Welcome to PCoIP Software Client for Windows

Welcome to the Teradici PCoIP® Software Client for Windows 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 Windows. It includes client system requirements and information on host dependencies.

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Who Should Read This Guide?

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

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.

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What's New in This Release

The PCoIP Software Client for Windows 21.07 introduces the following features and enhancements:

Webcam Support

USB webcams now supported in a PCoIP session when connecting to PCoIP Agents for Windows. Use webcams with conference applications such as Microsoft Teams or Zoom in the remote desktop. For more information on this, see Webcam Support.

Security and Stability Updates

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

TLS 1.1 Deprecation

The PCoIP Software Client for Windows will no longer negotiate PCoIP connections using TLS 1.1.

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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

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System Requirements

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

System	Version Required
PCoIP Software Client Operating Systems	• Windows 10 (64-bit) Other operating systems are also supported. For information and documentation on these, see here.
Compatible PCoIP Agents	All PCoIP Agents and versions should work. Teradici recommends using the same version of PCoIP Agent as PCoIP Client.
Compatible PCoIP Remote Workstation Cards*	TERA22x0 with firmware 20.04 and PCoIP Host Software for Windows or Linux 20.04.
IPv Support	IPv4 and IPv6 supported

*For details on feature limitations between PCoIP Software Clients and PCoIP Remote Workstation Cards, 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.

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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.

Audio input devices should not be bridged to the remote session. Audio input devices are locally terminated and utilize local OS audio drivers. A bluetooth headset can be supported locally, but cannot be bridged.

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

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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.

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Supported Installer Languages

The PCoIP Client installer supports the following languages:

- French
- German
- Spanish
- Simplified Chinese
- Traditional Chinese
- Japanese
- Portuguese
- Italian
- Korean
- Russian
- Turkish

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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.

For additional detail on PCoIP Ultra technical requirements for various use cases and troubleshooting steps, refer to KB 2109: PCoIP Ultra Troubleshooting.

When to Enable PCoIP Ultra

PCoIP Ultra is apporpriate for users with the following requirements:

Auto Offload: Achieves the best balance between color accuracy and network efficiency. This setting is appropriate for work-from-home or WAN content creators who require optimized delivery of high resolution content, including video playback, while still achieving build-to-lossless color accuracy.

CPU Offload: Provides efficient scaling across multicore CPUs, leveraging AVX2 instruction sets. Appropriate for users that require CPU-optimized delivery of 4K UHD, high-framerate video playback and build-to-lossless color accuracy. It is also useful when GPU encoding resources must be reserved for video encoding applications, typically in LAN environments.

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GPU optimization Offload: PCoIP encoding is always offloaded to a GPU. Appropriate for users who demand the highest possible CPU efficiency.

For all other scenarios, Teradici recommends that you leave PCoIP Ultra disabled.

Requirements

To take advantage of PCoIP Ultra, you need:

- A PCoIP Agent (any type), 21.03 or later
- A PCoIP Software Client (any type), 21.03 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 in the PCoIP Agent. 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.

Auto-Offload with PCoIP Ultra

The auto-offload feature with PCoIP Ultra enables users to allow PCoIP Ultra to select the best protocol, whether that is CPU or GPU, based on display rate change. CPU Offload is used by default to provide the best image fidelity, GPU Offload is used during periods of high display activity to provide improved frame rates and bandwidth optimization. This setting is only effective if the remote host and client endpoints are capable of both CPU and GPU Offload. You can select this option when you are enabling PCoIP Ultra.

For information on how to do this, see PCoIP Ultra - Windows, and PCoIP Ultra - Linux.

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 indicator create the following

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registry key and set to 0:
Computer\HKEY_LOCAL_MACHINE\SOFTWARE\WOW6432Node\Teradici\PCoIP\pcoip_admin_def
pcoip.codec_indicator (DWORD)

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Printing Support

When a local printer is visible to a client computer by USB connection or local network connection, it may be possible to print from the host machine. Refer to the following table for local printing support.

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

The following are the printing options available with the PCoIP Client:

- **Local USB Printing:** Printing to a USB printer locally attached to the Client device.
- **Remote Network Printing:** Enables printing to a network printer on the nost machines network. Not suitable in situations here the PCoIP Software Client device is not on the same network as he host device.
- **Cloud Printing:** This is access to external Cloud Services that are set-up on your local workstation and network. Once these services have been correctly configured they can be used by the PCoIP Software Client.
- **Local Network Printing:** Enables printing from the host machine to a printer in the PCoIP Client machine's local area network. This method is suitable for printing when host and client are not on the same network or for identifying and printing to local printers that exist in multi-site organizations.

	PCoIP Agent for Windows	PCoIP Agent for Linux
Local USB Printing	✔ printer is connected to a USB port on the client computer	–
Remote Network Printing	✔	–
Local Network Printing	✔	–
Cloud Printing	✔	–

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

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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.

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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.

USB Redirection

USB redirection is only intended to be used with a single instance of the PCoIP Software Client. Launching a second instance of the PCoIP Software Client while USB devices are redirected from another client may not work as expected.

Isochronous USB device support

Some USB devices with time-sensitive information, such as webcams, are supported when connecting to the PCoIP Agent for Windows.

