne/bin/capability
  ```

- `fne.syncTo.enabled`: Set this value to `true`. For example (replace the *host name* and *port number* in this example with your own):

```
flexnetlsadmin.sh -server https://localhost:7071 -authorize admin -
passwordConsoleInput -config -set fne.syncTo.enabled=true
```

5: Configure Response Reference Information on the Main Server

Capability responses returned to client devices can include the URI for the main and backup PCoIP License Servers. Configure one or both of these policy settings to include the corresponding URIs in the response reference information:

- **To include the main PCoIP License Server URI in client reponses:** set the `licensing.main.uri` value using `flexnetlsadmin.sh`. For example (replace these host names and port numbers with your own):

```
flexnetlsadmin.sh -server https://localhost:7071 -authorize admin -
passwordConsoleInput -config -set licensing.main.uri =https://
<MainLicenseServerHostName>:7071/fne/bin/capability
```

- **To include the backup PCoIP License Server URI in client reponses:** set the `licensing.backup.uri` value using `flexnetlsadmin.sh`.

  For example (replace these host names and port numbers with your own):

```
flexnetlsadmin.sh -server https://localhost:7071 -authorize admin -
passwordConsoleInput -config -set licensing.backup.uri=https://
<BackupLicenseServerHostName>:7071/fne/bin/capability
```

Once configured, activate the licenses on the main server.

6: Activate Licenses on the Main Server

If no licenses were activated on the main PCoIP License Server at startup, activate them now. The active licenses will be automatically synced to backup PCoIP License Server.

> ✏️ **Synchronizing changes from the main server to the backup**
>
> If you make changes on the main server that need to be synchronized with the backup, restart the flexnetls-TERADICI.service on the backup:
>
> ```
> systemctl restart flexnetls-TERADICI.service
> ```

7: Verify Failover Configuration

After both servers have received their license rights, verify the failover scenario role of each PCoIP License Server. Each server's failover role is included in capability responses delievered to it.

Use the `flexnetlsadmin.sh` tool from each server machine to verify its failover role. As usual, replace the URI and port information here with your own.

- From the **main** PCoIP License Server:

```
flexnetlsadmin.sh -server https://localhost:7071 -authorize admin -
passwordConsoleInput -status
```

You should see a backup server specified in the response to this command.

- From the **backup** PCoIP License Server:

