PCoIP Software Client for Linux Administrators' Guide

Welcome to the Teradici PCoIP® Software Client for Linux Administrators' Guide.

PCoIP Software Clients are applications that establish PCoIP sessions with remote Windows or Linux desktops. Connections can be made to virtual machines via Cloud Access Software, and to remote workstations via PCoIP Host Software and Remote Workstation Cards.

This guide explains how to install, configure, and use the PCoIP Software Client for Linux. It includes client system requirements and information on host dependencies.

Who Should Read This Guide?

This guide is intended for administrators and users who install, configure, or use the Teradici PCoIP® Software Client for Linux.

> ✏️ **Understanding terms and conventions in Teradici guides**
>
> For more information on the industry specific terms, abbreviations, text converntions, and graphic symbols used in this guide, see Using Teradici Product and Component Guides and the Teradici Glossary.

What's New In this Release?

The following features are supported in this release of the PCoIP Software Client for Linux:

PCoIP Ultra

Teradici have introduced an update to the PCoIP protocol with PCoIP Ultra. It includes our latest protocol enhancements, offering uncompromised 4K/UHD throughput, and efficient scaling across multicore CPUs. This is an evolving feature that will continually improve with each release. For more information on PCoIP Ultra, see PCoIP Ultra. To enable the PCoIP Ultra features through the PCoIP Agent, see Enabling PCoIP Ultra.

System Libraries Now Used for OpenSource Packages

In this release of the Software Client for Linux, system libraries are being used for certain opensource packages. For more information, see System Libraries.

Enhanced Security and Stability

This release contains improvements and enhancements around the security and stability of the Software Client.

Features Not Supported in the PCoIP Software Client for Linux

The following features are supported in the PCoIP for Mac and Windows but not yet in the Software Client for Linux:

- Local Printing
- USB Redirection
- USB Auto Forward
- Wacom Tablet Support

- ePad local termination

Additional Documentation

The following guides contain additional information relevant to PCoIP systems and PCoIP Software Clients:

- For more information about Teradici Cloud Access Software, including detailed information on included PCoIP components as well as Teradici All Access plans, see the Teradici Cloud Access Architecture Guide.

- For more information about Teradici PCoIP agents, which are required on remote virtual machines, see the following pages:

    - Teradici PCoIP Standard Agent for Windows

    - Teradici PCoIP Graphics Agent for Windows

    - Teradici PCoIP Standard Agent for Linux

    - Teradici PCoIP Graphics Agent for Linux

- For information about Teradici PCoIP Host Software, which is required on remote workstations using a Teradici PCoIP Remote Workstation Card, see the following pages:

    - PCoIP Host Software for Windows

    - PCoIP Host Software for Linux

System Requirements

The following table outlines the system requirements for the PCoIP Software Client for Linux:

System	Version Required
PCoIP Software Client Operating Systems	• Ubuntu Bionic Beaver 18.04 You can use an Ubuntu 18 container if you wish to run the client on another OS.
Compatible PCoIP agents	All PCoIP agents and versions
Compatible Teradici Remote Workstation Cards	TERA22x0 with firmware 5.0.1+
Compatible PCoIP Host Software	• Host Software for Windows: 4.3.1+ • Host Software for Linux: 4.7.0+

> 🔥 **Remote Workstation Platforms**
>
> PCoIP Host Software must be installed on Remote Workstation machines to enable keyboard and mouse functionality.

Installing the Software Client for Linux on Ubuntu

To install the PCoIP Software Client for Linux software:

In this section, you will learn how to install and uninstall the Software Client for Linux on Ubuntu. There are a few prerequisites to complete before a PCoIP Software Client for Linux installation will work.

Prerequisites

- These instructions assume you have already built the desktop machine, and that the machine meets the client's requirements.

- You must be have super user (root) privileges and be able to issue `sudo` commands.

> 🔥 **A desktop environment is required**
>
> Before proceeding, install a desktop environment of your choice. Kubuntu distributions are bundled with KDE; you can install KDE from other distributions by using this command:
>
> ```
> sudo apt install kubuntu-desktop
> ```
>
> To install Mate Desktop, use this command:
>
> ```
> sudo apt install ubuntu-mate-desktop
> ```
>
> These commands are provided as a convenience; there is no requirement for KDE or Mate Desktop. Any desktop environment will work.

Installing the PCoIP Software Client for Linux

To install the PCoIP Software Client for Linux:

1. Download the Teradici repository:

   ```
   sudo wget -O teradici-repo-latest.deb https://downloads.teradici.com/ubuntu/
   teradici-repo-$(lsb_release -cs)-latest.deb
   ```

2. Install the Teradici repository:

   ```
   sudo apt install ./teradici-repo-latest.deb
   ```

3. Install the PCoIP Software Client for Linux:

   ```
   sudo apt update
   sudo apt install pcoip-client
   ```

4. Launch the *pcoip-client* to create default configuration files and then quit the client.

It is also possible to install and run the PCoIP Software Client for Linux within a docker container, for information on this process, see Docker Containers.

The reference section also has information on Disabling the Virtual Terminal Functionality and configuring Linux Keyboard Shortcuts.

Uninstalling the PCoIP Software Client for Linux

To uninstall the PCoIP Software Client for Linux

- To uninstall the PCoIP Software Client for Linux:

```
sudo apt-get remove pcoip-client
```

Using the PCoIP Software Client

After installing a PCoIP Software Client on your client machine, you can connect to the following PCoIP solutions or products or hosts:
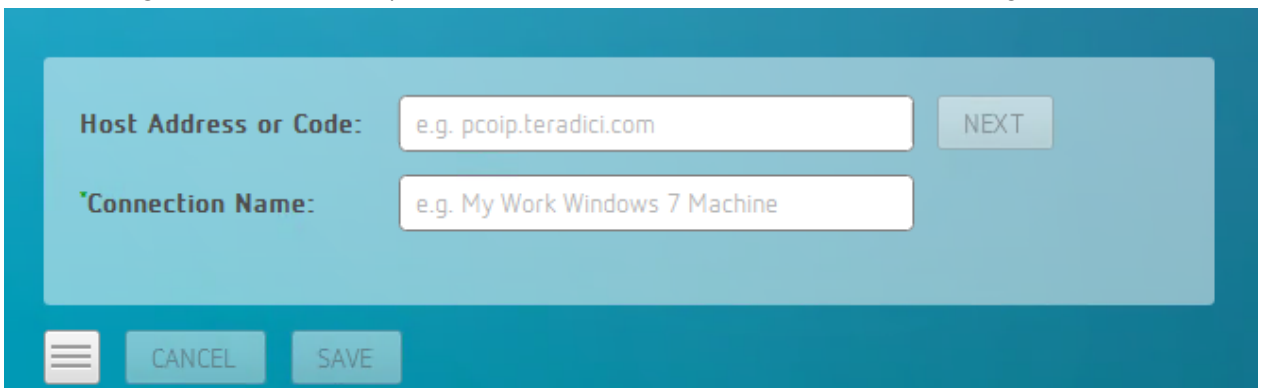
- Teradici PCoIP Graphics Agent or PCoIP Standard Agent installed as part of Teradici Cloud Access Software.

- Teradici PCoIP Remote Workstation Card and Teradici PCoIP Host Software installed in a Windows or Linux workstation.