Additionally, Teradici's technology partners provide solutions to expand peripheral support. For more information, look for partners listed under Peripherals on the Teradici Technology Partners page.S

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Wacom Tablet Support

The Software Client for Windows 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

Locally-terminated tablets have greatly improved responsiveness, and tolerate higher-latency (including 25ms and higher) networks.

Local termination requires:

- A Standard agent or Graphics agent for Windows version 21.01 or higher.
- A Standard agent or Graphics agent for Linux version 21.01 or higher.

The following Wacom tablet models have been tested and are supported with local termination.

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

	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*	✔	✔	✔	✔	–

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	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 Medium *PTH-660*	✔	✔	✔	✔	–
Intuos Pro Large *PTH-860*	✔	✔	✔	✔	–
Cintiq 22HD *DTK-2200*	✔	✔	✔	✔	–
Cintiq Pro 24 - Pen Only *DTK-2420*	✔	✔	✔	✔	–
Cintiq 22 *DTK-2260*	✔	✔	✔	✔	–
Cintiq 22HDT - Pen & Touch *DTH-2200*	–	–	–	–	–
Cintiq Pro 24 - Pen & Touch *DTH-2420*	✔	✔	✔	✔	–
Cintiq Pro 32 - Pen & Touch *DTH3220*	✔	✔	✔	✔	–

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.

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

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

	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*	✔	✔	✔	✔	–

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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 only works on the Cintiq Pro 32 Pen & Touch (DTH-2420). It does not work on any other 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.
- 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

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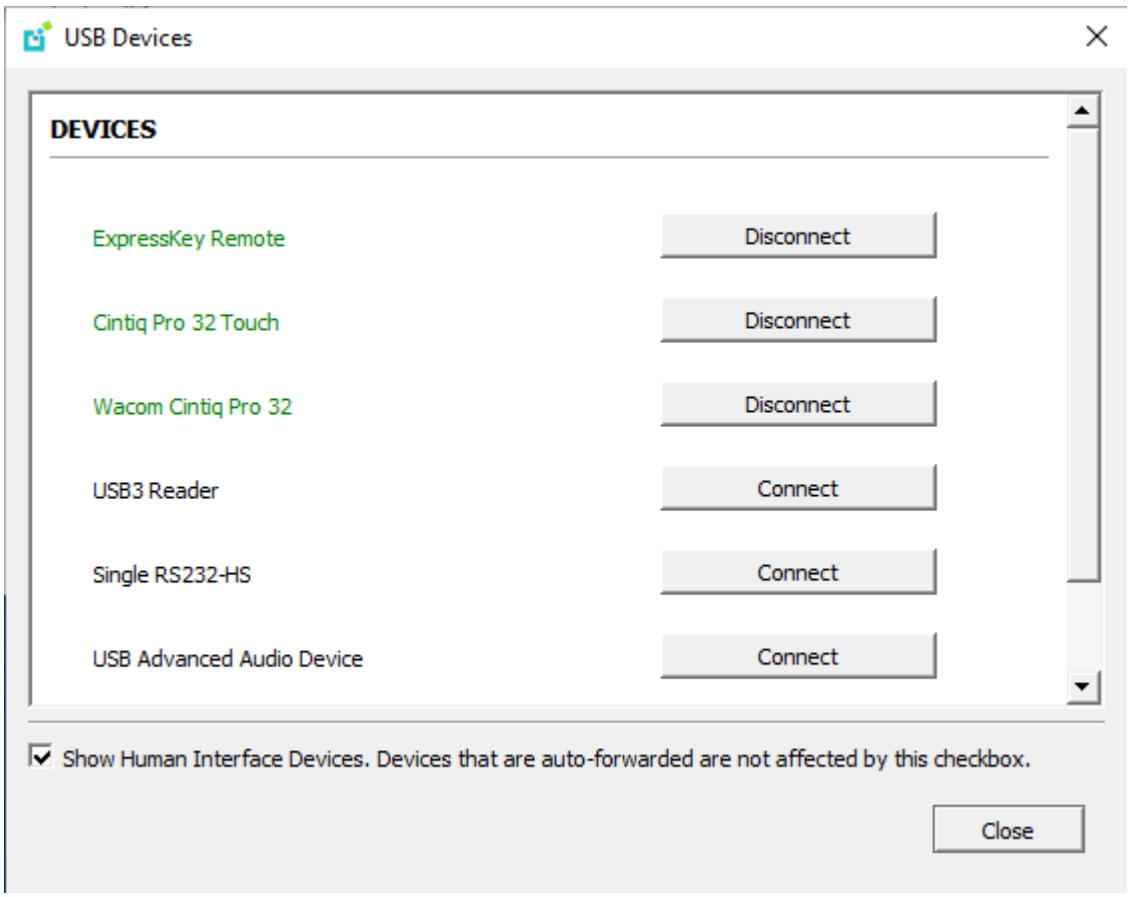

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SpeechMike Support

SpeechMike support has been added to the PCoIP Software Client for Windows 20.10.

SpeechMike is an isochronous USB device and requires USB ISO device support to be enabled. The HID checkmark needs to be selected for the feature to work.

