# Welcome to PCoIP Software Client for Linux

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 remote desktops and workstations via either PCoIP Agents (component of Cloud Access Software) or 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:

## High Performance Client

This release of the Software Client for Linux 20.07 enables the high performance client to display a real time statistics overlay. For more information, see High Performance Client.

## Security and Stability Updates

Increased security and stability updates and enhancements around the PCoIP Client.

# 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<br><br>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 PCoIP Remote Workstation Cards | TERA22x0 with firmware 5.0.1+. |
| Customers may still connect to a non-brokered PCoIP Remote Workstation Card by connecting to the FQDN of the workstation instead of the PCoIP Remote Workstation Card. | |
| Compatible PCoIP Host Software* | • Remote Workstation Card Software for Windows: 20.04<br>• Remote Workstation Card Software for Linux: 20.04 |
| IPv Support | IPv4 supported |

*Only required when connecting to PCoIP Remote Workstation Cards.

For information on h264 hardware decode with the PCoIP Software Client for Linux, see here.

# Hardware System Requirements

For different display configurations Teradici recommends certain processor and RAM combinations:

- For up to dual 1920 x 1080 display configuration Teradici recommends 1.6 GHz dual core processor or higher with at least 4 GB RAM.

- For up to dual 4K/UHD Teradici recommends a 3.0 Ghz quad core processor or higher with at least 2 x 4 GB RAM.

# Audio Support

Stereo audio output and mono audio input are supported and enabled by default.

The PCoIP Client provides an enhanced audio and video synchronization (A/V Sync) feature that 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.

For more information on the A/V Sync feature, see Enhanced Audio and Video Synchronization.

# Displays

The PCoIP Client supports a maximum of four displays and a maximum resolution of 4K UHD (3840×2160).

Monitors can be arranged in a vertical line, a horizontal line, or as a 2×2 box display. They can be used in any standard rotation (0°, 90°, 180°, or 270°), with any monitor as the primary display.

> ✏️ **Note: Using multiple high-resolution displays**
>
> Systems with multiple high-resolution displays, such as quad 4K UHD topologies, require powerful system infrastructure. Be sure to use a system with sufficient bandwidth and client capability to support your required display topology.

> 🔥 **Important: Attaching monitors to the host machine in not supported**
>
> PCoIP client supports a maximum of four displays. Attaching extra monitors to the host machine will conflict with client display topologies.

# Supported Installer Languages

The PCoIP Client installer supports the following languages:

- French

- German

- Spanish

- Simplified Chinese

- Traditional Chinese

- Japanese

- Portuguese

- Italian

- Korean

- Russian

- Turkish

# 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 enhancements are controlled on the PCoIP Agent. There is no configuration required on the PCoIP Client.

> ⚡ **PCoIP Ultra is appropriate for specific use cases**
>
> *For most users, the default PCoIP protocol will provide the best possible experience.* Carefully review the recommended use cases in the next section to determine whether you should enable it.

## When to Enable PCoIP Ultra

In release 20.01, PCoIP Ultra supports the following use cases:

- Users requiring CPU-optimized delivery of **4K UHD, high-framerate video playback**.
- Efficient scaling across multicore CPUs, leveraging AVX2 instruction sets.

For *all other scenarios*, Teradici recommends that you leave PCoIP Ultra disabled. For additional detail on PCoIP Ultra technical requirements for various use cases and troubleshooting steps, refer to KB 2109: PCoIP Ultra Troubleshooting.

## Requirements

To take advantage of PCoIP Ultra, you need:

- A PCoIP Agent (any type), 19.11 or later

- A PCoIP Software Client (any type), 19.11 or later

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

## Enabling PCoIP Ultra

In order to enable PCoIP Ultra features you need to turn on GPO variables. For information on enabling this with Linux, see Enabling PCoIP Ultra for Linux. For information on enabling this with Windows, see Enabling PCoIP Ultra for Windows.

## H.264 Hardware Decode

The PCoIP Software Client for Linux supports H.264 hardware decode for selected hardware configurations by using the PCoIP Client to enable the decode. For information on this, see here.

## PCoIP Codec Indicator

When enabling PCoIP Ultra there will be an onscreen indicator at the bottom left corner of the screen. PCoIP Ultra CPU optimization is indicated with a dark blue dot. PCoIP Ultra GPU optimization is indicated by a magenta dot. To disable this codec update the `pcoip.code_indicator` parameter:

```
~/.pcoip.rc pcoip.codec_indicator = 0
```

Ensure that you maintain the space before and after the `=` sign.

# Printing Support

Cloud printing is available from all clients if supported by the desktop system and correct PCoIP Agent.

| | PCoIP Agent for Windows | PCoIP Agent for Linux |
|---|:---:|:---:|
| Local Network Printing | ✔ | — |
| Cloud Printing | ✔ | — |

The PCoIP Standard Agent for Linux does not support local printing on remote clients.

Local, network, and cloud printers are supported in various ways:

- Linux hosts can print to any printer on the host machine's local area network.
- If your host host workstation has access to the Internet, cloud-based printing is supported through cloud-printing services such as Google Cloud Print and HP Mobile Printing.

# USB Support

PCoIP Clients supports redirecting USB devices to a remote session. Administrators can set rules governing allowed and disallowed devices, device classes, or device protocols.

> 🔥 **Important: USB support is enabled by default**
>
> USB bridging is enabled by default. If you want to restrict or disable USB support, you can globally disable or set rules governing USB behavior via GPO settings on the PCoIP Agent.

## Isochronous USB device support

USB devices with time-sensitive information, such as webcams, are not generally supported. However, Teradici's technology partners provide additional solutions to expand peripheral support such as webcams. For more information, look for partners listed under *Peripherals* on the Teradici Technology Partners page.

# Wacom Tablet Support

The Software Client for Linux supports Wacom tablets in two configurations: *bridged*, where peripheral data is sent to the desktop for processing, and *locally terminated*, where peripheral data is processed locally at the Software Client.

Locally terminated Wacom tablets are much more responsive and tolerate low latency connections.

Whether the Wacom tablet is locally terminated or bridged, the process of remoting the USB device is the same, you need to click connect in the USB menu or auto forward the device. If local termination is supported for the particular device, it will automatically be chosen over bridging. For more information on this, see Local Termination Blacklist.

## Locally Terminated Wacom Tablets

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## Locally Terminated Wacom Tablets

Local termination requires:

- A Standard agent or Graphics agent for Windows version 20.07 or higher.
- A Standard agent or Graphics agent for Linux version 20.07 or higher.

PCoIP client support for *locally terminated* Wacom tablets and the Software Client for Linux

| | PCoIP Standard Agent for Linux | PCoIP Graphics Agent for Linux | PCoIP Standard Agent for Windows | PCoIP Graphics Agent for Windows | PCoIP Remote Workstation Card |
|---|---|---|---|---|---|
| Intuos Pro Small *PTH-460* | ✔ | ✔ | ✔ | ✔ | – |
| Intuos Pro Medium *PTH-660* | ✔ | ✔ | ✔ | ✔ | – |
| Intuos Pro Large *PTH-860* | ✔ | ✔ | ✔ | ✔ | – |
| Cintiq 22HD *DTK-2200* | ✔ | ✔ | ✔ | ✔ | – |
| Cintiq Pro 24 - Pen Only *DTK-2420* | ✔ | ✔ | ✔ | ✔ | – |
| Cintiq 22HDT - Pen & Touch *DTH-2200* | – | – | – | – | – |
| Cintiq Pro 24 - Pen & Touch *DTH-2420* | – | – | – | – | – |
| Cintiq Pro 32 - Pen & Touch *DTH3220* | ✔ | ✔ | ✔ | ✔ | – |

> ✏️ **Cintiq 22HD Wacom Driver**
>
> The Cintiq 22HD may require the Wacom driver to be installed on both the PCoIP Agent and PCoIP Client. The driver version on the PCoIP Agent must be 6.3.32-4. The driver on the PCoIP Client must be the latest version available.

# Bridged Wacom Tablets

Bridged Wacom tablets are supported only in low-latency environments. Tablets in network environments with greater than 25ms latency will show reduced responsiveness and are not recommended. A HID Local Termination Blacklist has been added to override the preferred local termination mode. Devices on the blacklist would be bridged to the remote desktop. For more information, see Local Termination Blacklist.

The following Wacom tablet models have been tested and are supported on a PCoIP Software Client for Linux.