Connecting to Virtual Machines

You can connect to virtual Windows or Linux hosts that have a PCoIP Standard Agent or PCoIP Graphics Agent installed. Connections can be made directly to individual host machines, or via a connection broker in managed deployments.

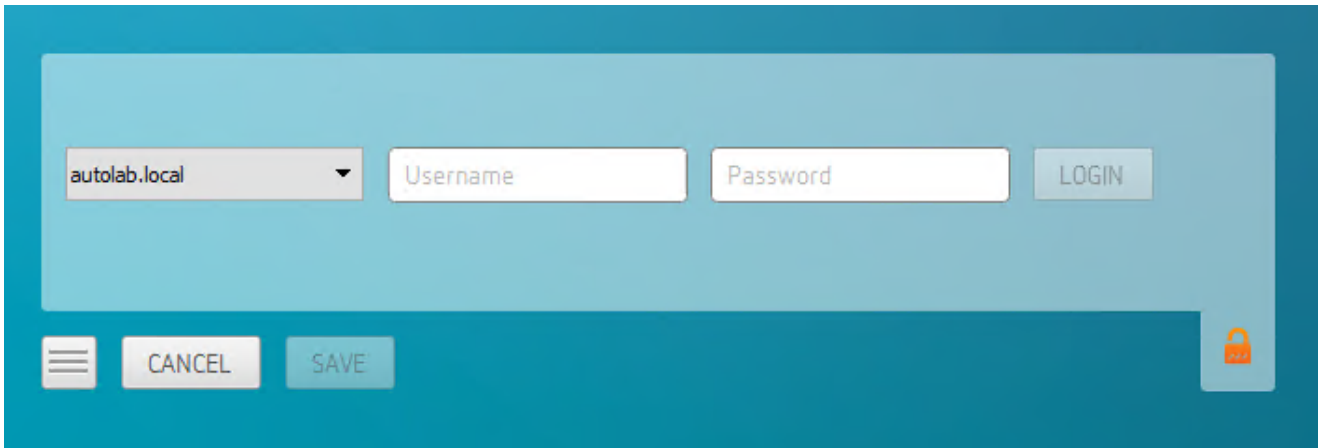## To connect to a remote workstation or virtual desktop:

1. Double-click the PCoIP Client desktop icon, alias, or program file *PCoIPClient* to launch the application.

2. In the *Host Address or Code* field, enter one of the following:

    • For **direct connections**, provide the address of the host machine.

    • For **managed connections**, provide the address of the connection manager.

   If you want to save this connection later for easy recall, enter a name in the *Connection Name* field. You will save the connection in step 5.

3. Click **NEXT.**

4. On the next screen, select your domain from the dropdown list, enter your user name and password for the desktop, and then click **LOGIN**.


If your domain does not appear in the list, specify it along with your user name (for example, `MyDomain\MyUserName`).

> ℹ️ **About the Security Padlock Indicator**
>
> The login screen displays a red padlock indicator when accessing a PCoIP agent desktop that uses default self-signed certificates. The icon indicates that the software's certificate is not signed by a trusted certificate authority (CA). You can use your own CA to create a certificate and then install the appropriate files at each end. If the client trusts your internal CA, a green padlock icon displays on the screen instead. To learn more about certificates, see the PCoIP agent administrators guides listed in the Teradici Cloud Access Architecture Guide.

5. If your login is successful, the following screen appears with a list of available desktops:
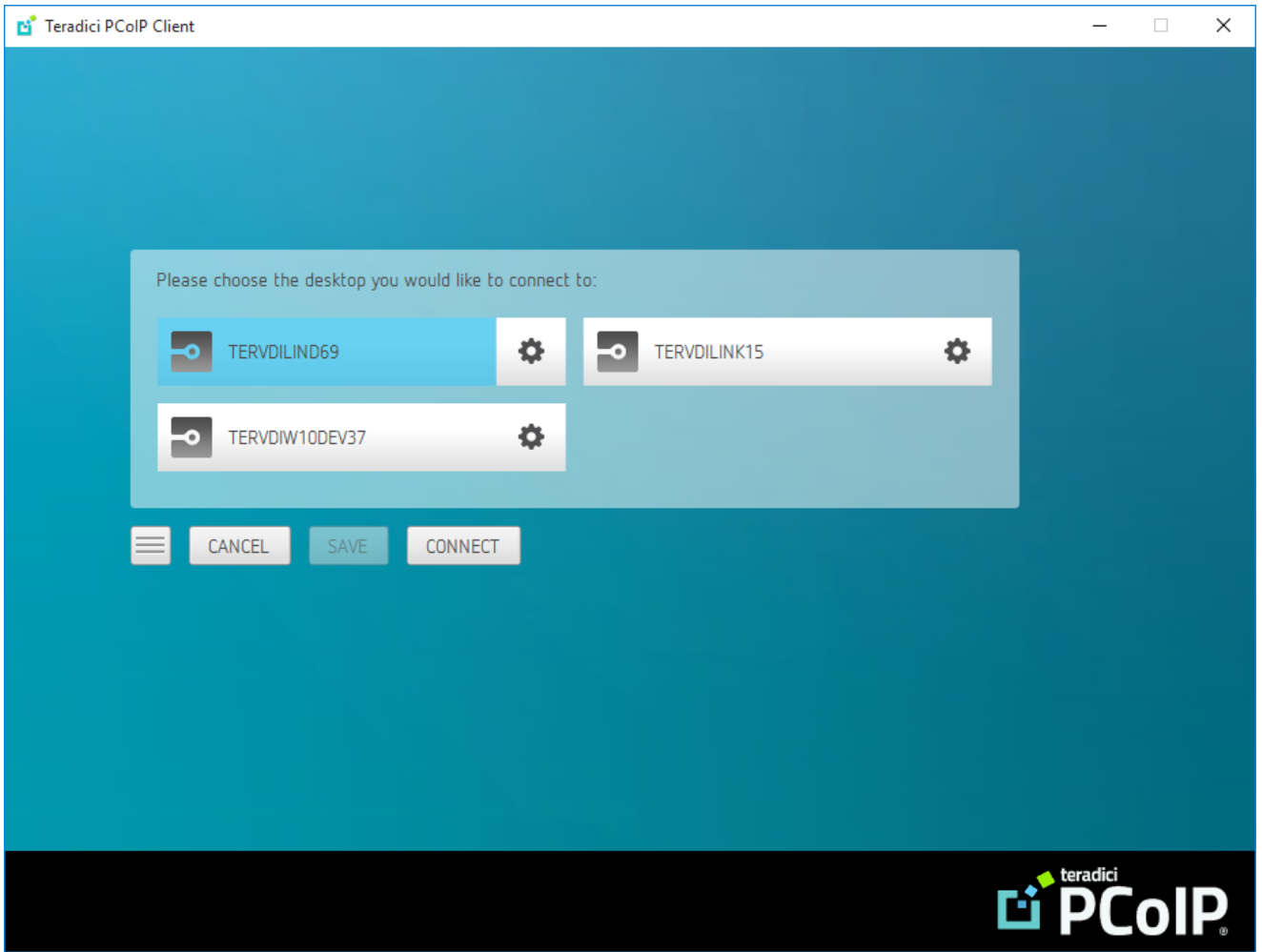
6. Click **Connect** to connect to the selected desktop.