On the Windows VM agents set **pcoip.enable_unsupported_iso_devices=1**, using the command line below:

```
REG ADD HKLM\Software\Policies\Teradici\PCoIP\pcoip_admin_defaults /v
pcoip.enable_unsupported_iso_devices /t REG_DWORD /d 1
```

On the PCoIP Client machine, set **pcoip.usb_allow_unsupported_device=1** using the command line below:

```
REG ADD HKLM\Software\Policies\Teradici\PCoIP\pcoip_admin_defaults /v
pcoip.usb_allow_unsupported_device /t REG_DWORD /d 1
```

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Webcam Support

PCoIP Software Client for Windows now supports USB webcams when connecting to a PCoIP Agent for Windows. USB webcams can now be used while in the remote desktop, including with applications such as Microsoft Teams or Zoom.

For detailed information which models have been tested and the performance metrics associated with these models see here. This knowledge base article also deals steps on how to test and verify other webcam models.

As of 21.07, this feature is enabled by default.

Requirements

Webcam support in Cloud Access Software requires the following:

- PCoIP Software Client for Windows or PCoIP Software Client for Linux, 21.07+
- PCoIP Standard Agent for Windows or PCoIP Graphics Agent for Windows, 21.03+
- USB-attached webcam.

Notes and Limitations

- Webcams must be connected via USB. Webcams that are not USB, such as embedded laptop webcams, are not supported.
- Linux agents are not supported.
- PCoIP Software Client for macOS is not supported.

Setup

On the PCoIP Software Client, connect the webcam as described in the following sections:

- PCoIP Client for Windows: USB Bridging of Webcams.

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- PCoIP Client for Linux: USB Bridging of Webcams.

Console Game Controller Support

PCoIP Software Clients are compatible with the following console game controllers:

- PS4
- PS5
- Logitech F310 gamepad

The following console game controllers are supported with the PCoIP Zero Client:

- Xbox One 2015
- Xbox One
- Xbox One S
- Xbox One Bt
- Xbox One Elite

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Relative Mouse Support

Relative Mouse is a method of translating mouse movements as a delta from the last mouse position rather than a move to an absolute position on the screen. This type of mouse control is used in many CAD/CAM, Visual Effects and First-Person Gaming software. In a CAD program you may want to control an objects orientation in 3-D with mouse movements. Moving the mouse to the left or right rotates the object around the Z-axis, and moving the mouse up or down rotates the object around the X-axis. As you continue to move the mouse left the object continues to rotate about the axis, and the rotation is not bounded by the mouse stopping at the boarders of the screen.

In fact while in relative mouse mode, the mouse cursor is not visible as the position of the mouse is not important, the mouse is only being used to control movements - up/down or left/right.

Applications that use relative mouse movements generally provide methods for entering or exiting relative mouse mode, for instance clicking on an object with the middle button. While the middle button is held down the object may be controlled using relative mouse movements.

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

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Enabling Relative Mouse Support

To enable relative mouse support create a **pcoip_client_settings.txt** file in **%localappdata%\Teradici** and run the following command:

```
pcoip.enable_relative_mouse=1
```

You are also required to enable relative mouse support on the PCoIP Agent also. For instructions on this, see here

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Installing the Software Client for Windows

In this section, you will learn how to install and uninstall the Software Client for Windows for Windows.

Before You Begin

Before installing the Software Client for Windows:

- You must be logged in as an administrator to the client machine.
- Close any existing Software Client for Windows applications.

Installing the Software Client

You can install the Software Client for Windows with the provided Windows installation wizard or from the command line.

To install the Software Client for Windows using the wizard:

1. Double-click the Software Client for Windows installer executable (pcoip-client.exe) to begin installation.
2. Follow the prompts to specify installation locations, and to agree to any licenses.

   > **Microsoft Visual C++ Redistributable package**
   >
   > The libraries in this package are required by the Software Client for Windows. If they aren't already installed, a wizard will launch and install them for you.

3. Click **Finish** to complete installation and close the installer.

To install the Software Client for Windows silently from the command line:

- Install the Software Client for Windows silently by running the installer executable from the command line:

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```
<path-to-installer>\pcoip-client.exe /S`
```

where `<path-to-installer>` is the full path to the folder containing the pcoip-client.exe executable.

> **Silent installation uses default options**
>
> The silent installer uses default settings and options. For example, a silent installation won't create a desktop shortcut.

Uninstalling the Software Client

To uninstall the Software Client for Windows:

1. Click **Start** (or **Search Windows** for Windows 10).
2. In the search box, type **Add or remove programs** and press **Enter**.
3. Select **Teradici PCoIP Client** from the list of programs.
4. Click the **Uninstall/Change** button above the list.

> **Troubleshooting PCoIP Session Connection Issues**
>
> If you encounter issues with your PCoIP Session, please see the following KB article: https://help.teradici.com/s/article/1027. This article details some potential causes and fixes for common connection issues.

Installing the Software Client in Silent Mode

The following section outlines how to install the PCoIP Software Client in silent mode. Please note that you must authorize the application to run in silent mode. To install the PCoIP Software Client on Windows use the `/S` switch on the command line when launching the installer in the Windows CMD Prompt as outlined in the following example:

```
C:\Downloads\pcoip-client_21.03.0.exe /S
```

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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.

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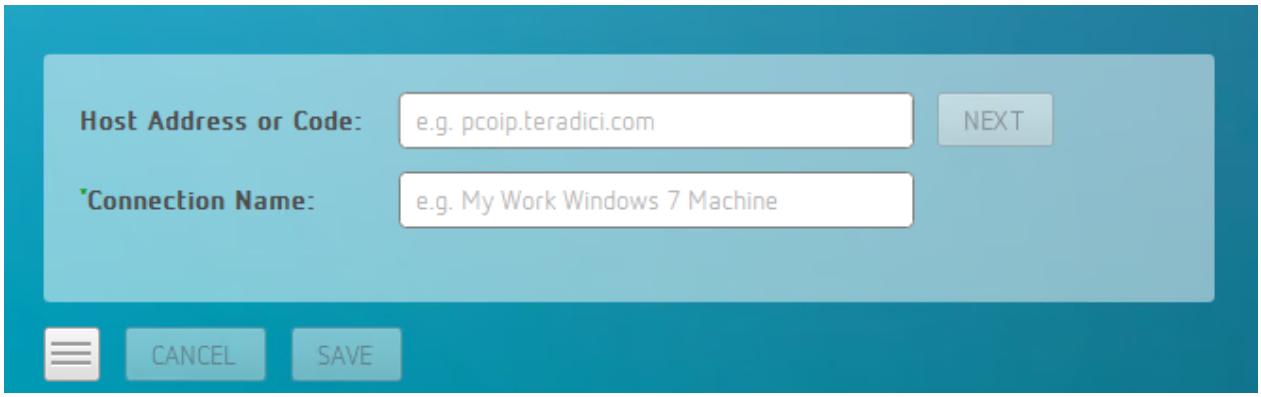
Connecting to Virtual Machines

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.

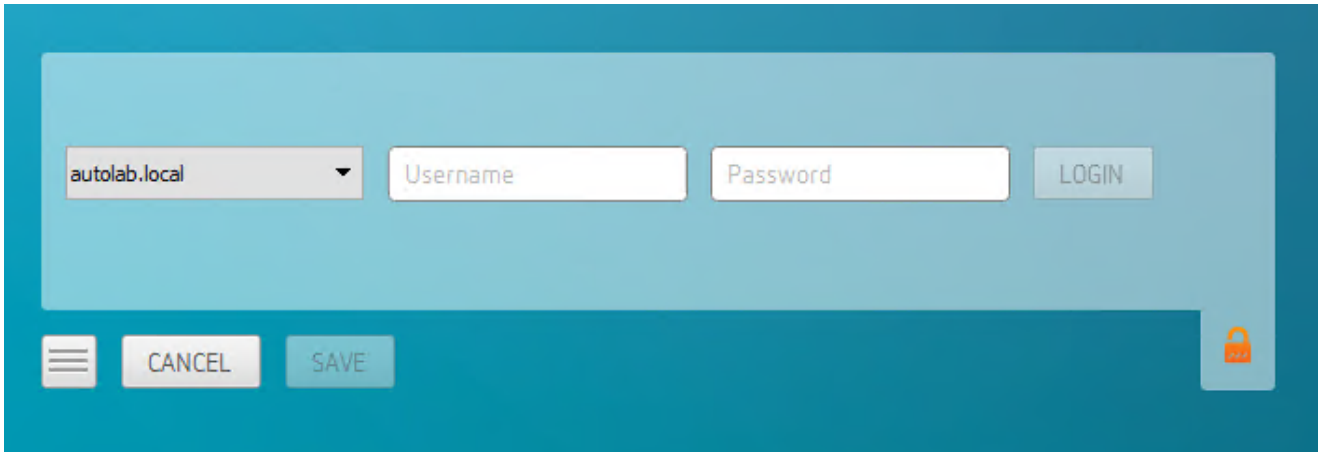
To connect to a remote workstation or virtual desktop:

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**.



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.

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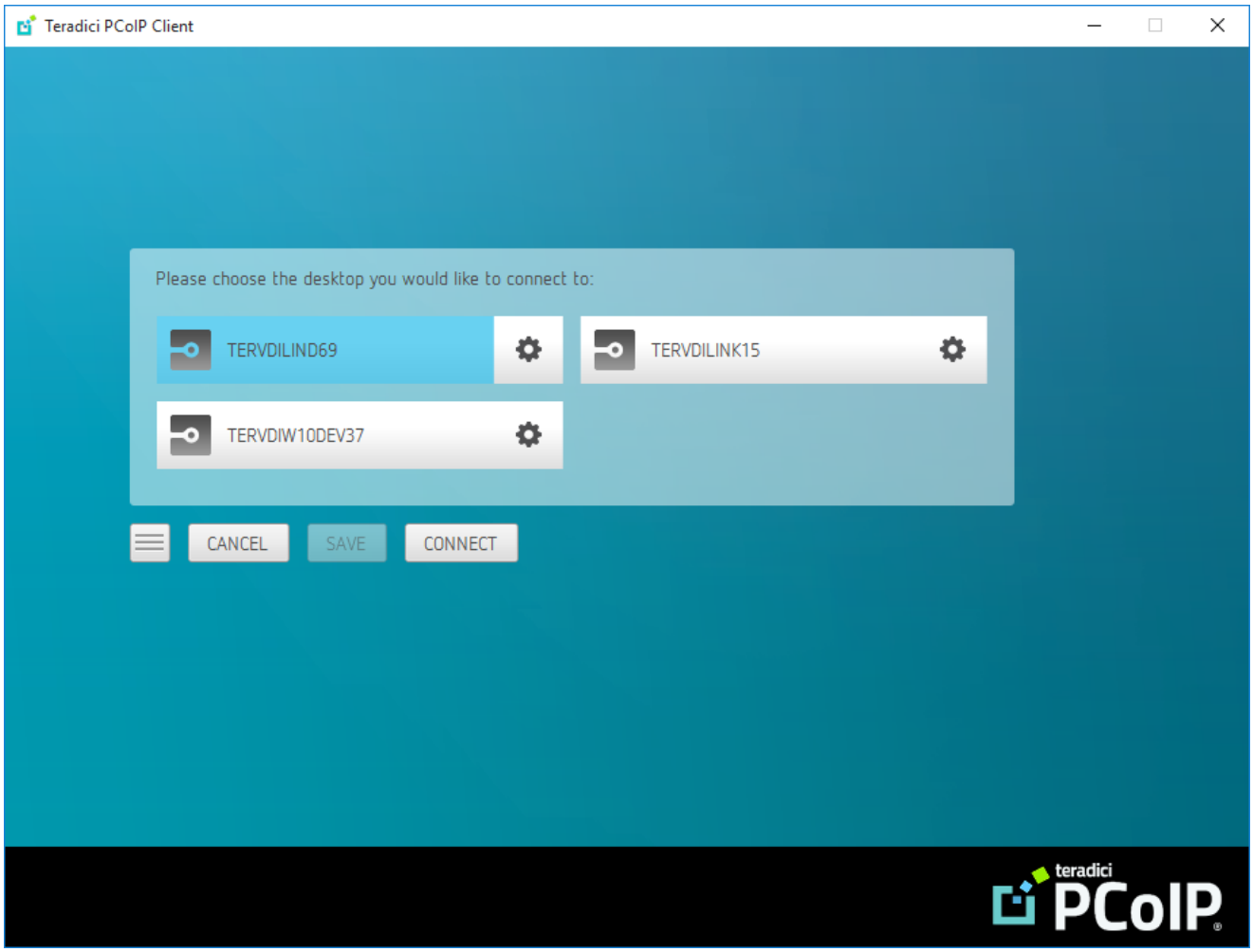
5. If your login is successful, the following screen appears with a list of available desktops:



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.

Single-desktop users

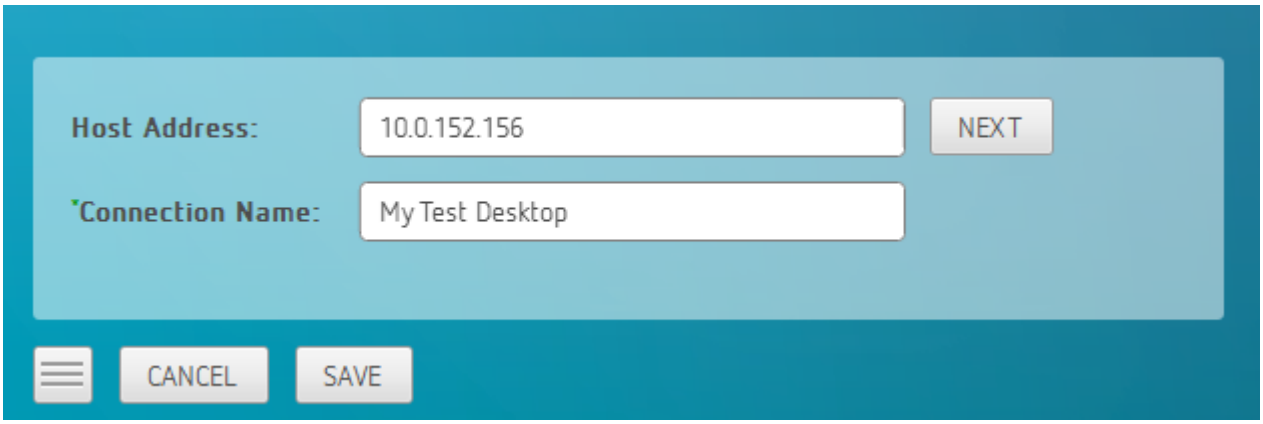