```
flexnetlsadmin.sh -server https://localhost:7071 -authorize admin -
passwordConsoleInput -status
```

This response *should not* contain a backup server item.

Failover Behavior

If the primary PCoIP License Server fails or loses connectivity, the backup PCoIP License Server will automatically begin validating PCoIP sessions.

PCoIP Connection Managers and PCoIP agents do not automatically switch to a backup PCoIP License Server; they must be configured to point to the backup server for the duration of the failover event, and then reverted once normal service is restored.

For detailed PCoIP License Server configuration information, see the following documentation:

- **Connection Manager** license configuration

- **Graphics Agent for Windows** license configuration

- **Graphics Agent for Linux (Ubuntu)** license configuration

- **Graphics Agent for Linux (RHEL/CentOS)** license configuration

- **Standard Agent for Windows** license configuration

- **Standard Agent for Linux (Ubuntu)** license configuration

- **Standard Agent for Linux (RHEL/CentOS)** license configuration

Additional Tools

HP Anyware maintains a Github repository with open-source tools that augment usage of the PCoIP License Server. The tools in this repo are provided as-is, with no expectation of support. Users are encouraged to submit bug reports in github, and are welcome to fork projects and submit pull requests.

The repo is available at https://github.com/teradici/pcoip-license-server.

Troubleshooting and Support

Support

Getting Support

If you are having trouble, help is always available. Here's how to contact support and connect with the user community.

Contacting Support

If you encounter problems installing or using our technology, you can:

- Check for updated release notes, which may address the issue you are experiencing. Release notes are published on [Support](#).
- Browse the [HP Anyware Knowledge Base](#).
- [Submit a support ticket](#).

The Community Forum

The PCoIP Community Forum allows users to have conversations with other IT professionals to learn how they resolved issues, find answers to common questions, have peer group discussions on various topics, and access the PCoIP Technical Support Service team. Our staff are actively involved in the forums.

To join the community, visit the [Community Forum](#).

Creating Support Bundles

Support bundles include relevant log files, current configuration, and license server and operating system information that are useful for HP Anyware Support in diagnosing problems and recommending actions. You may be asked by your HP Anyware Support representative for a support bundle while troubleshooting.

Support bundles are created using the `pcoip-support-bundler` command. You must have superuser (sudo) permissions to use this command.

This command requires the PCoIP License Server's administrative password. If you have [registered the password as an environment variable](#), it will be used automatically; otherwise, you will be prompted for it.

To generate a support bundle:

1. Invoke the `pcoip-support-bundler` command.

   ```
   sudo pcoip-support-bundler
   ```

   > ✏️ **Running with an empty password**
   >
   > It is possible to run this command using a blank password (using `-p` with no argument). In this case, the bundler will exclude some information from the generated support bundle.

2. Find the generated .tar.gz output in the `/tmp` directory:

   ```
   /tmp/pcoip-license-server-support-bundle-<date-time>.tar.gz
   ```

> ⚠️ **Understand the data the support bundler collects**
>
> **Support bundles will collect the following files or command output:**
>
> - `/opt/flexnetls/TERADICI/*` (except flexnetls.jar)
> - `/opt/flexnetls/TERADICI/admintools/*` (except flexnetlsadmin.jar)
> - `/var/log/flexnetls-TERADICI/*`
> - `var/log/audit/*`
> - `/var/log/messages*`
> - `/etc/init.d/flexnetls-TERADICI`
> - `/etc/default/flexnetls-TERADICI`
> - `/etc/*-release`
> - `/etc/issue`
> - `pcoip-configure-proxy.py -v`
> - `pcoip-view-license.py -p`
> - `flexnetlsadmin.sh -server -config`
> - `flexnetlsadmin.sh -server -status`
>
> **The output of the following system commands is collected:**
>
> - `id license_server`
> - `groups license_server`
> - `yum list installed`
> - `who`
> - `dmesg`
> - `ss -ax`
> - `semodule -l`
> - `sestatus`
> - `ps wwauxfZ`
> - `netstat -Wnap`
> - `firewall-cmd --list-all`

- `iptables-save`

- `df -hk`

- `ip addr`

Troubleshooting

Troubleshooting General Issues

My PCoIP session licenses have disappeared

Your licenses have most likely expired. Contact HP Anyware Sales to re-activate your licenses.

My installation is taking a long time to complete

Installation should typically take 1-2 minutes. If you are experiencing delays longer than this, or if your installation is quitting with a timeout error, check the system logs for errors and contact HP Anyware Support.

I forgot my PCoIP License Server administrative password

If you forget the PCoIP License Server administrative password, you will no longer be able to run most administrative commands. You will still be able to adjust proxy settings and change the listening port.

The PCoIP License Server administrative password is not recoverable; however, you can restore the default password if you destroy and rebuild the license server's trusted storage. If trusted storage contains any active licenses, FlexNet Operations will restore them once the trusted storage is rebuilt.

To rebuild the trusted storage database:

1. Stop the License Server service

```
sudo systemctl stop flexnetls-TERADICI
```

2. Verify that the process has stopped running. If it has not been stopped, kill it manually:

```
sudo pkill -u pcoip_license_server
```

3. Delete the contents of the trusted storage directory:

```
sudo rm -rf /var/opt/flexnetls/TERADICI/*
```

> ⚠ **Do not delete the TERADICI/ directory**
>
> If the `/var/opt/flexnetls/TERADICI/` directory is deleted, you must recreate it and assign the correct write permisions:
>
> ```
> sudo mkdir -p /var/opt/flexnetls/TERADICI
> sudo chown root.license_server /var/opt/flexnetls/TERADICI
> sudo chmod 775 /var/opt/flexnetls/TERADICI
> ```

4. Start the license server service:

```
sudo systemctl start flexnetls-TERADICI
```

5. Reset the PCoIP License Server administrative password:

```
sudo pcoip-set-password
```

I've changed some configuration settings but the changes have not been applied

Configuration changes require a restart of the PCoIP License Server service to take effect. To restart the service, use this command:

```
sudo systemctl restart flexnetls-TERADICI
```

I've renewed my existing licenses but the expiration date has not been updated

It can take up to 24 hours for the license server to retrieve an update from FlexNet Operations. This delay should not impact your users, who will be covered by the 7-day grace period.

To force an immediate update, either restart the license server or re-activate an activation code.

My password fails when using the `-p` option

If your password contains reserved Linux characters like the pipe (`|`), the shell may interpret them as operators instead of string characters and break the command. In order to prevent the shell from interpreting operators, enclose your password in single quotes.

When I activate additional licenses under an existing activation code, the number of activated licenses I get is wrong

When you supply an activation count (`-c`) to `pcoip-activate-*-license`, you are setting the *total* number of licenses that should be active under that code. If you have 10 licenses and want to activate 5 more, you should run the activation command with `-c 15` (not `-c 5`).

The PCoIP agent reports that there are no available licenses

If the PCoIP agent reports that that no licenses are available, consider the following possibilities:

- The PCoIP License Server may be incorrectly configured and unable to communicate with your PCoIP agents. The PCoIP License Server should be available at `https://<license-server-address>:<port(default=7070)>/request`.

- PCoIP agents must be configured to use the same port number as your PCoIP License Server. By default, this is 7070. If you change the listening port on the PCoIP License Server, you must also configure your PCoIP agents to use the new value.

- The PCoIP License Server may not have enough free licenses. Use `pcoip-list-licenses` to verify your available license count.

Troubleshootnig Error Messages

ERROR: Connection to server failed or refused

Check that the license server service is running:

```
sudo systemctl is-active flexnetls-TERADICI
```

If it is, ensure that the listening port is open (the default listening port is 7070). To quickly check that the correct listening port is open, use a browser to visit the following URL:

```
https://<license-serve-ip-address>:<port>/api/1.0/health
```

Job for flexnetls-TERADICI.service failed because the control process exited with error code

If you see this error message, the server needs to be killed and restarted. To kill and restart the system, use these commands:

```
sudo pkill -u pcoip_license_server
sudo systemctl restart flexnetls-TERADICI
```

Too many failed logins

This error means that the provided password has been incorrect 3 consecutive times while attempting to access the PCoIP License Server trusted storage. If the incorrect password has been provided 3 or more times consecutively, the license server will block access to administrative commands for 10 minutes, or until the license server is restarted.

FNE License Server has not been configured for HTTPS

This can happen when the `/opt/flexnetls/TERADICI/flexnet.certs` file is missing or invalid. Updating or re-installing the license server should fix the issue. See Updating PCoIP License Server in an Offline Environment for detailed instructions.

Contact HP Anyware Support if the issue persists after reinstalling.

ACTIVATION_ID_COUNT_EXCEEDED

This error means you are attempting to activate more licenses than the activation code allows. Most likely, one or both of these conditions has been met:

- Some or all of the licenses for this activation code have already been activated on other PCoIP License Server instances, and there are not enough still available to complete your request. To activate these licenses on the current PCoIP License Server instance, you must first return them on the other instances.
- You have specified a larger license count than the given activation code manages.

ACTIVATION_ID_INVALID

This error means you have provided an invalid activation code. Make sure you have entered the activation code string correctly, including any symbols like dashes (-).

Troubleshooting Common Networking Errors in Logs

PCoIP License Server logs are located in `/var/log/flexnetls-TERADICI/`.

Network is Unreachable

Check the firewall to make sure the license server has network access.

Name or service unknown

The specified server address could not be resolved. Ensure that the server is a valid target and the DNS is properly configured.

Connection to _____ has been refused

Ensure that your proxy is configured correctly. See [Configuring Proxy Settings](#).

Error message could not be retrieved

Ensure that your proxy is configured correctly. See [Configuring Proxy Settings](#).

Proxy authentication required

The proxy server requires authentication, but it was not provided in the proxy configuration. See [Configuring Proxy Settings](#).

No logs are present, or the PCoIP License Server doesn't start

If there are no license server logs available, or if the service won't start, you can view additional system logs by entering the following command:

```
journalctl -u flexnetls-TERADICI
```