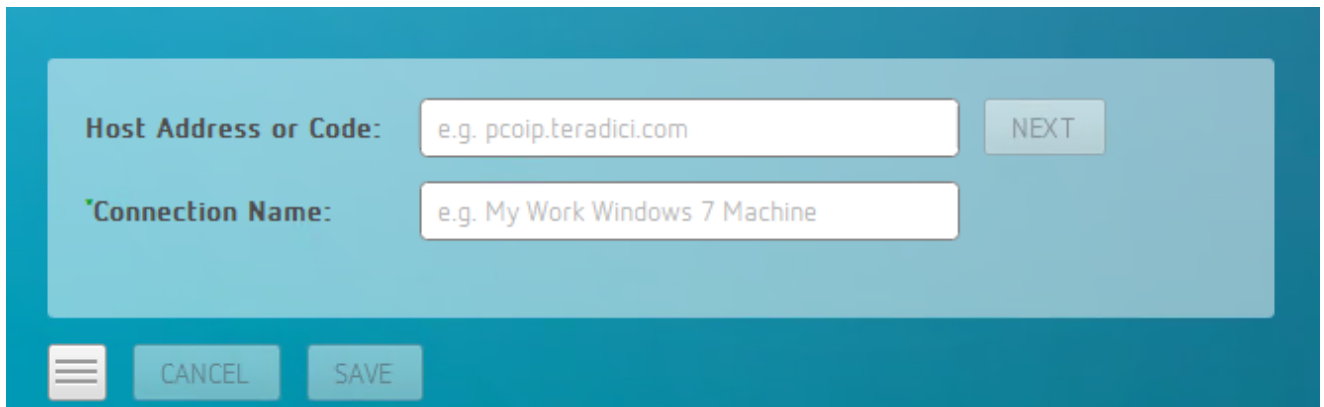> ✏️ **A short interface delay is normal**
>
> When a session is first connected, it may take a few seconds before you can take control of the keyboard and mouse. This is normal behavior.

Connecting to Amazon Workspaces

You can connect to Amazon Workspaces desktops for either Linux or Windows. Connections can use either Active Directory or an existing Radius server to provide multi-factor authentication (MFA).

To connect to a virtual desktop:

1. Double-click the PCoIP Client desktop icon, alias, or program file *PCoIPClient* to launch the application.

2. In the *Host Address or Code* field, enter the Amazon Workspaces registration code:
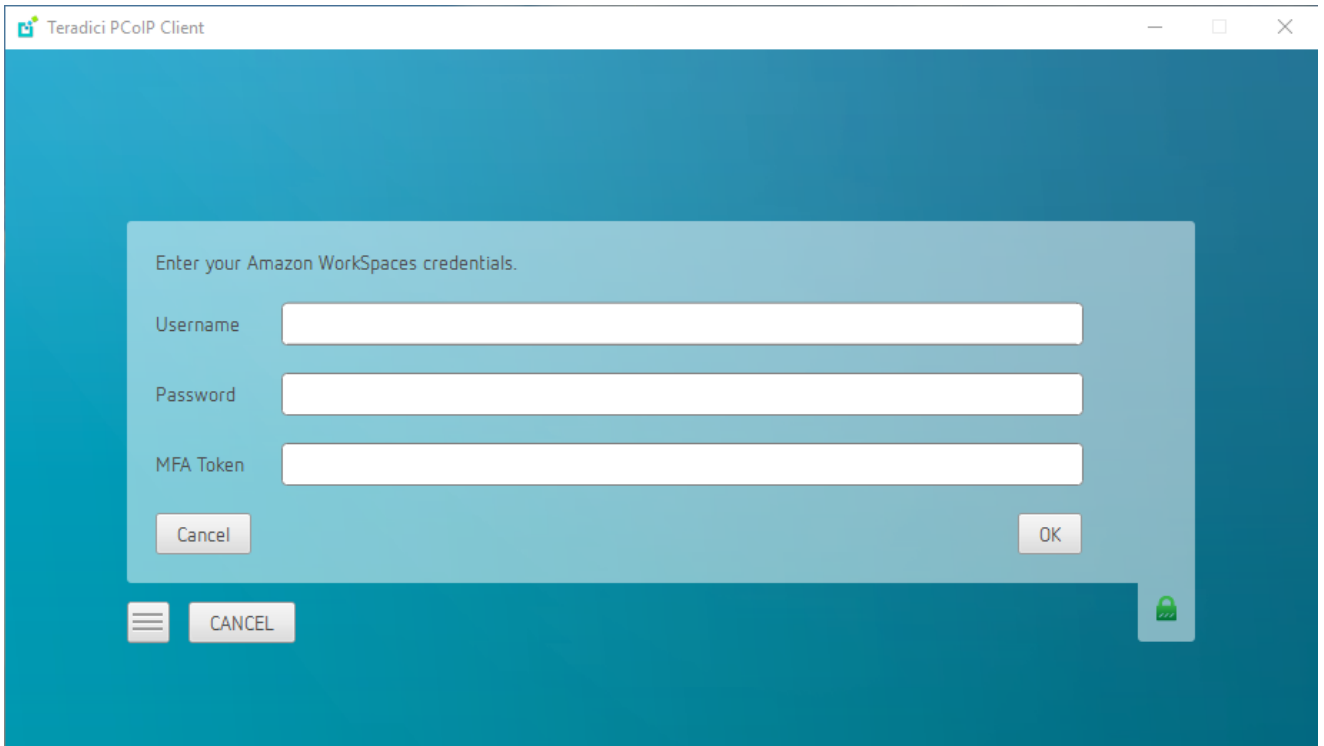

If you want to save this connection later for easy recall, enter a name in the *Connection Name* field.

3. Click **NEXT.**

4. On the next screen, enter your Amazon Workspaces username, Password and MFA token and then click **OK**.

> ℹ **About the Security Padlock Indicator**
>
> The login screen displays a red padlock indicator when accessing a PCoIP agent desktop that uses default self-signed certificates. The icon indicates that the software's certificate is not signed by a trusted certificate authority (CA). You can use your own CA to create a certificate and then install the appropriate files at each end. If the client trusts your internal CA, a green padlock icon displays on the screen instead. To learn more about certificates, see the PCoIP agent administrators guides listed in the Teradici Cloud Access Architecture Guide.

> ✏ **A short interface delay is normal**
>
> When a session is first connected, it may take a few seconds before you can take control of the keyboard and mouse. This is normal behavior.

Connecting to Teradici PCoIP Remote Workstation Cards

You can connect to remote workstations with a Teradici PCoIP Remote Workstation Card and PCoIP Host Software installed. Refer to System Requirements for supported versions.

Initial Workstation Configuration

Before you can connect to your remote workstation for the first time, a few things must be configured on the host machine.

These configuration actions only need to be taken once on each remote workstation in your system:

- **Enable monitor emulation for the video ports on your remote workstation**

    If monitor emulation is not enabled, you may see blank gray screens when you connect from the PCoIP Software Client.

    To enable monitor emulation, log in to the card's Administrator Web Interface (AWI) and select **Enable Monitor Emulation on Video Port n** from the Configuration > Monitor Emulation menu. For more information, see the Tera2 PCoIP Zero Client Firmware 4.x and Remote Workstation Card Firmware 4.9 Administrators' Guide.

- **Disable temporal dithering**

    Temporal dithering causes blurriness, heavy packet loss, and high CPU usage on the PCoIP Software Client machine. See Should I disable the dithering feature of my graphics card in a remote workstation environment? (KB 15134-207) for more information.