PCoIP client support for *bridged* Wacom tablets and the Software Client for Linux

| | PCoIP Standard Agent for Linux | PCoIP Graphics Agent for Linux | PCoIP Standard Agent for Windows | PCoIP Graphics Agent for Windows | PCoIP Remote Workstation Card |
|---|---|---|---|---|---|
| Intuos Pro Small *PTH-460* | ✔ | ✔ | ✔ | ✔ | – |
| Intuos Pro Medium *PTH-660* | ✔ | ✔ | ✔ | ✔ | – |
| Intuos Pro Large *PTH-860* | ✔ | ✔ | ✔ | ✔ | – |
| Cintiq 22HD *DTK-2200* | ✔ | ✔ | ✔ | ✔ | – |
| Cintiq Pro 24 - Pen Only *DTK-2420* | ✔ | ✔ | ✔ | ✔ | – |
| Cintiq 22HDT - Pen & Touch *DTH-2200* | ✔ | ✔ | ✔ | ✔ | – |

| | PCoIP Standard Agent for Linux | PCoIP Graphics Agent for Linux | PCoIP Standard Agent for Windows | PCoIP Graphics Agent for Windows | PCoIP Remote Workstation Card |
|---|---|---|---|---|---|
| Cintiq Pro 24 - Pen & Touch DTH-2420 | ✔ | ✔ | ✔ | ✔ | – |
| Cintiq Pro 32 - Pen & Touch DTH3220 | ✔ | ✔ | ✔ | ✔ | – |

# Known Issues with Wacom Tablets and Functionality

Whilst testing and developing the compatibility of Teradici Cloud Access Software with different Wacom tablets, certain performance issues arise. The following is a list of the current known issues with certain Wacom tablets:

- The touch feature does not work on any supported device for both bridged and locally terminated devices across all platforms.

- ExpressKey Remote does not work on the Wacom Cintiq Pro 32 (DTH-3220). You should still remote to this device when remoting to the Wacom tablet.

- There are cursor limitations when working with the Wacom Cintiq 22HD (DTK-2200) and Wacom Cintiq Pro 24 (DTK-2420) for both bridged and locally terminated devices across all platforms.

- There is a issue with the control buttons on the Wacom Cintiq Pro 32 (DTH-3220) device. The buttons do not function on locally terminated devices across all platforms.

- For Wacom Cintiq 22HD (DTK-2200) there is a known issue in the latest Wacom driver that can cause complications when locally terminated. If you are using the Wacom Cintiq 22HD (DTK-2200) and connecting to a Windows Agent, you should downgrade the driver on the PCoIP Agent to **6.3.32-4**.

- PCoIP Clients are not compatible with NoMachine and No Machine USB drivers. For information on how to uninstall NoMachine USB drivers, see here.

# Wacom Cintiq Pro 32 Tablet Selection

The Wacom Cintiq Pro 32 shows up as multiple devices in the USB menu. You should remote the following USB devices as outlined in the image below to remote to this Wacom tablet:

- ExpressKey Remote
- Cintiq Pro 32 Touch
- Wacom Cintiq Pro 32
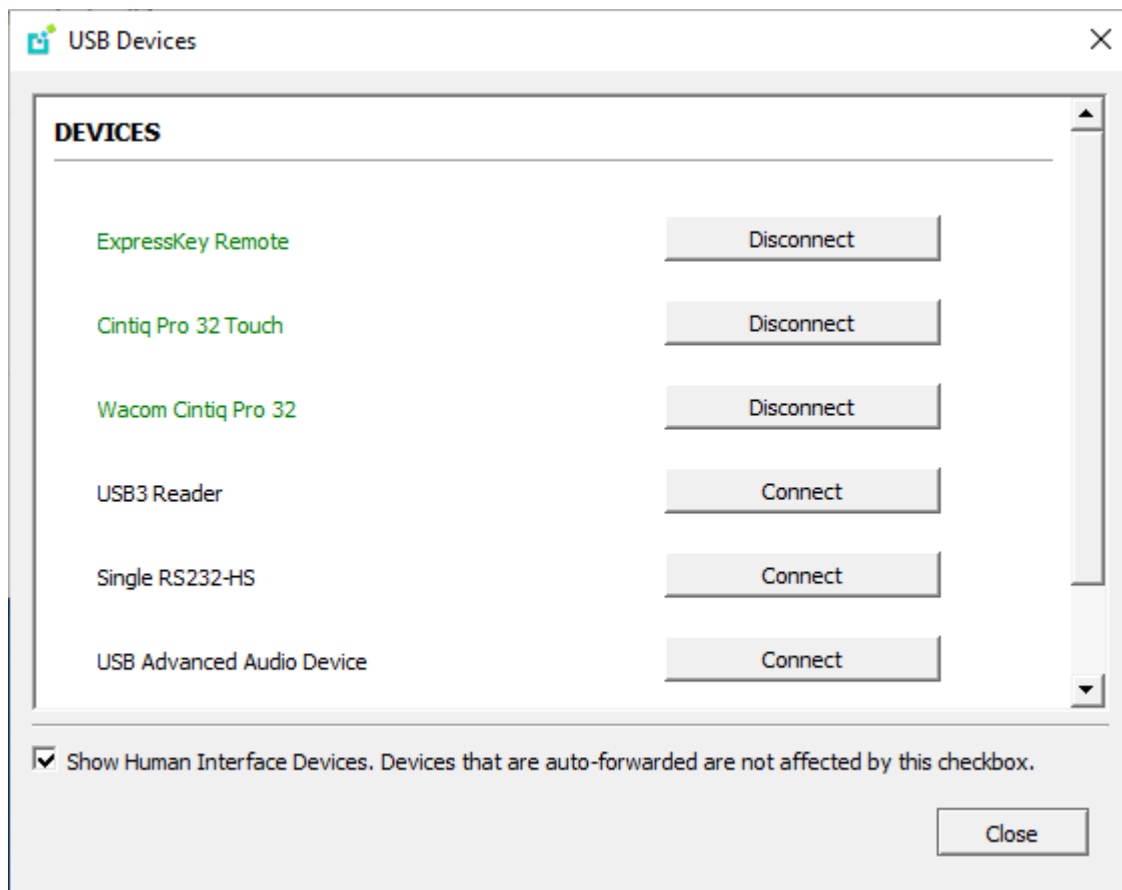


A HID Local Termination Blacklist has been added to override the preferred local termination mode. Devices on the blacklist would be bridged to the remote desktop. For more information, see Local Termination Blacklist.

# Relative Mouse Support

Relative mouse support enables relative rather than absolute coordinates, often required for example in CAD design.

This feature is currently supported with the following components:

| Relative Mouse Support | Supported |
| --- | --- |
| PCoIP Software Client for Windows | ✔ |
| PCoIP Software Client for Linux | ✔ |
| PCoIP Tera2 Zero Client 6.4 (Requires Configuration to enable) | ✔ |
| PCoIP Standard Agent for Windows | ✔ |
| PCoIP Graphics Agent for Windows | ✔ |

The following components do not support this feature:

- PCoIP Standard Agent for Linux
- PCoIP Graphics Agent for Linux

## Enabling Relative Mouse Support

To enable relative mouse support create a file **~/.pcoip.rc**, if it does not already exist, and add the following line:

```
pcoip.enable_relative_mouse = 1
```

# 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.

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🔥  **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.

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# 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
```

> ⚠️ **teradici-repo Package**
>
> If you do not install the teradici-repo package then you will not be able to successfully install the PCoIP Software Client. You may be experiencing this issue if you see an error message stating **Unable to locate pcoip-client**. Please ensure you download and install the repo.

> ✏️ **Beta Software**
>
> Users who wish to test pre-release versions of software can do so by selecting the beta distribution channel before installing. Select the beta channel, by editing editing the */etc/apt/sources.list.d/pcoip.list* file and commenting the appropriate lines:
>
> ```
> sudo vi /etc/apt/sources.list.d/pcoip.list
> ```
>
> Teradici does not recommend installing beta software in production systems.

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.

## Kernel Network Configuration

The `pcoip-configure-kernel-networking.sh` script is installed with the Software Client for Linux. This script tunes the kernel networking configuration to facilitate the network performance required by the Client. You need to run this script after installing the PCoIP Software Client for Linux.

Run the following command:

```
$ sudo pcoip-configure-kernel-networking --persistent
```

The script contains the following parameters:

- `rmem_default` : A kernel parameter that controls the default size of receive buffers used by sockets.

- `rmem_max` : A kernel parameter that controls the maximum size of receive buffers used by sockets.

> ⚠️ **`rmem_max` size**
>
> This parameter must be at least as large as `rmem_default` /

- `ipv4.udp_mem` : A kernel parameter that controls the maximum total buffer-space to allocate.

- `netdev_max_backlog` : A kernel parameter that controls the maximum size of the receive queue.

# 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.

- If you want to connect to the PCoIP Remote Workstation Card you need to install the PCoIP Remote Workstation Card Agent along with PCoIP Host Software.
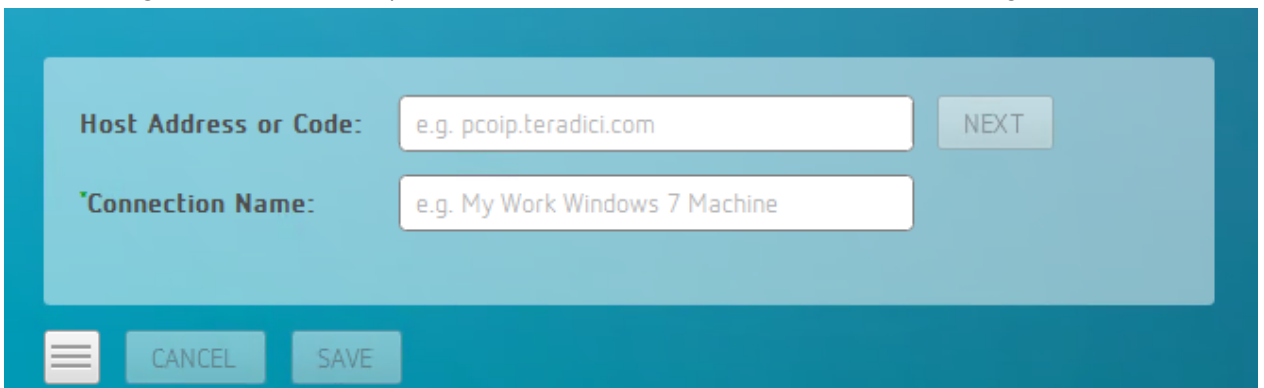
# Connecting to Virtual Machines

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.
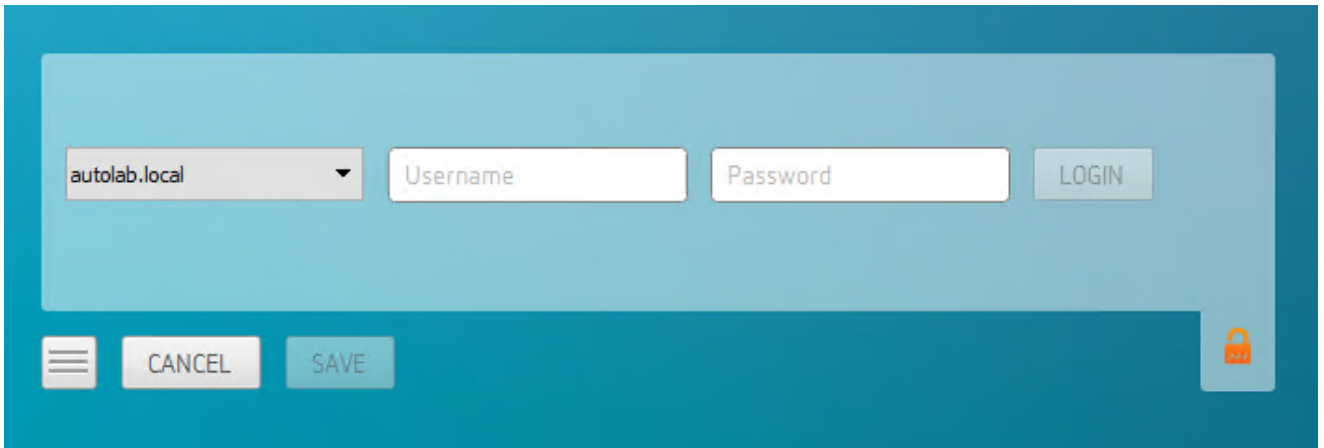


   If you want to save this connection later for easy recall, enter a name in the *Connection Name* field. You will save the connection in step 5.

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**.



> **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.

5. If your login is successful, the following screen appears with a list of available desktops:
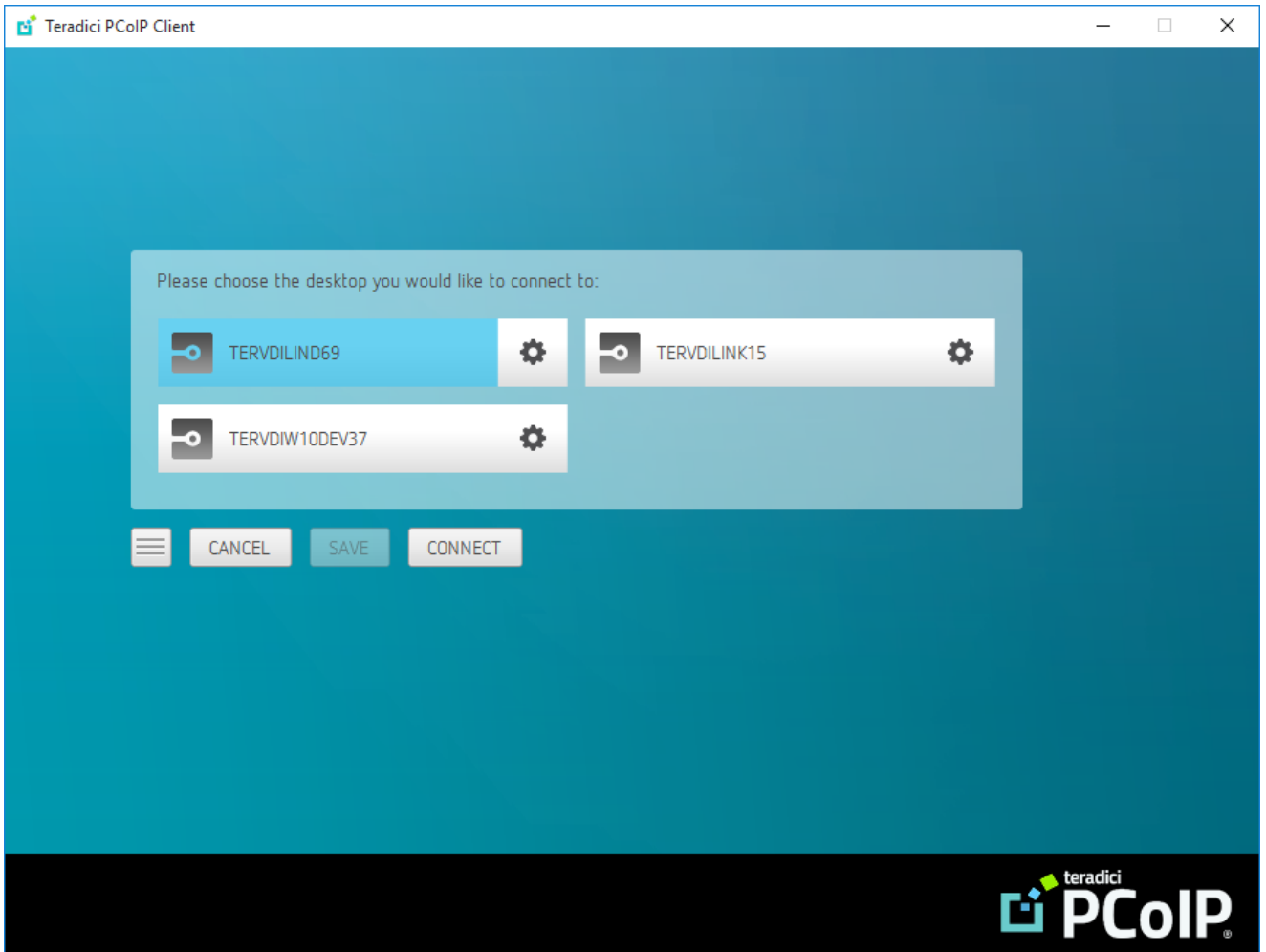


6. Click **Connect** to connect to the selected desktop.

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✏️ **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.
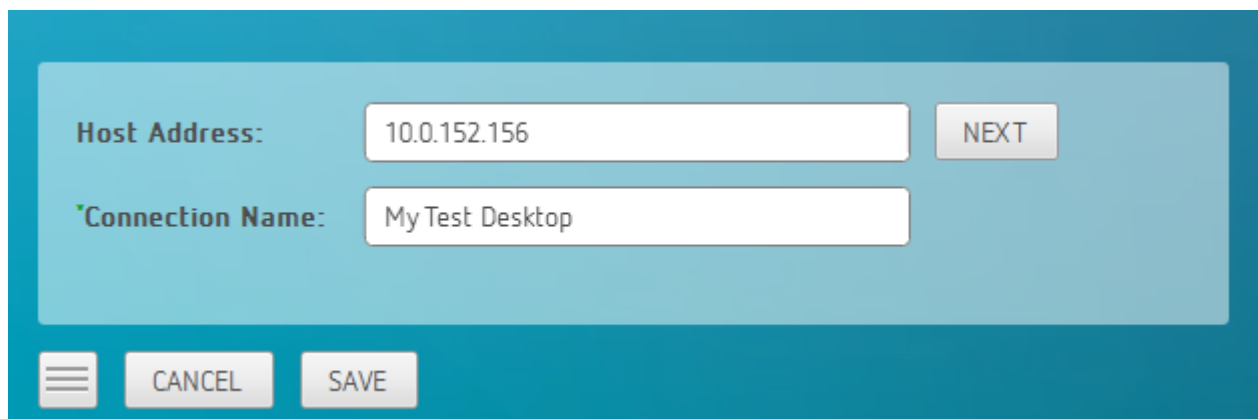
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✏️ **Single-desktop users**

If a user only has access to a single desktop, that desktop is automatically selected and the connection is initiated immediately. These users are not presented with a desktop selection screen.

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# Advanced Saved Connections