- **Linux workstations: configure PCoIP Host Software to Start Automatically**

    To configure the PCoIP host software to start automatically, log into the workstation using a PCoIP Zero Client or directly from a local mouse and keyboard, and modify the workstation startup script to launch the PCoIP host software. For details, see Installing PCoIP Host Software Binary RPM in the PCoIP® Host Software for Linux User Guide.
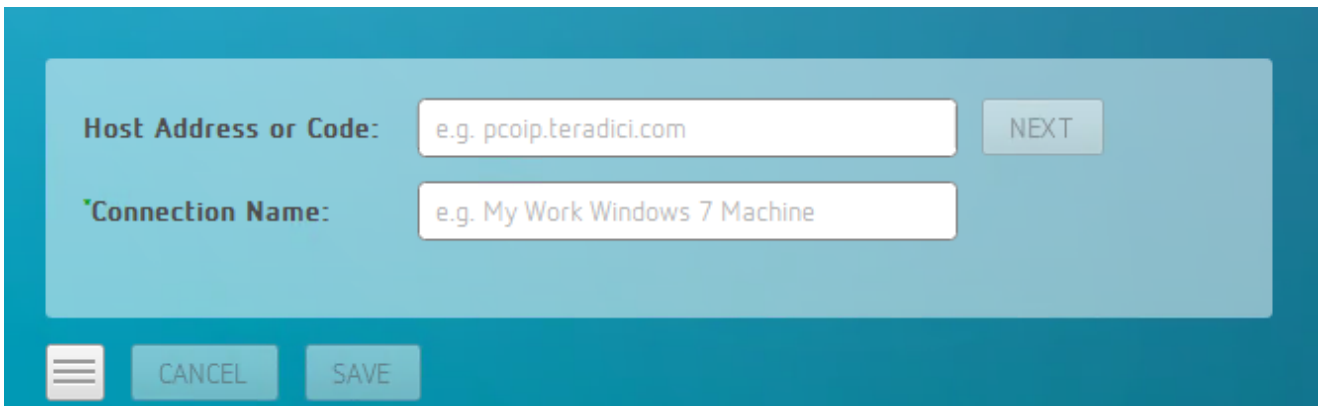
Connecting to a Remote Workstation Card

Once the remote workstation is properly configured, you can connect to it from the PCoIP Software Client.

> ⚠ **Workstation configuration is required before connecting**
>
> If you experience connection problems or degraded performance, make sure that the workstation is configured as described in Initial Workstation Configuration.

To connect to a remote workstation with a Teradici PCoIP Remote Workstation Card installed:

1. Double-click the PCoIP Client desktop icon, alias, or program file (PCoIPClient) to launch the application.

2. In the **Host Address and Code** box, enter the fully-qualified computer name or IP address of the Teradici PCoIP Remote Workstation Card installed in the remote workstation.

3. *Optional:* In the **Connection Name** box, enter a name for your connection. This field accepts any Unicode character.

> ✎ **The Connection Information can be saved**
>
> If you provide a connection name now, you will have the option of saving the connection after you are authenticated. Saved connections can be quickly recalled later, without manually re-entering connection information.

4. Click **NEXT.**

> ✏️ **A short interface delay is normal**
>
> When a session is first connected, it may take a few seconds before you can take control of the keyboard and mouse. This is normal behavior.

5. If your desktop is locked upon connection and requires you to enter Ctrl+Alt+Delete to log in, select **Connection > Send CTRL-ALT-DEL** from the PCoIP Software Client menu bar.

Using Saved Connections

Once you have saved a connection, you can use it to reconnect easily.

To reconnect using your saved connection:

1. Click the button for the saved connection. The button label displays the connection name you
   assigned when you configured the connection.

2. To see the connection address, hover your mouse over the saved connection. Hovering over a
   saved virtual desktop will also show the desktop name.

3. To edit or delete a saved connection, click the configure button on the right, and then select the desired option from the popup menu.
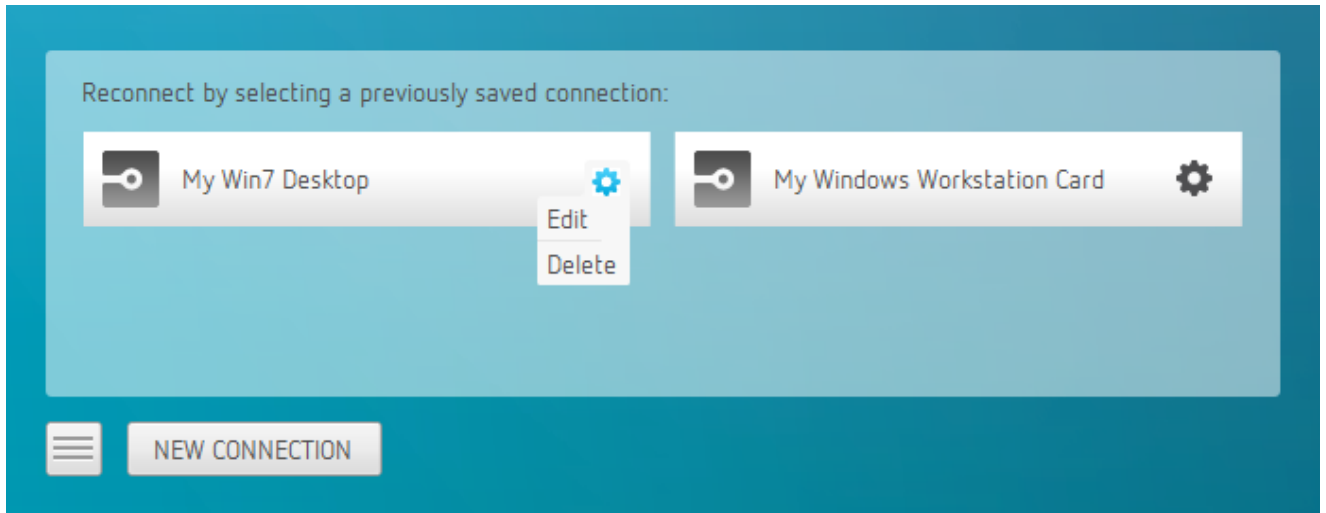
4. If you have saved multiple connections, click the desired one to reconnect. If you have more than four saved connections, additional saved connection buttons appear in an extended area of the page. Use the forward and back arrows to navigate between areas.
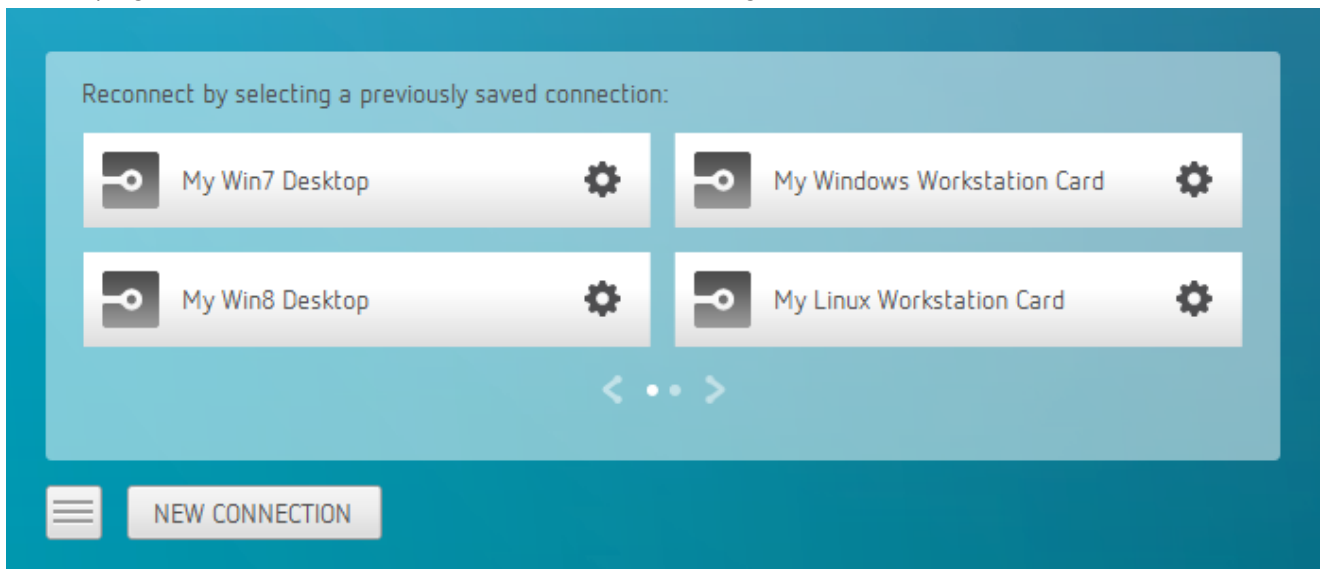
5. Any time you wish to connect to a new workstation, just click NEW CONNECTION to return to the main screen, and then enter the connection details.