Administrators can save more complex desktop connections with the PCoIP Client. The following section outlines the connection scenarios that can be saved, and outlines the potential benefits of doing so.

## Saved Broker Address

This configuration enables you to create a saved connection where only the broker address is saved. You need to enter your username when connecting to a remote host. Enter the host address and name the connection, then click **SAVE**.



---
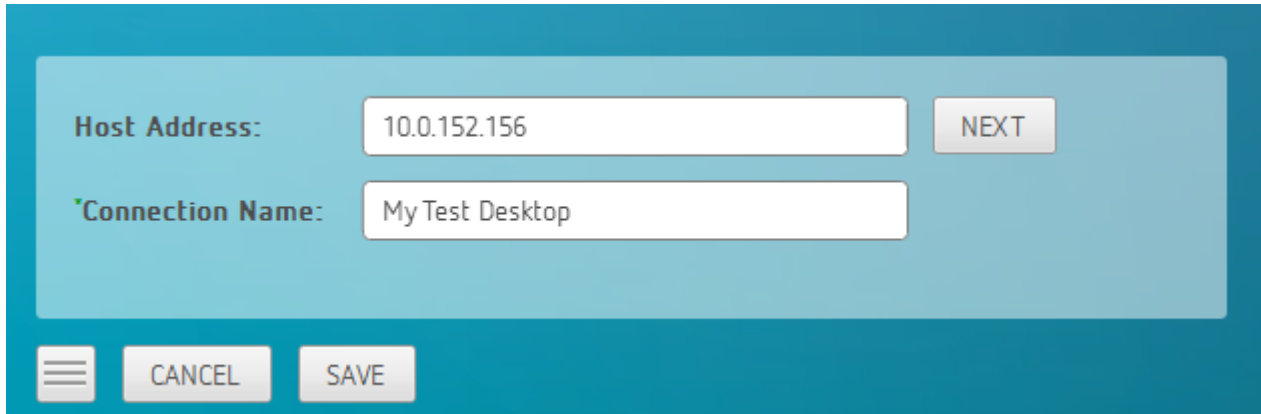
✏️ **Pre-configured connections**

This partial save feature enables administrators to pre-configure connection information as a saved connection and bundle it with the client application. For example, administrators can save a connection with the FQDN of the PCoIP Connection Manager preset and then distribute this information to their deployed clients. As a result of this users would be able to skip past the initial domain screen and advance directly to their user authentication screen.

The administrator can find and distribute the connection info file located at `~\Teradici\PCoIP Client Connection Info.ini`
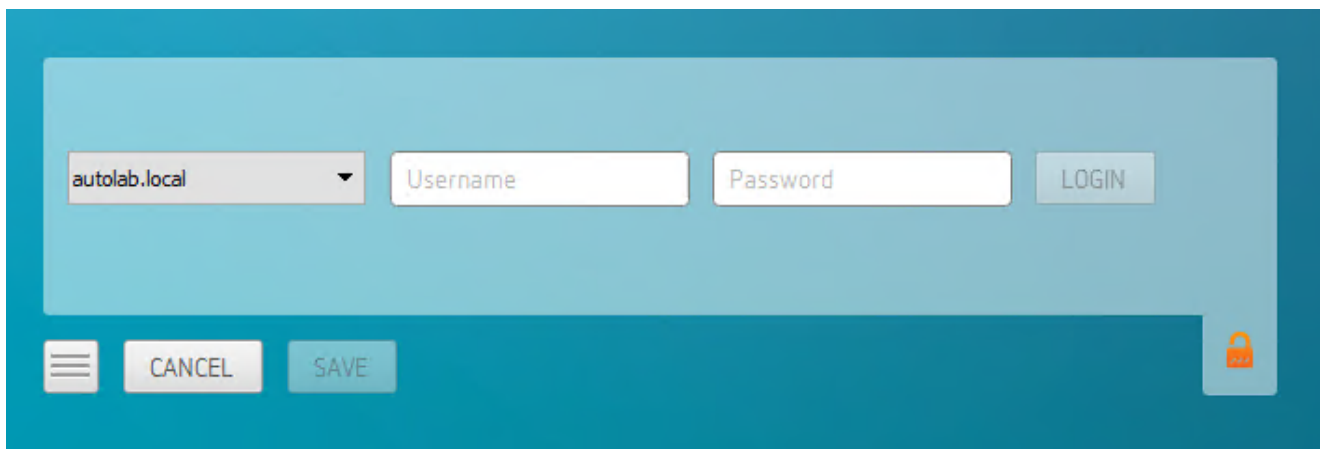
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# Multiple Desktops

This configuration enables you to see and access a selection of desktop environments each time you connect.

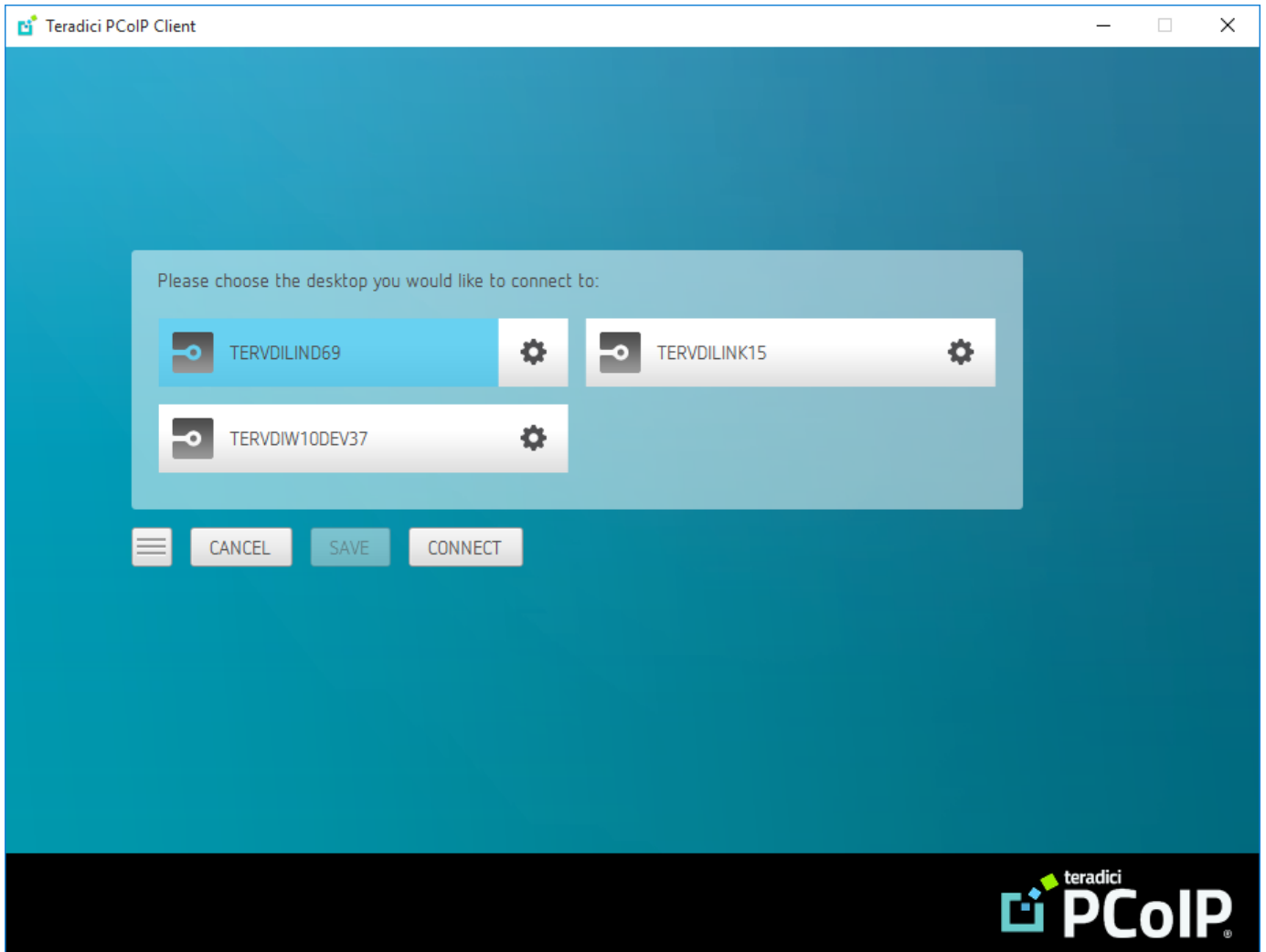1. Enter the host address and name the connection



2. Enter and save the Username

Once you have done this each time you use this connection you will be presented with the list of available desktops for that connection.

# 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:

- **Record the MAC address of the PCoIP Remote Workstation Card**

  Before you install the PCoIP Remote Workstation Card in the workstation, record the MAC address of the PCoIP Remote Workstation Card as this will will enable you to log into the card to configure the settings. Type https://pcoip-host-0030040de898.mydomain where **0030040de898** is the MAC address of your PCoIP Remote Workstation Card and **mydomain** is the local domain of your network.