Disconnecting a Session

To disconnect a PCoIP session from either client, select the **Connection > Disconnect** menu option.
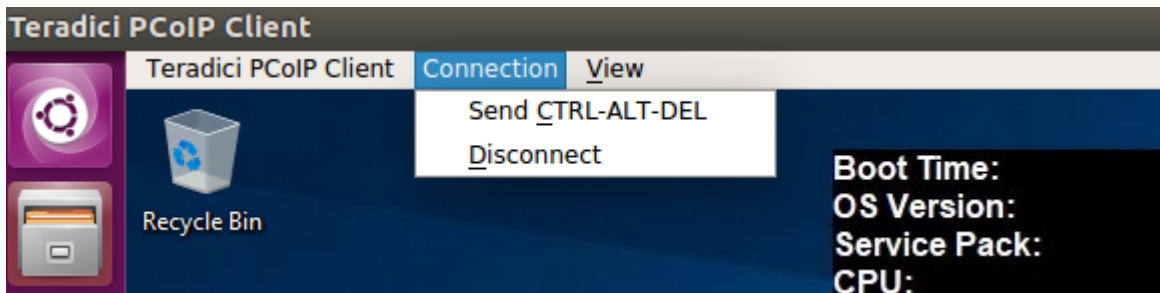
Quitting the application will also disconnect the current session.

Session Reconnection

If a network interruption is detected, the PCoIP session enters a reconnecting phase. In this phase the client will show you the network reconnecting dialog which indicates that there is a network issue and that the client is trying to reconnect and re-establish the PCoIP session. You can click **disconnect** to cancel the attempted reconnect and disconnect the session completely. If the reconnection is successful, the notification dialog will disappear and the session will be restored, if not, the session will be disconnected completely.

Changing the PCoIP Software Client Window Mode

You can use the PCoIP Software Client in full-screen or windowed mode. Full-screen mode is recommended in most cases.

Activating Full Screen Modes

The PCoIP Software Client provides two full-screen modes: one monitor and all monitors.

To switch from windowed mode to full-screen mode:

- To use one full-screen display, select **View > Show Fullscreen One Monitor**.

  All open windows and applications will be moved to a single full-screen display. This is equivalent to disconnecting all but one monitor from a physical host.

- To use all available full-screen displays, select **View > Show Fullscreen All Monitors**.

  This mode shows full-screen displays on all client monitors.

🔥 **Keyboard shortcut**

You can also enter full-screen mode by pressing **Ctrl+Alt+Enter** while in windowed mode. The shortcut will activate whichever full-screen mode was used last, or *all monitors* if no previous selection was made.

To switch from Fullscreen One Monitor to Fullscreen All Monitors mode:

1. Reveal the menu bar by moving the moues cursor to the top of a client display.

2. Select **View > Show Fullscreen All Monitors**.

To switch from Fullscreen All Monitors to Fullscreen One Monitor mode:

1. Reveal the menu bar by moving the moues cursor to the top of a client display.

2. Select **View > Show Fullscreen One Monitor**.

> **ⓘ Persistent Display Topology**
>
> Depending on the display topology mode you have selected, for example **Fullscreen One Monitor**, if you disconnect and then reconnect to the session, it will maintain that same mode upon reconnection. The state and mode will be preserved.

Miminizing the PCoIP Software Client from a Full-screen Mode

To minimize a software client in full-screen mode:

1. Reveal the menu bar by moving the mouse cursor to the top of any display.

2. Select **View > Minimize Client**.

> **🔥 Keyboard shortcut**
>
> You can also minimize the client by pressing **Ctrl+Alt+m** while in any full-screen mode.

Activating Windowed Mode

To switch from full-screen mode to windowed mode:

1. Reveal the menu bar by moving the mouse cursor to the top of any display.

2. Select **View > Leave Fullscreen**.

> **🔥 Keyboard shortcut**
>
> You can also enter windowed mode by pressing **Ctrl+Alt+Enter** while in any full-screen mode.

Enhanced Audio and Video Synchronization

Enhanced Audio and Video Synchronization provides improved full-screen video playback, reducing the difference in delays between the audio and video channels and smoothing frame playback on the client. This improves lip sync and reduces video frame drops for movie playback.

This feature introduces a small lag in user interaction responsiveness when enabled. Using enhanced audio and video synchronization will reduce the maximum frame rate.

Enhanced A/V Sync is enabled on a per-display basis, so you can dedicate individual displays to playback without impacting responsiveness on the others.

When enabled, a check mark appears beside the Enhanced A/V Sync menu item on that display. It is disabled on all displays by default.

To enable enhanced audio and video synchronization:

1. If you are in full-screen mode, reveal the menu bar on the display you want to enhance by moving the mouse cursor to the top.

2. On the display you want to enhance, Select **View > Enhanced A/V Sync** to toggle enhanced sync mode.

To turn off audio and video synchronization:

1. Go to `~/.config/Teradici/Teradici PCoIP Client.ini` .

2. Add the following line:

```
enable_enhanced_avsync = 0
```

> ⓘ **Persistent Display Topology**
>
> The Enhanced Audio and Video Synchronization feature is persistent across sessions from the same client, provided that the display topology has not changed.