- **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.

## Direct Connection to a Remote Workstation Card

The direct connection from the PCoIP Software Client to the PCoIP Remote Workstation Card is supported through the PCoIP Remote Workstaton Agent software which needs to be installed on the workstation where the PCoIP Remote Workstation Card is installed. Both the NIC of the workstation and the Remote Workstation Card need to be connected to the same network switch. When establishing a connection, the PCoIP Software Client should connect to the IP or FQDN of the workstation, instead of the IP or FQDN of the PCoIP Remote Workstation Card.

> ⚠ **Cloud Access Software Subscription**
>
> You need to have a valid Cloud Access Software Subscription to use the PCoIP Remote Workstation Card Agent.

> ✏ **Direct Connection to PCoIP Remote Workstation Cards**
>
> PCoIP brokering can now be used to connect to the Remote Workstation Card. You can still connect to a non-brokered Remote Workstation Card by connecting to the FQDN of the workstation instead of the FQDN of the Remote Workstation Card. This method of connection requires the RWC agent to be installed on the workstation.

## Connecting to a PCoIP Remote Workstation Card through the command line

You can have a direct connection to a PCoIP Remote Workstation card, from a PCoIP Software Client, without requiring a PCoIP Remote Workstation Card agent installed on the host machine if you connect via the command line by using the `--hard-host` option.

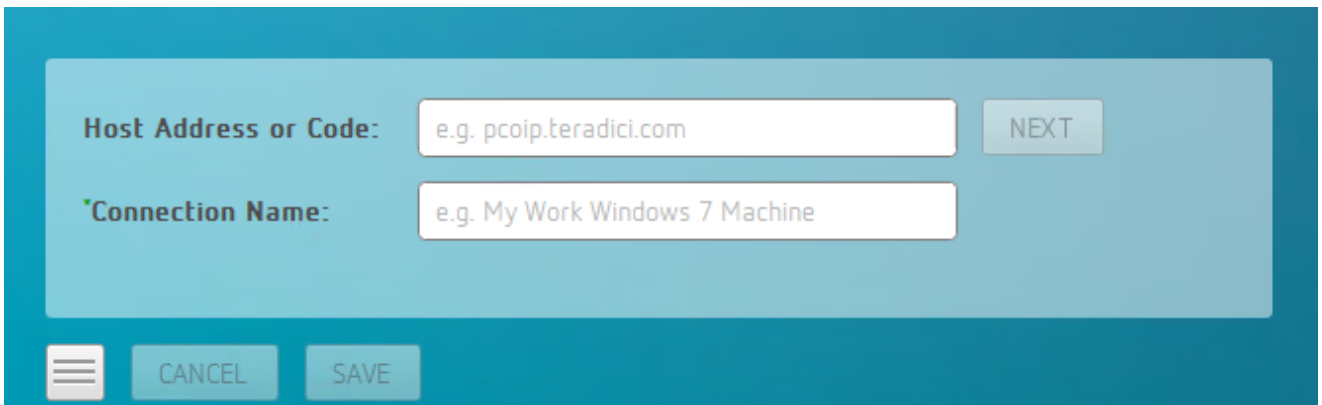## Connecting to a PCoIP Remote Workstation Card through the command line

You can have a direct connection to a PCoIP Remote Workstation card, from a PCoIP Software Client, without requiring a PCoIP Remote Workstation Card agent installed on the host machine if you connect via the command line by using the `--hard-host` option with the IP address of your PCoIP Remote Workstation Card, for example:

```
pcoip_client --hard-host 10.11.12.13
```

*10.11.12.13* is the IP address of the PCoIP Remote Workstation Card.

## 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. This only works for direct connection to a legacy firmware releases. For the latest RWC firmware, this must be the address of the broker.

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.

# Remote Workstation Card Feature Compatibility

Not all features with the Software Client are fully supported when connecting to a RWC. The following section outlines these limitations against certain features.

**Audio**: RWC uses a hardware based audio protocol which is not fully supported on the Software Client.

**Topology**: Single display configuration will work. There may be disruptions in the forms of black bars or scroll bars on the client if the RWC does not support the display configuration on the client. The worst instance of this disruption will occur for some client configurations that don't work with the hard host configuration.

**USB**: Connecting USB devices to the RWC is not supported.

**Performance**: Updated to support PCoIP Ultra are not applicable to the RWC.

# Connecting to a USB Device

Remote Windows hosts using the PCoIP Standard Agent or the PCoIP Graphics Agent can use USB devices that are attached to the client. When you connect a local USB device to your remote host it will be disabled on the client machine.

USB device connections do not persist across multiple PCoIP sessions. You must connect your USB device each time you connect.

> ✏️ **PCoIP Agent needs to be configured to enable USB redirection**
>
> The USB menu will only show up if the PCoIP Agent has been configured to enable USB redirection and a USB device has been detected by the PCoIP Client.

> ✏️ **NoMachine USB Driver Compatibility**
>
> PCoIP Clients are not compatible with NoMachine and No Machine USB drivers. For information on how to uninstall NoMachine USB drivers, see here.

The following section outlines how to connect a USB device:

1. Attach the USB device you want to connect.

2. Select **Connection > USB Devices** from the PCoIP Software Client menu.

   A list of USB devices connected to your client machine appears. Integrated USB devices, such as built-in cameras on laptops, will appear in this list along with devices you have plugged in yourself.

   Some devices will identify themselves only as *USB Device*.

3. Click **Connect** beside the USB device you want to use.
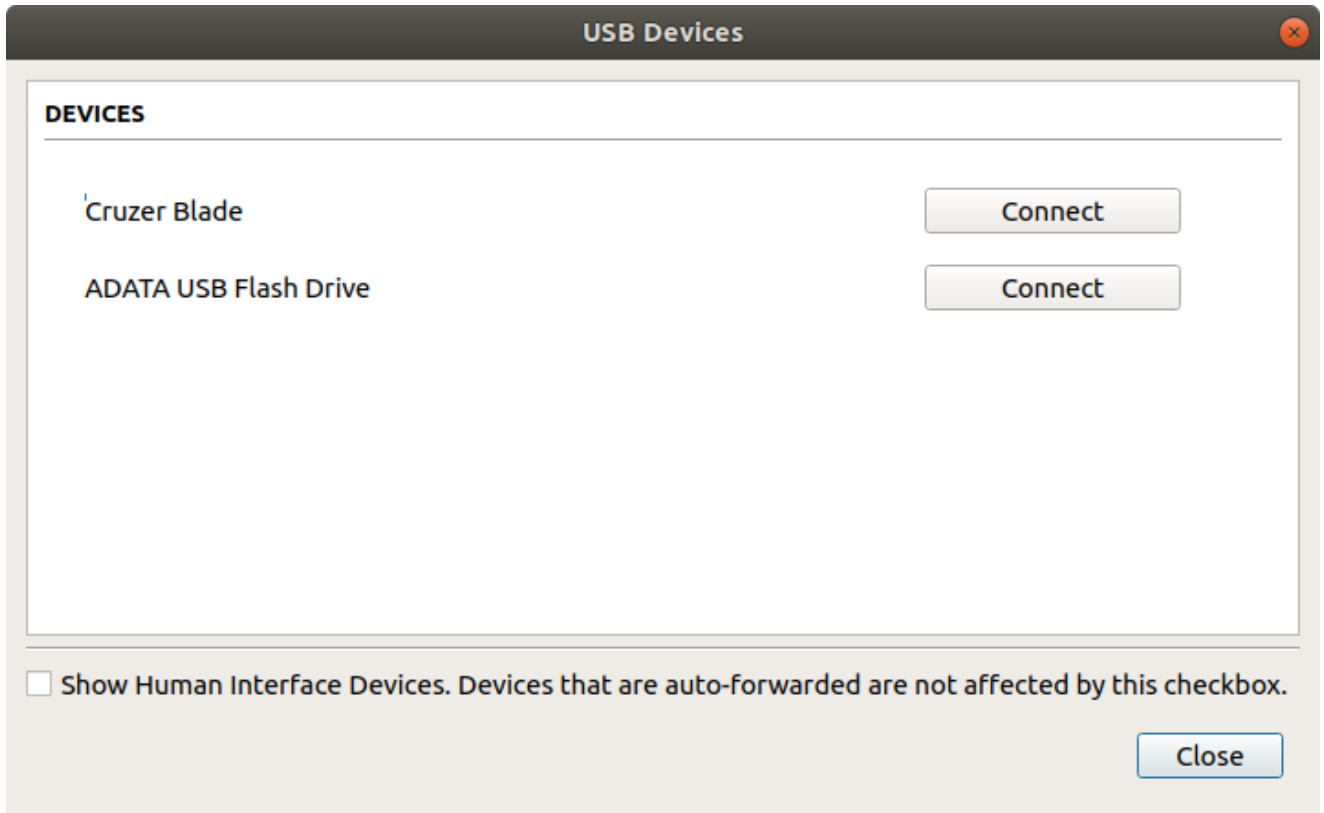


> 🔥 **Connecting to Human Interface Devices**
>
> Most Human Interface Devices (HIDs), such as keyboards and mice, are automatically handled by the PCoIP Software Client and don't appear on in this list even if they use a USB connection.
>
> If you need to connect a Human Interface Device that can't be locally processed, like a 3D mouse or a Wacom tablet, enable the **Show Human Interface Devices** checkbox to reveal the device in the USB device list and click its Connect button.
>
> You may also have to complete additional configuration steps or install drivers on the host machine.

# Disconnecting a USB Device

1. Select **Connection > USB Devices** from the PCoIP Software Client menu.

2. Click **Disconnect** beside the USB device you want to disconnect.
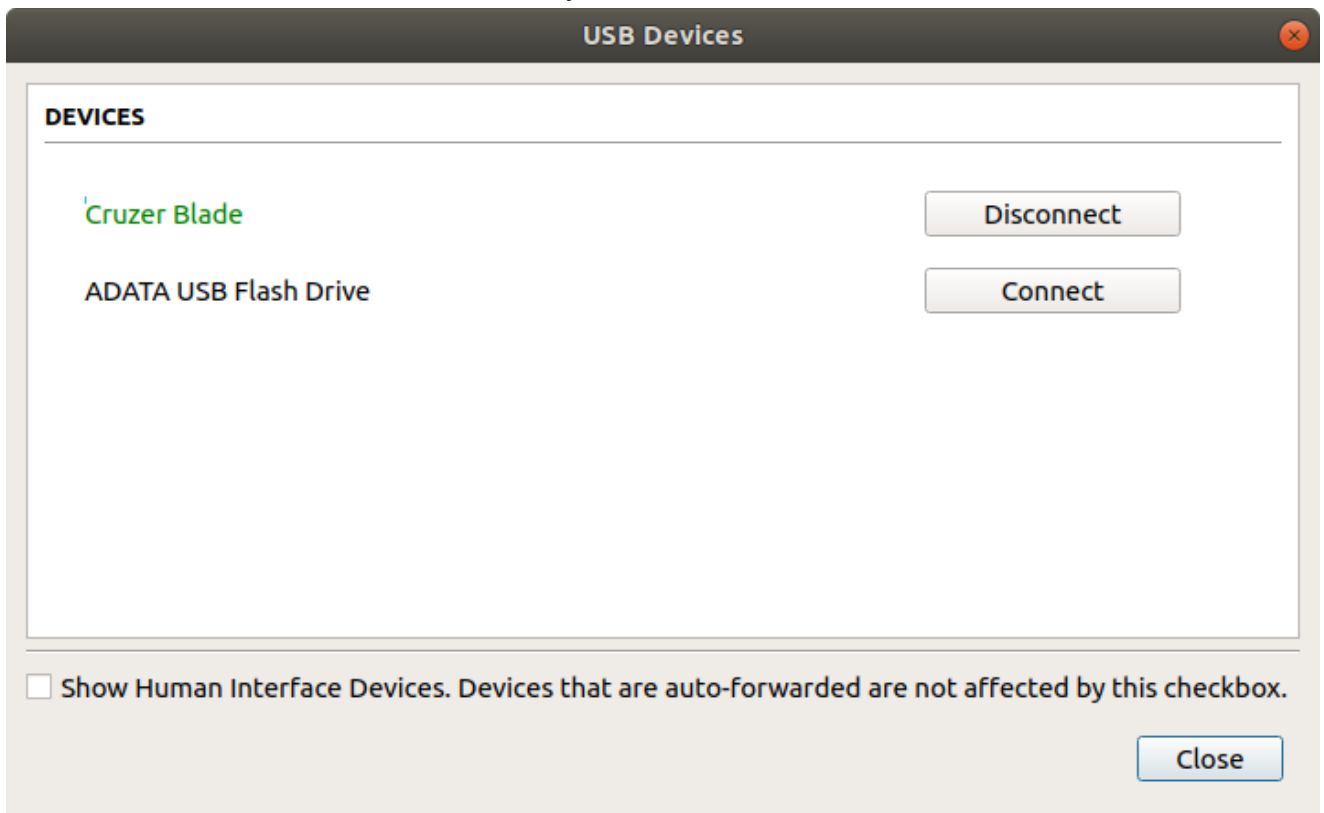


## USB Auto-Forward with Non-HID Devices

A HID is a device class definition that enables a generic USB driver to support devices such as keyboards, mice, tablets, controllers, etc. Non-HID devices primarily run on the PS/2 port transport. Automatic bridging enables you to auto bridge all non-HID USB devices by using the `usb-auto-forward` command line parameter.

## USB Vendor ID/Product ID Auto-Forward

You can automatically forward up to 20 USB devices to the host at the start of the session by calling the PCoIP client executable with `vidpid-auto-forward` and the required VID/PID pairs.

> ✎ **VID/PID Pairs**
>
> You can locate the VID/PID pairs from the PCoIP Client logs which are placed in `/tmp/Teradici//logs/`. When getting the VID/PID pairs from the log you need to strip `0x` from the IDs, and use the rest of the ID when running the `vidpid-auto-forward` command. As outlined in the following example:
>
> ```
> 2040-12-12T20:36:46.117Z e0f9e9e9e-866f-1038-test-ac87a3007abc LVL:2 RC:   0
> MGMT_USB :Device 0x00010001 VID=0x**18a5**PID=0x**0302**
> 2040-12-12T20:36:46.117Z e0f9e9e9e-866f-1038-test-ac87a3007abc LVL:2 RC:   0
> MGMT_USB :Device 0x00010001 Name=TEST Serial=012345ABCDE pp=000222222
> ```
>
> The VID/PID pair in this scenario would be **18a5,0302**.

## USB VID/PID Auto-forwarding workflow



Devices that are auto-forwarded will appear in the USB Devices dialog box, enabling users to connect or disconnect them from the host. The following is an example of how this command would look with the VID/PID values:

```
pcoip-client -vidpid-auto-forward "1234,5678 abcd,efgh"
```

The following rules apply to VID and PID values:

- VID/PID values are comma-separated: `xxx,yyy`

- VID/PID pairs are space-separated: `aaa,bbb ccc,ddd`

- VID/PID pairs with invalid values will be discarded. Discarded rules appear in the event log.

- Up to 20 devices will be passed; if more than 20 are attempted, the first 20 will be accepted and rest ignored. Ignored rules appear in the event log.

# 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.
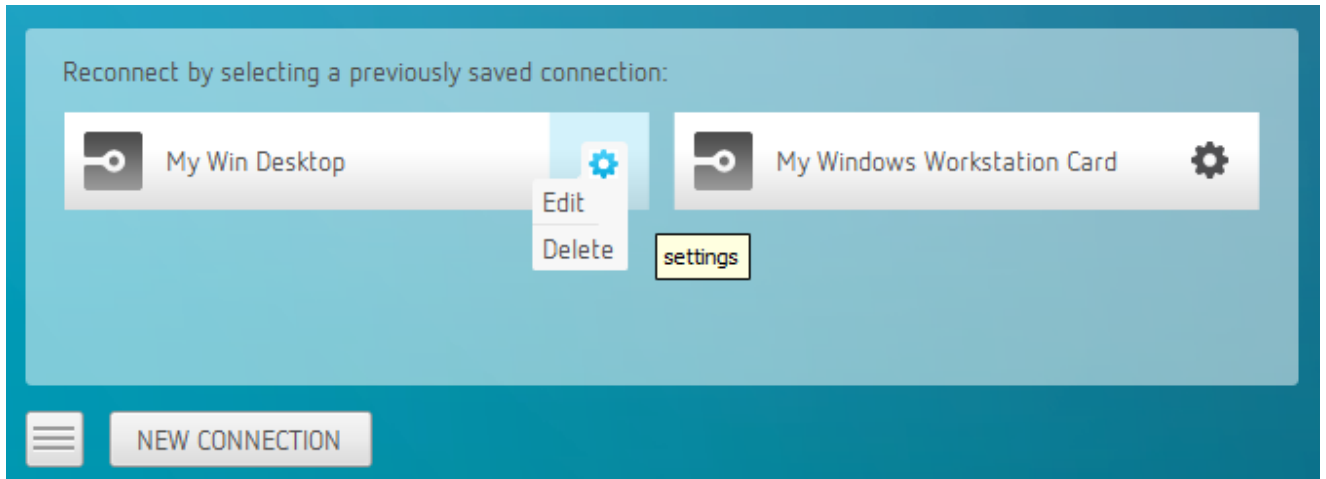


4. If you have saved multiple connections, click the desired one to reconnect. If you have more than four saved connections, additional saved connection buttons appear in an extended area of the page. Use the forward and back arrows to navigate between areas.
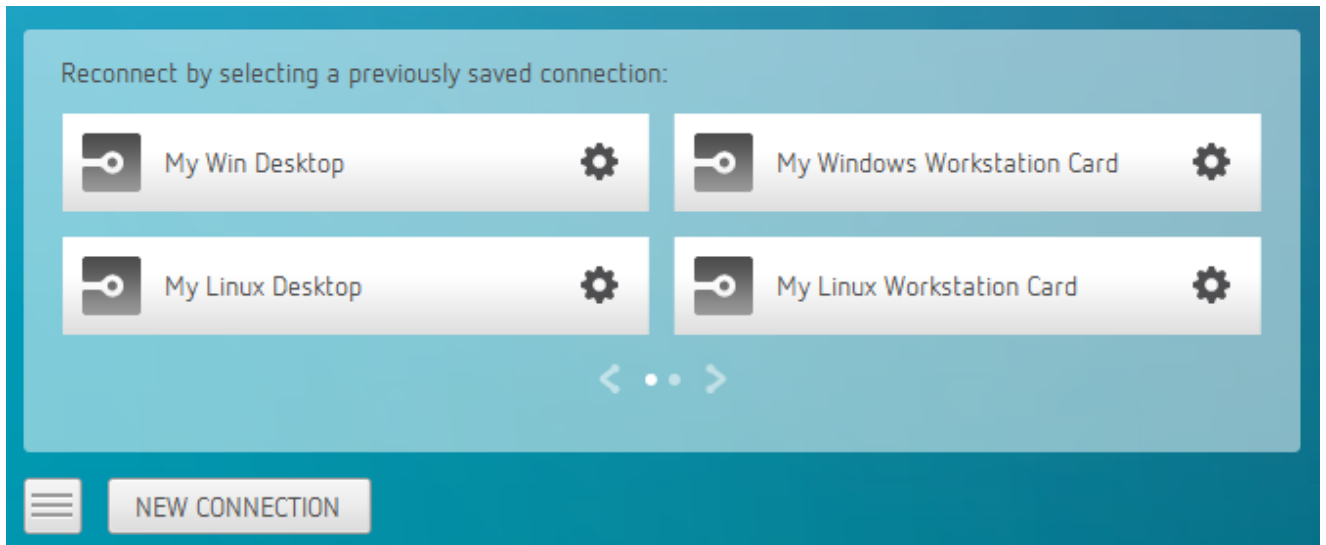


5. Any time you wish to connect to a new workstation, just click **NEW CONNECTION** to return to the main screen, and then enter the connection details.

# Disconnecting a Session

To disconnect a PCoIP session from either client, select the **Connection > Disconnect** menu option.
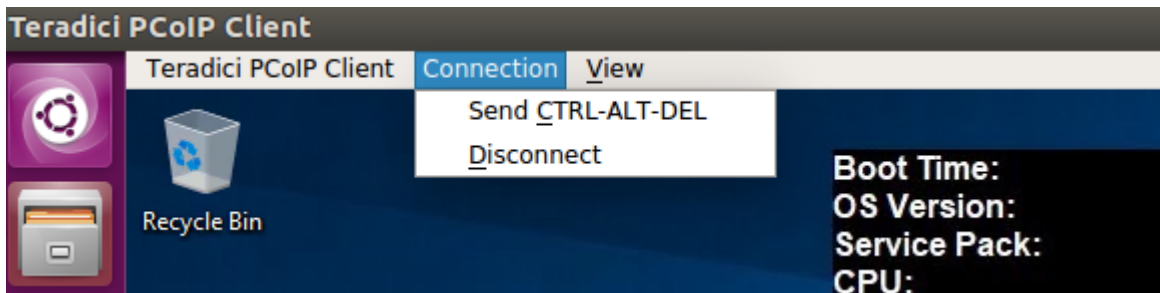


Quitting the application will also disconnect the current session.

## 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.

# Detect Monitors

The detect monitors feature enables you to add and remove displays from the desktop through the PCoIP Client while in an active session.

### Adding a Display

The following steps outline how to add a display to your desktop through the PCoIP Client:

1. Connect a new monitor to the client.

2. From the desktop, click **View**.

3. Click **Detect Monitors**.

4. Select the monitor you want to add.

The displays on the remote desktop will be extended to include the new monitor.

### Removing a Display

The following steps outline how to remove a display from your desktop.

1. Disconnect a monitor from the client.

2. From the desktop, click **View**.

3. Click **Detect Monitors**.

You will no longer see the monitor that you have disconnected from the client.

# 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 mouse 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 mouse cursor to the top of a client display.

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

> ℹ️ **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.

**To turn on A/V Sync:**

1. Go to *~/.config/Teradici/Teradici\PCoIP\Client.ini* and add the following line:

   ```
   enable_enhanced_avsync=1
   ```

   The above text is OS specific. Note the setting changed from 0 to 1 in the 19.11 release of the PCoIP Client.

2. You need to reboot your system for this change to take effect.

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

**To use enhanced A/V Sync:**

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 of the screen.

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

> ℹ **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.
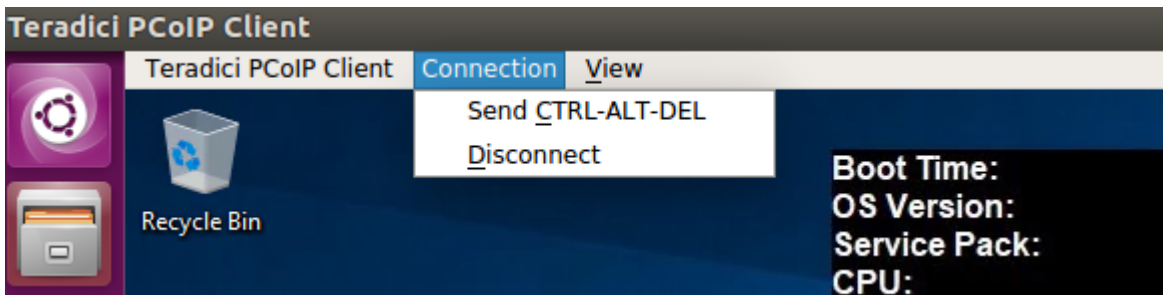
# Changing the Language

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 Client Parameters

The following table outlines command line parameters that are available to use and customize:

| Short | Long | Default Description |
|-------|------|---------------------|
| -? | `help` | Display help message. Set to false by default. |
| -v | `version` | Print version information. Set to false by default. |
| -u | `username` | Username sent to Connection Broker. |
| -p | `password` | Password sent to Connection Broker. |
| -d | `domain` | Domain sent to Connection Broker. |
| -b | `connection-broker` | Connection broker URL. |
| -l | `log-level` | Unset force log level (will override config/registry) |
| -w | `windowed` | False run inside a window. |
| -f | `fullscreen` | False run in full-screen mode. The default is to run in windowed mode. |
| -s | `security-mode` | Security mode. |
| - | `locale` | Set locale. |
| - | `disable-usb` | Disable USB. |
| - | `send-rel-mouse-on-mmb` | Send relative mouse events when the middle mouse button is pressed. |
| -h | `hard-host` | Hard host URL. This option is ignored if connection-broker is provided |
| | `quit-after-disconnect` | Do no re-enter the pre-session after leaving the in-session. |

| Short | Long | Default Description |
|---|---|---|
| | `usb-auto-forward` | Auto-forward all non-HID devices. |
| | `vidpid-auto-forward` | String of VID, PID hex values separated by spaces. |
| | `vidpid-black-list` | Blocks specific VID,PIDs from autoforward regardless of whether the `usb-auto-forward` parameter or the USB dialog is used. |

# HID Local Termination Blacklist

Local Termination of Wacom tablets provides the best user experience in networks with high latency, however some features of the tablet may not be fully supported with local termination. A HID local termination blacklist has been added to override the preferred local termination mode.

Devices on the blacklist would be bridged to the remote desktop. To enable the HID local termination blacklist, add the following setting to *~/.config/Teradici/Teradici\ PCoIP\ Client.ini*. The vendor and product IDs are separated by a comma and multiple devices are separated by a space.