Sending a Ctrl-Alt-Del Command

To send the Ctrl-Alt-Del keyboard command to a remote workstation, select the **Connection > Send CTRL-ALT-DEL** menu option.
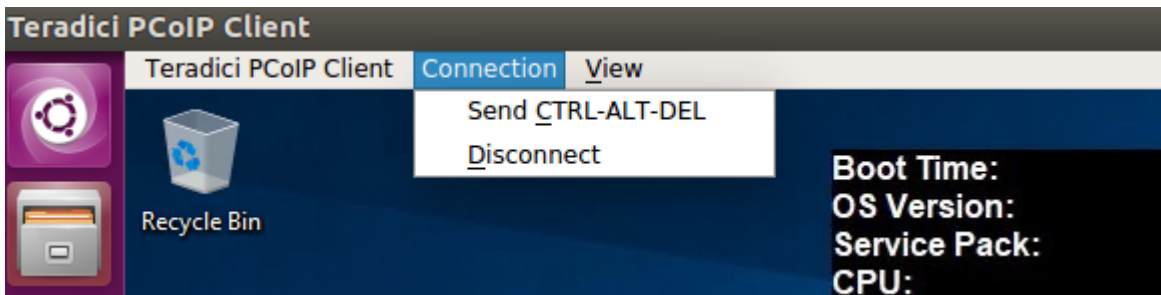
Changing the Language

In addition to English, the PCoIP Software Client also supports a number of different languages. During installation, you can select one of the supported languages.

To change the language in GNOME

- In the **Settings > Language and Region** panel, select another language from the language setting.

To change the language on the command line

Alternatively, the language can be set with the `locale` parameter on the command line:

```
pcoip-client locale <locale-code>
```

The following table lists the available language translations and codes:

Language	Code
German	de
Spanish	es
French	fr
Italian	it
Japanese	ja
Korean	ko
Portuguese (EU)	pt
Portuguese (Brazil)	pt_BR
Russian	ru

Language	Code
Turkish	tr
Chinese (Simplified)	zh_CN
Chinese (Traditional)	zh_TW

PCoIP Ultra

The PCoIP Client provides support for PCoIP Ultra, the latest protocol enhancements from Teradici. PCoIP Ultra is optimized for truly lossless support with bit-exact color accuracy and preservation of content detail at the highest frame rates.

PCoIP Ultra protocol enhancements propels our industry-recognized performance into the future of remote computing, with faster, more interactive experience for users of remote workstations working with high-resolution content.

PCoIP Ultra is disabled by default. To enable it, see Enabling PCoIP Ultra.

PCoIP Ultra Enhancements

In version 19.05, PCoIP Ultra provides the following benefits:

- Support for 4K/UHD high frame rate content
- Efficient scaling across multicore CPUs leveraging AVX2 instruction sets

The Software Client for Linux 19.05 with PCoIP Ultra contains certain limitations around USB and printer plugin redirection. The latest beta version of PCoIP Ultra is available via our Technology Preview version, as outlined below.

> 🔥 **PCoIP Ultra Technology Preview**
>
> PCoIP Ultra is an evolving technology, and new capabilities and enhancements are introduced frequently.
>
> If you would like to test unreleased versions of PCoIP Ultra, we invite you to join the PCoIP Ultra Technology Preview program. Technology Preview users receive pre-release versions of Teradici software for use in non-production environments, and provide feedback to our engineering teams.
>
> To learn more and to join the technology preview, visit the Teradici Support site.

Requirements

To take advantage of PCoIP Ultra, you need to meet these requirments:

- A PCoIP agent (any type) 19.05.0 or later.

- A PCoIP Software Client for macOS or PCoIP Software Client for Linux, 19.05.0 or later.

> ✏️ **PCoIP Software Client for Linux users**
>
> Support for PCoIP Ultra on the PCoIP Software Client for LInux is provided via the PCoIP Ultra Technology Preview as described above.

- The CPUs on bot the agent and the client machines must support the AVX2 instruction set.

Troubleshooting Your PCoIP Software Client

This section demonstrates using PCoIP Software Client log files to troubleshoot problems you may encounter with your PCoIP Software Client.

If you experience a problem, recreate the issue, generate a support bundle and contact Teradici Support. You can also check the Teradici PCoIP Community Forum for troubleshooting information about this product.

Session Log IDs

The PCoIP Software Client creates a unique session ID when a new session is established, and distributes that ID to all components in the system. When PCoIP components generate log messages, they are prefixed by this unique session ID, allowing administrators and support to easily group events by session across multiple components:

```
yyyy-mm-ddThh:mm:ss.ffffffZ xxxxxxxx-xxxx-xxxx-xxxx-xxxxxxxxxxxx > …
```

For example:

```
2015-11-06T08:01:18.688879Z 4208fb66-e22a-11d1-a7d7-00a0c982c00d > …
```

Log messages that do not pertain to a specific session will show a string of zeroes in place of the session log ID number.

Setting Log Levels

You can set log levels to determine the level of details provided in the log. Log levels range from 0 to 3, where 0 provides the least information and 3 provides the most information.

To set log levels:

- `pcoip-client -l x`

where `l` is lowercase L and `x` is desired the log level (1, 2, or 3).

Locating PCoIP Software Client for Linux Log Files

On a Linux computer, client logs are placed in `/tmp/Teradici/<USERNAME>/logs/` .

`Username` is the name of the user that launched the client.

Reconnecting a PCoIP Session

If a network interruption is detected, the PCoIP session enters a reconnecting phase. In this phase the client will show you the network reconnecting dialog which indicates that there is a network issue and that the client is trying to reconnect and re-establish the PCoIP session. You can click **disconnect** to cancel the attempted reconnect and disconnect the session completely. If the reconnection is successful, the notification dialog will disappear and the session will be restored, if not, the session will be disconnected completely.

PCoIP Software Client Security Modes

Once the client is installed, you can configure it and optimize PCoIP protocol behavior by adjusting configuration directives found in `~/.config/Teradici/Teradici PCoIP Client.ini`

Setting Values in *Teradici PCoIP Client.ini*

To set the configuration value, add or modify directives in `Teradici PCoIP Client.ini` . Place one directive on each line, in this format:

```
directive.name = <value>
```

PCoIP Software Client Security Modes

The PCoIP Software Client uses certificates to verify the identity of the host to which it connects. The security mode is configured by the `security_mode` setting in the **Teradici PCoIP Client** configuration file, which is described next. Three security mode options are available:

- **security_mode = 0:** verification is not required A red, unlocked padlock icon appears on the client login screen.
- **security_mode = 1:** warn but allow (default) If a certificate cannot be verified, an 'untrusted server' warning displays and a red, unlocked padlock icon appears on the client login screen. Users still have the option of connecting.

This mode is used if `security_mode` is not set in the configuration file.

- **security_mode = 2:** full verification is required. Users cannot connect unless a certificate can be verified.

> ✏️ **PCoIP sessions are always encrypted**
>
> Your PCoIP session is still encrypted and secure if you connect with security mode 0 or 1. The red padlock icon indicates that the certificate presented by the host is not signed by a trusted certificate authority in the client's certificate store, not that the session is insecure.

Setting the Security Mode

To set the security mode to full verification, set the security mode to **2**. You would set values in the `Teradici PCoIP Client.ini` file like this:

```
pcoip.security_mode = 2
```

System Libraries

The following system libraries are used by the Software Client for Linux:

- libboost

- libGL

- libprotobuf

- libpthread

- libssl

- liblzma

Previously these libraries had been distributed along with the client application. Security updates to these packages are available via system updates.

Disabling the Virtual Terminal Functionality

On the PCoIP Software Client for Linux using `Ctrl`+`Alt`+`F12` will switch to virtual terminal 12, which typically does not exist. This can result in a blank screen. To avoid this you can disable virtual terminal functionality by creating a file */usr/share/X11/xorg.conf.d/60-pcoip.conf* with the following contents:

```
Section "Serverflags"
    Option "DontVTSwitch" "yes"
EndSection
```

This file needs to be created with root permissions.

Docker Containers

Docker containers can be used to provide a Ubuntu 18.04 environment for the PCoIP client to run within. This can be used to isolate the client from the rest of the system or to run the client on a Linux distribution other than Ubuntu 18.04.

There are three steps involved in using the docker container:

1. Setup your docker environment for running docker commands.

2. Build a docker image as defined by the dockerfile.

3. Run the client within a container instance of the docker image.

> 🔥 **Example Instructions Only**
>
> The instructions in this section outline an example of how to run the client within a docker container. Individual deployments may require modifications to this example. For a full description of docker, see the documentation at https://docs.docker.com.

Setting up the Docker Environment

The following section outlines how to setup docker on Ubuntu 18.04:

1. Execute the following commands to install the docker package and enable docker access to X11 to display the client GUI:

   ```
   $ sudo apt-get install docker

   $ xhost +local:docker
   ```

2. Enable your user to properly use the docker commands without using sudo for every command. Execute the following command and then log out and back in again:

   ```
   $ sudo groupadd docker

   $ sudo usermod -a -G docker  $USER
   ```

Creating a Docker Image

A Dockerfile defines the runtime environment within the container that the client will run in. The contents of the Dockerfile for the Linux Client are outlined here:

```
FROM ubuntu:18.04

# Use the following two lines to install the Teradici repository package
RUN apt-get update && apt-get install -y wget
RUN wget -O teradici-repo-latest.deb https://downloads.teradici.com/ubuntu/
teradici-repo-bionic-latest.deb
RUN apt install ./teradici-repo-latest.deb

# Uncomment the following line to install Beta client builds from the internal
repository
#RUN echo "deb [arch=amd64] https://downloads.teradici.com/ubuntu bionic-beta
non-free" > /etc/apt/sources.list.d/pcoip.list

# Install apt-transport-https to support the client installation
RUN apt-get update && apt-get install -y apt-transport-https

# Install the client application
RUN apt-get install -y pcoip-client

# Setup a functional user within the docker container with the same permissions
as your local user.
# Replace 1000 with your user / group id
# Replace myuser with your local username
RUN export uid=1000 gid=1000 && \
    mkdir -p /etc/sudoers.d/ && \
    mkdir -p /home/myuser && \
    echo "myuser:x:${uid}:${gid}:Myuser,,,:/home/myuser:/bin/bash" >> /etc/
passwd && \
    echo "myuser:x:${uid}:" >> /etc/group && \
    echo "myuser ALL=(ALL) NOPASSWD: ALL" > /etc/sudoers.d/myuser && \
    chmod 0440 /etc/sudoers.d/myuser && \
    chown ${uid}:${gid} -R /home/myuser

# Set some environment variables for the current user
USER myuser
ENV HOME /home/myuser

# Set the path for QT to find the keyboard context
ENV QT_XKB_CONFIG_ROOT /user/share/X11/xkb
```

```
ENTRYPOINT exec pcoip-client
```

To build a docker image execute the following command:

```
$ cd <directory with Dockerfile>

$ docker build -t pcoip-client .
```

Running the Client in a Container

Once you have a docker image with the tag `pcoip-client` , you can run the client in a docker container. Execute the following command to build the pcoip-client docker image:

```
$ docker run -d --rm -h myhost -v $(pwd)/.config/:/home/myuser/.config/Teradici -v $(pwd)/.logs:/tmp/Teradici/$USER/PCoIPClient/logs -v /tmp/.X11-unix:/tmp/.X11-unix -e DISPLAY=$DISPLAY pcoip-client
```

The following table outlines the parameters used in the example above:

Parameters	Definition
-d	Runs the docker container in detached mode (optionally the client could be run in foreground mode).
-rm	Cleans up the container filesystem after the container exits.
-h	Specifies the hostname to use for the container.
-v	Maps local volumes to volumes in the container.
$(pwd)/.config/:/home/ myuser/.config/Teradici	This allows persistent storage of the client configuration and saved connections between container runs. The files are stored in .config in the current directory.
$(pwd)/.logs:/tmp/Teradici/ $USER/PCoIPClient/logs	This allows for persistent storage of the client log files after the client exits. The log files are stored in .logs in the current directory.
/tmp/.X11-unix:/tmp/.X11-unix	This allows access to the X11 display from the container.
-e	Set environment variable
DISPLAY=$DISPLAY	This sets the correct X11 display within the container.
pcoip-client	This is the tag of the container to run, the pcoip-client tag was created in the previous docker build step.

Linux Keyboard Shortcuts

There a number of system level keyboard shortcuts on Ubuntu 18.04 that can affect your remote desktop experience. If you are using some of these keys then it is recommended that you re-map or disable them.

To re-map a keyboard shortcut go to the **Keyboard** tab within your system settings, select the keyboard shortcut and enter the keys you wish to use to re-map with. You can also click backspace to disable the shortcut.

The following keyboard shortcuts may be of interest:

Navigation Shortcut: `Alt` + `Tab`

Ubuntu 18.04: Switch applications (on local client).

Windows 10: Switch applications (on remote desktop).

Navigation Shortcut: `Super` + `Tab`

Ubuntu 18.04: Switch applications (on local client)

Windows 10: Open task view (on remote desktop)

Navigation Shortcut: `Super` + `Shift` + `Up arrow`

Ubuntu 18.04: Move window one monitor up.

Windows 10: Stretch the desktop window to fill the entire screen.

Navigation Shortcut: `Super` + `Ctrl` + `D`

Ubuntu 18.04: Hides all normal windows.

Windows 10: Adds a virtual desktop.

Navigation Shortcut: `Ctrl` + `Alt` + `Tab`

Ubuntu 18.04: Switch System Controls Windows.

Windows 10: View open applications.

Navigation Shortcut: `Super` + `Home`

Ubuntu 18.04: Switch to workspace 1.

Windows 10: Minimize all but the active desktop window(Restores all windows on second stroke).

Navigation Shortcut: `Super` + `Lock`

Ubuntu 18.04: Lock screen.

Windows 10: Lock screen.

Navigation Shortcut: `Super` + `A`

Ubuntu 18.04: Show all applications.

Windows 10: Open action center.

Navigation Shortcut: `Super` + `S`

Ubuntu 18.04: Show the overview.

Windows 10: Open search.

Navigation Shortcut: `Super` + `H`

Ubuntu 18.04: Hide window.

Windows 10: Open the share charm.

Navigation Shortcut: `Super` + `Up arrow`

Ubuntu 18.04: Maximize window.

Windows 10: Maximize app window.

Navigation Shortcut: `Super` + `Down arrow`

Ubuntu 18.04: Restore window.

Windows 10: Minimize app window.

Navigation Shortcut: `Super` + `Left arrow`

Ubuntu 18.04: View split window from the left side.

Windows 10: Snap app window left.

Navigation Shortcut: `Super` + `Right arrow`

Ubuntu 18.04: View split window from the right side.

Windows 10: Snap app window right.

Contacting Support

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

- Check for updated release notes, which may address the issue you are experiencing. Release notes are published on Teradici Support.

- Browse the Teradici Knowledge Base.

- Submit a support ticket.

The Teradici 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 Teradici PCoIP Technical Support Service team. Teradici staff are heavily involved in the forums.