```
localtermination_black_list="vid,pid vid2,pid2"
```

For more information on USB Vendor ID/Product ID Auto-Forward, see here.

# PCoIP High Performance Client

The PCoIP Software Client has a high performance mode that can be enabled through the `Teradici PCoIP Client.ini` file. The `Teradici PCoIP Client.ini` file can be found at *~/.config/Teradici/Teradici PCoIP Client.ini*. The PCoIP High Performance client enables higher framerates with fewer dropped frames than the default PCoIP Software Client. This mode is especially beneficial for 4K video workloads up to 48fps.

> ✏️ **PCoIP High Performance Client Limitations**
>
> The PCoIP High Performance Client is recommended for customers who have specific needs related to boosting rendering performance. Teradici does not recommend using the PCoIP High Performance Client for majority use cases, and instead it is a case specific enhancement at this time as it contains certain limitations.

To enable the high performance mode of the PCoIP Client add the following to the `Teradici PCoIP Client.ini` file:

```
enable_native_opengl=1
```

Once you have edited this file, upon startup issue the following command:

```
pcoip-client --use-egl
```

Additional information on the high performance client:

- Compatible for fullscreen, all monitors only. You cannot use windowed mode.
- Menus are not available.
- To disconnect use `ctrl-alt-F12` on Windows and `ctrl-alt-~` on Linux.
- Use the `vidpid-auto-forward` command on the command line to connect usb peripherals, such as Wacom, when launching the PCoIP Client. For information on how to use the `vidpid-auto-forward` command, see here.
- You can minimize the client by using `ctrl-alt-m`.

# Statistics Overlay on the High Performance Client

The statistics overlay feature on the High Performance Client displays the following information:

- **Codec:** This reports the current PCoIP encoding that is in use. Possible values for this include PCoIP Ultra CPU, PCoIP Ultra GPU and PCoIP.

- **Chroma:** This reports the color space that is being used to encode the information. PCoIP and PCoIP Ultra CPU offload will report RGB 8:8:8 which means full 8 bit RGB pixels are being used. For PCoIP Ultra GPU optimization, either YUV 4:4:4 or YUV 4:2:0 will be used, depending on the system configuration.

- **HW Decode:** This reports whether or not the PCoIP Client is decoding the frames using built-in GPU hardware decoding.

- **FPS:** This reports the current frames per second that are presented on the PCoIP Client.

- **Dropped Frames:** This reports the trailing 10 second average percentage of frames which do not get displayed on the PCoIP Client, as well as a fraction showing the actual number of dropped frames and total number of available frames.

The image below is an example of a statistics overlay on the High Performance Client
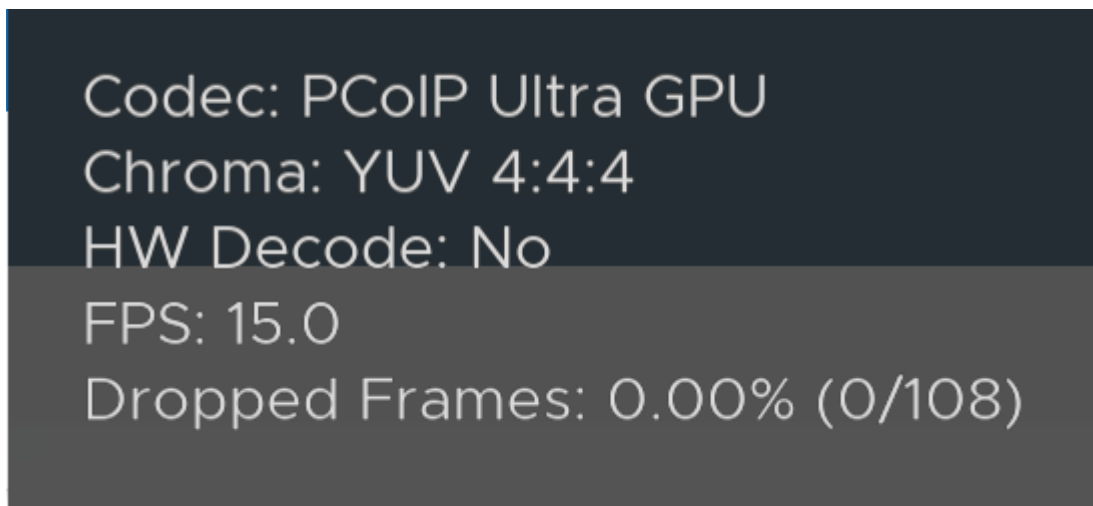


To enable the statistics overlay on the high performance client, add the following to the `Teradici PCoIP Client.ini` file:

```
enable_native_opengl_stats_overlay=1
```

To toggle visibility of the statistics overlay press `ctrl-Win-`` `.

# H.264 Hardware Decode

The PCoIP Software Client for Linux supports H.264 hardware decode for selected hardware configurations by using the PCoIP Client to enable the decode. This enables a lower level of CPU utilization on the Client. To enable the decode functionality on the PCoIP Client edit the file `~/.pcoip.rc` and add the following line:

```
pcoip.enable_hw_h264 = 1
```

> ✏️ **Intel support with onboard GPU**
>
> Currently the PCoIP Client does not support NVIDIA GPU. Teradici recommends using Intel GPU for optimum performance.

# 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:

```
security_mode = 2
```

# System Libraries

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

- libcap2
- libbz2
- libc6
- libegl1
- libgcc
- libgl1
- libharfbuzz0b
- libpng16
- libprotobuf10
- libpulse0
- libqt5
- libssl1.1
- libstdc++6
- libudev1
- libva-drm2

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. |

# Support Conditions and Limitations

# 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.
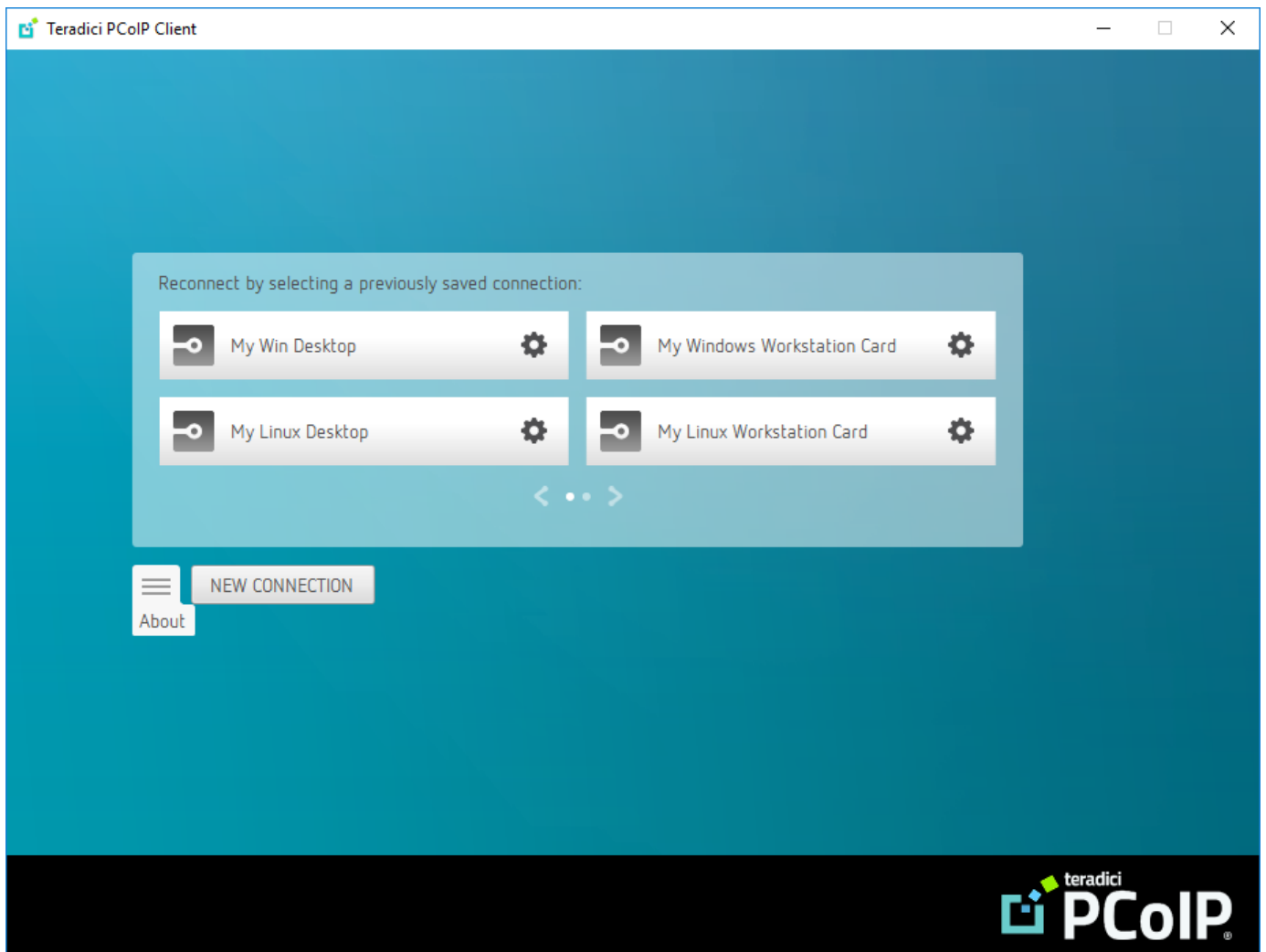


From either client, you can also select the **Teradici PCoIP Client > About Teradici PCoIP Client** menu to display the software release version from within a PCoIP session.
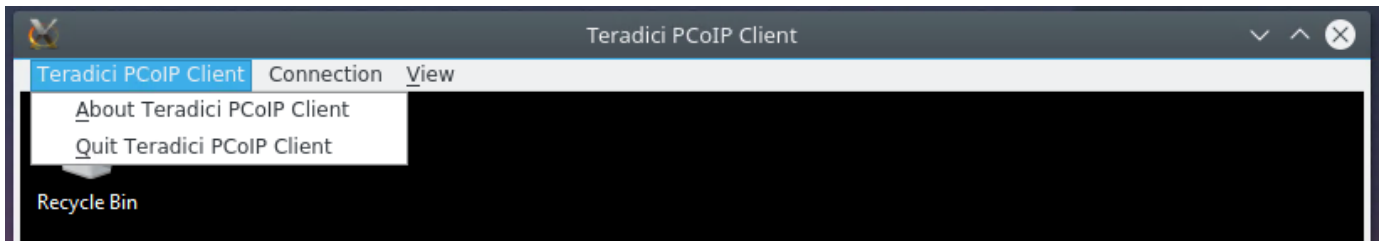
✏️ **About menu item only appears when the client is in session**

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.

# 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).

# Linux Crash Dumps

Linux systems may be configured with crash dumps disabled. Prior to creating a support bundle for an issue where the client crashes, it is important to ensure crash dumps are enabled when the issue is reproduced.

To check if there is a limit on the size of core dumps use the **ulimit** command:

```
$ ulimit -c
0
```

The output above indicates that core dumps ae limited to a size of 0 blocks. To adjust this limit for troubleshooting set the size to unlimited:

```
$ ulimit -S -c unlimited pcoip-client
```

After reproducing the issue, reset the core dump limit to the previous setting, as outlined in the example below:

```
$ ulimit -S -c 0
```

# 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.