To join the Teradici community, visit the Teradici Community Forum.

Creating a Technical Support File

Teradici may request a support file from your system in order to troubleshoot and diagnose PCoIP issues.

The support file is a tar.gz archive containing PCoIP Software Client for Linux logs and other diagnostic data that can help support diagnose your problem.

To create a support file:

1. Open a terminal window.

2. Launch the support bundler:

```
username$ pcoip-client-support-bundler
```

The file will be created and placed in the user's home directory.

Checking the PCoIP Software Client Software Release

The PCoIP Software Client pre-session window contains an About button in the lower left of the window. Click this button and then select **About** from the popup menu to display the PCoIP Software Client software release version.
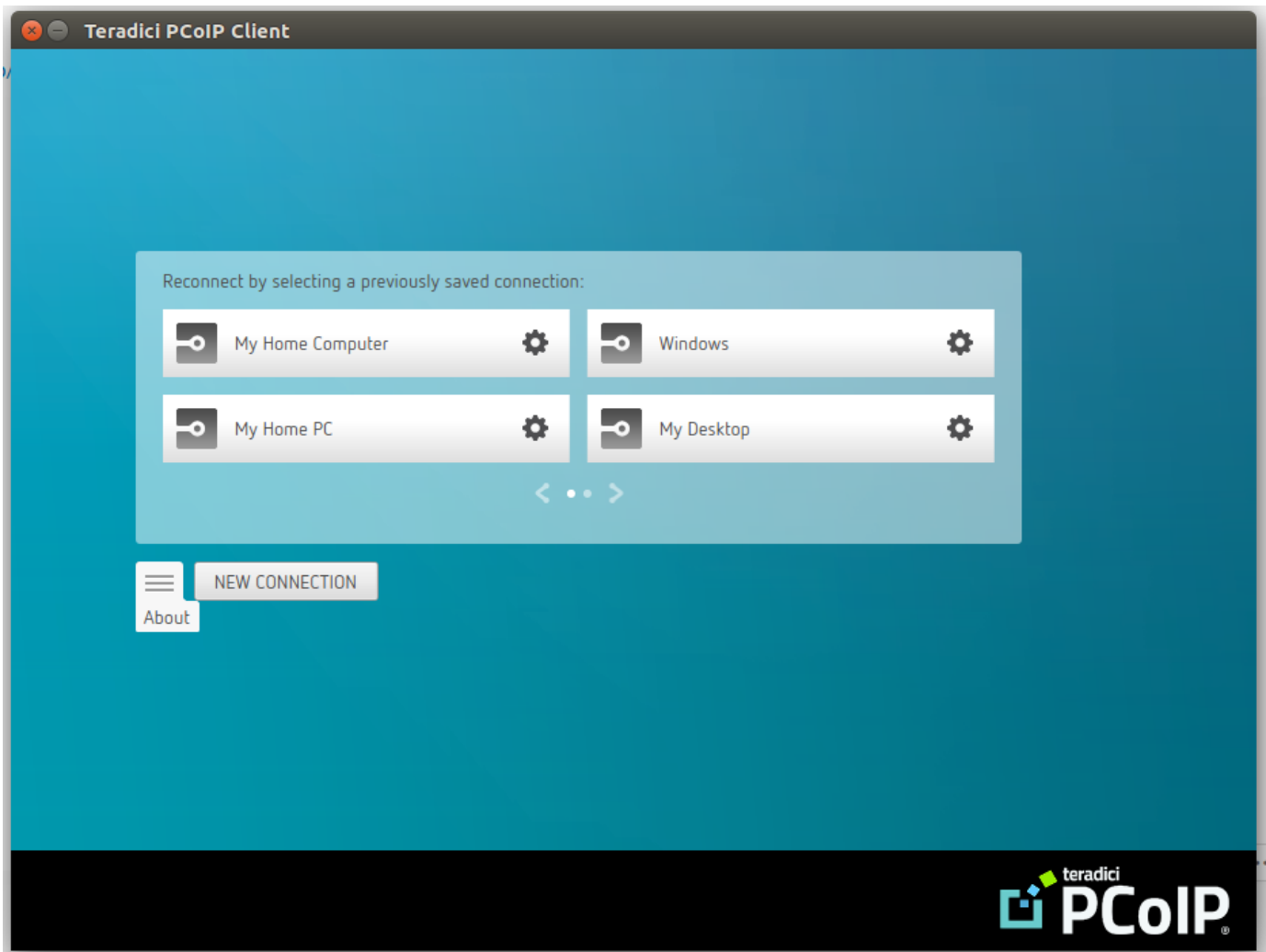
From either client, you can also select the **Teradici PCoIP Client > About Teradici PCoIP Client** menu to display the software release version from within a PCoIP session.
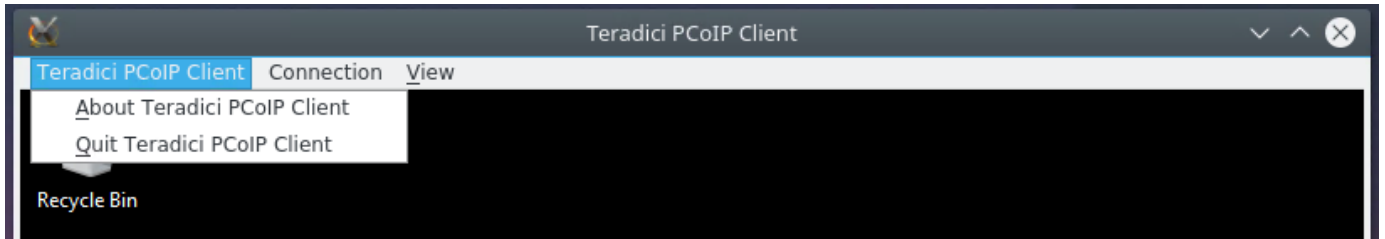
✏️ **About menu item only appears when the client is in session**

The *About Teradici PCoIP Client* menu item only appears when the client is in session. The menu item is not available from the pre-session GUI.

PCoIP Software Client for Linux Release Notes

Release Overview

These release notes provide a summary of key additions, compatibility notes, resolved issues, and known issues for the PCoIP Software Client 19.05 for Linux.

What's New in This Release

PCoIP Ultra

Teradici have introduced an update to the PCoIP protocol with PCoIP Ultra. It includes our latest protocol enhancements, offering uncompromised 4K/UHD throughput, efficient scaling across multicore CPUs and support for third-party codecs. For more information on PCoIP Ultra, see PCoIP Ultra.

System Libraries Now Used for OpenSource Packages

In this release of the Software Client for Linux, system libraries are being used for certain opensource packages. For more information, see System Libraries.

Enhanced Security and Stability

This release contains improvements and enhancements around the security and stability of the Software Client.

Release Downloads

- PCoIP Software Client 19.05 for Linux

Related Documents and Software

- *Teradici PCoIP® Software Client for Linux 19.05 Administrators' Guide.*

- Teradici PCoIP Remote Workstation Card Firmware 5.0.1 Release Notes

- Open-source and third-party components

Release History

Version/Build	Date	Description
3.8.0	February 2019	GA release
19.05	May 2019	GA release

Compatibility

	Supported Clients
PCoIP Software Client Linux	

Supported Hosts
Teradici Cloud Access Software agents
PCoIP Remote Workstation Cards

Resolved Issues

None.

Known Issues

None.