If a user only has access to a single desktop, that desktop is automatically selected and the connection is initiated immediately. These users are not presented with a desktop selection screen.

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 `%APPDATA%\Teradici\PCoIP Client Connection Info.ini`

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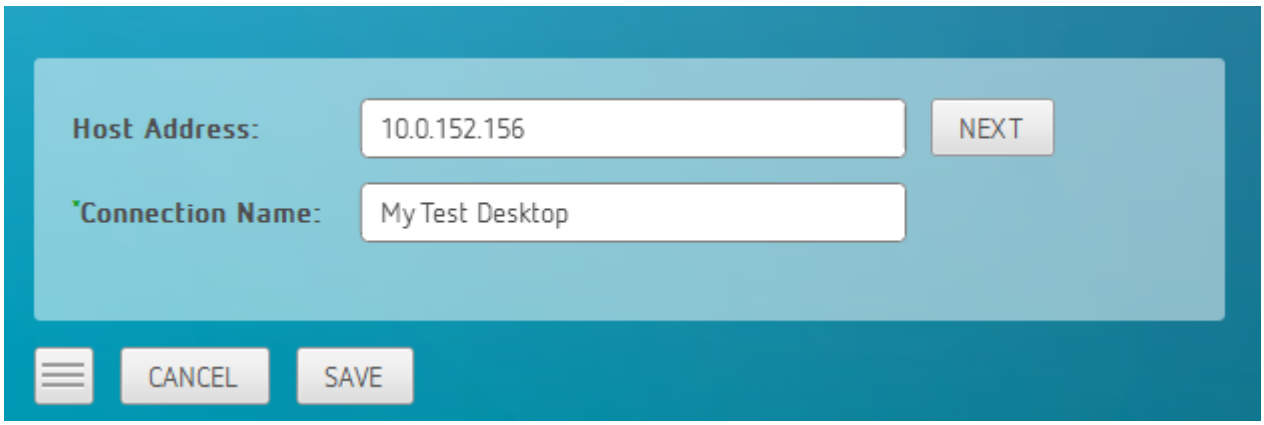
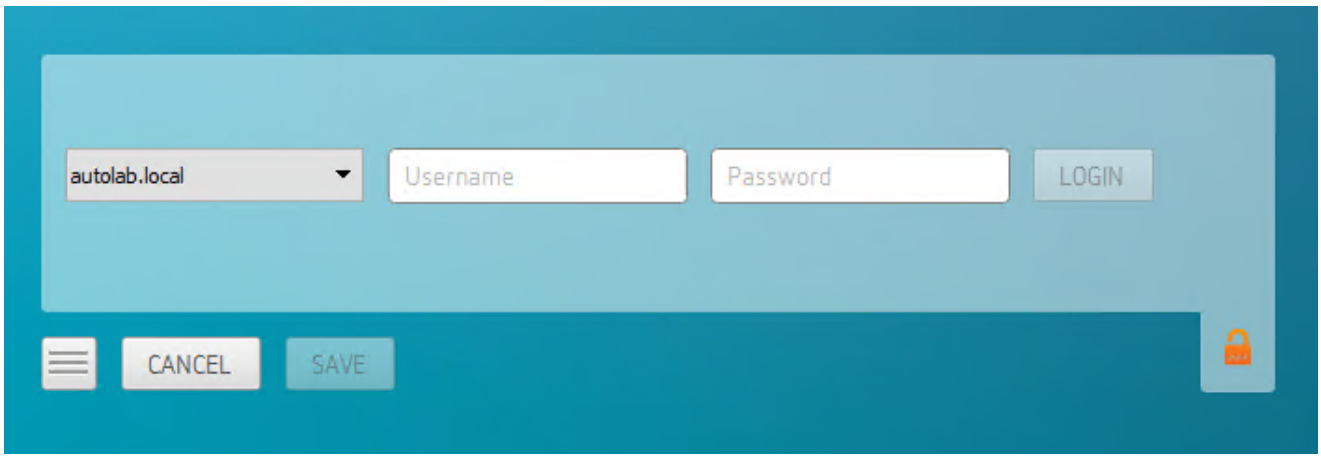
Multiple Desktops

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



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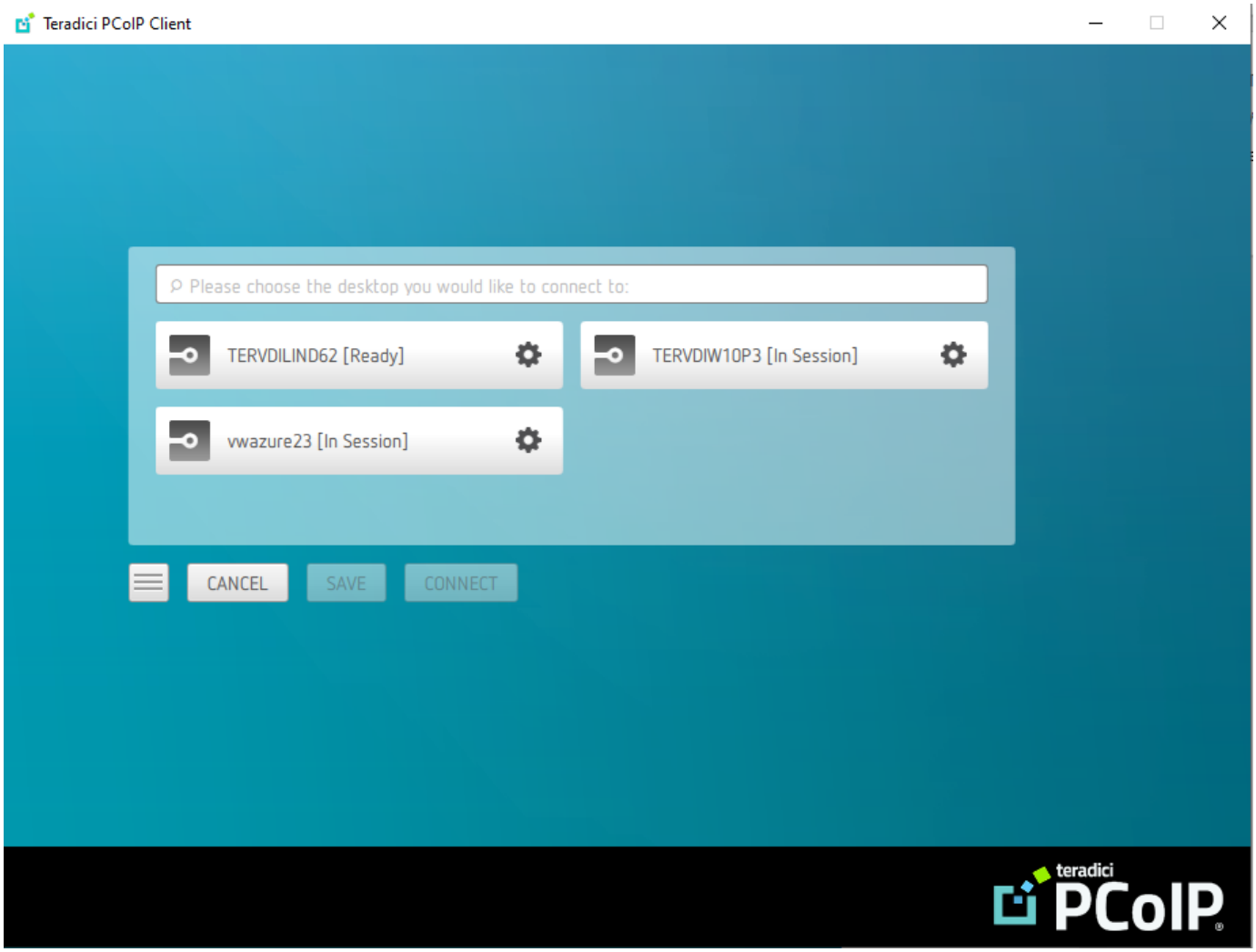
Once you have done this each time you use this connection you will be presented with the list of available desktops for that connection.



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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. This step is important as the host driver function is disabled by default, so the host software will not pick up information about the PCoIP Remote Workstation Card, such as the MAC address. The MAC address enables you to connect to the PCoIP Remote Workstation Card to view the IP address and enable the host driver function.

  For more information on IP and MAC information relating to the PCoIP Remote Workstation Card, see here.

- **Install PCoIP Remote Workstation Card Agent**

  To connect to a remote workstation with a PCoIP Remote Workstation Card using a PCoIP Software Client, the Remote Workstation Card Agent must be installed.

- **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.

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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.

Connecting to a Remote Workstation Card via a PCoIP Software Client

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. You must have a Remote Workstation Card Agent installed to enable a connection to a Remote Workstation Card.

Both the NIC of the workstation and the NIC of the PCoIP Remote Workstation card need to be accessible by the PCoIP Software Client. They can be on different local networks as long as both are accessible by the PCoIP Software Client. If they are both behind a NAT and accessed by the

PCoIP Software Client then the PCoIP Remote Workstation Card Agent must send the NAT'ed address to the PCoIP Software Client when connecting.

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 Remote Workstation Card 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 with the IP address of your PCoIP Remote Workstation Card, for example:

```
pcoip_client.exe --hard-host 10.11.12.13
```

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

Connecting 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.

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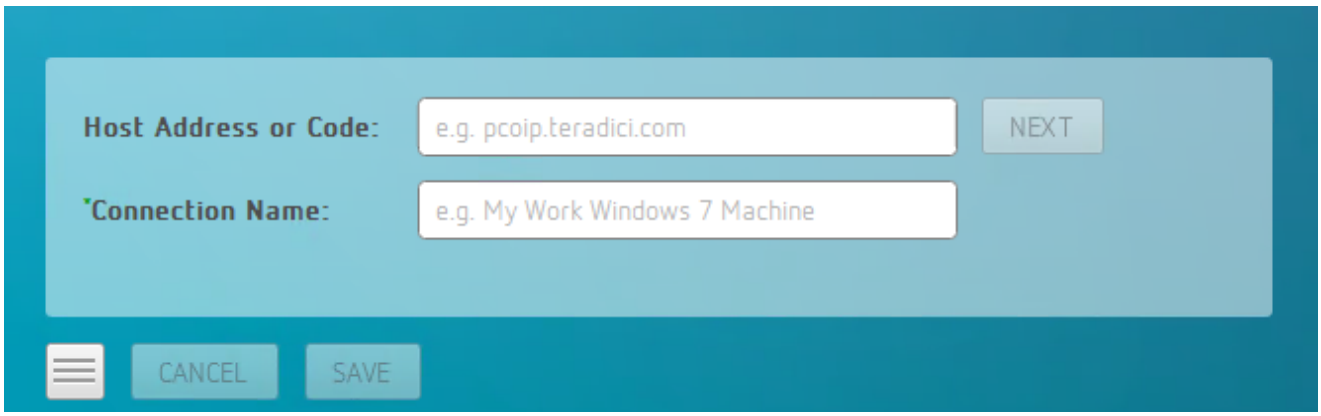

2. In the **Host Address and Code** box, enter the fully-qualified computer name or IP address of the remote workstation or the address of the PCoIP broker, for example Cloud Access Manager or a third-party broker.
3. *Optional:* In the **Connection Name** box, enter a name for your connection. This 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.

PCoIP Remote Workstation Card Feature Compatibility

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

Audio: PCoIP Remote Workstation Card 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 PCoIP Remote Workstation Card 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 PCoIP Remote Workstation Card is not supported.

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

Connecting Remotely using NAT or VPN

The same principles that apply for PCoIP Zero Clients apply to PCoIP Software Clients when connecting to multiple hosts through a WAN. Connections from a PCoIP Software Client to a Remote Workstation Card across a WAN will require a VPN or NAT setup with enterprise level NATing devices. For information on how to connect a PCoIP Software Client to a Remote Workstation Card installed in a Windows host computer, see here.

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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.

ePadLink Signature Pad and some Wacom tablets are connected via local termination

If you are using an ePadLink Signature Pad and certain Wacom tablets they can be connected via local termination. You do not need to carry out any other steps to establish this connection. For information on which Wacom tablets are locally terminated, see Wacom Tablets.

NoMachine and TGX Remote Desktop 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. PCoIP Client USB redirection is not compatible with TGX Remote Desktop. Please uninstall the TGX application if you require USB redirection.

USB Bridging of Webcams

USB Webcams can be redirected to a remote PCoIP Agent for Windows from PCoIP Software Clients for Windows and/or Linux. You need to ensure that the upstream bandwidth of the connection is sufficient to support streaming video. This feature works with a limited set of USB cameras, including the Logitech C920. It is limited to video resolutions of less than 480p.

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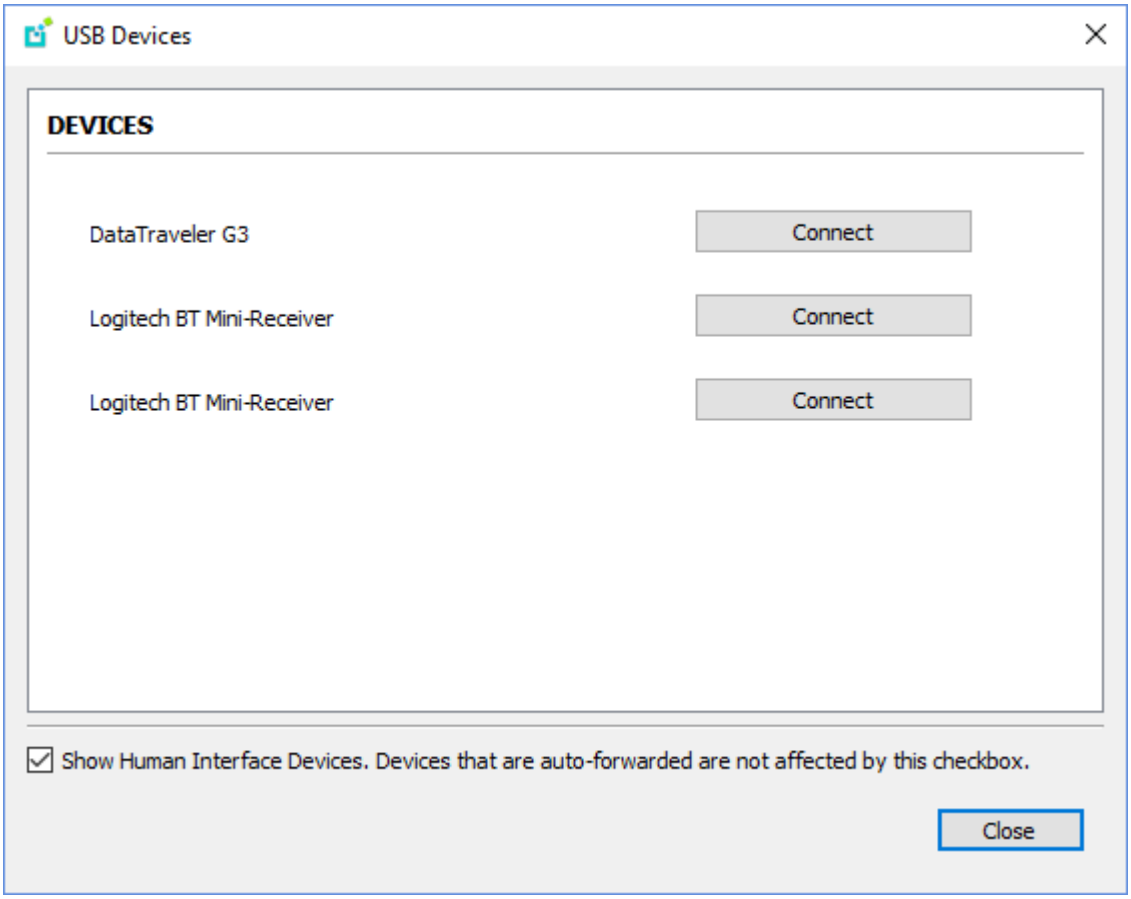
The following section outlines how to connect a USB device:

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

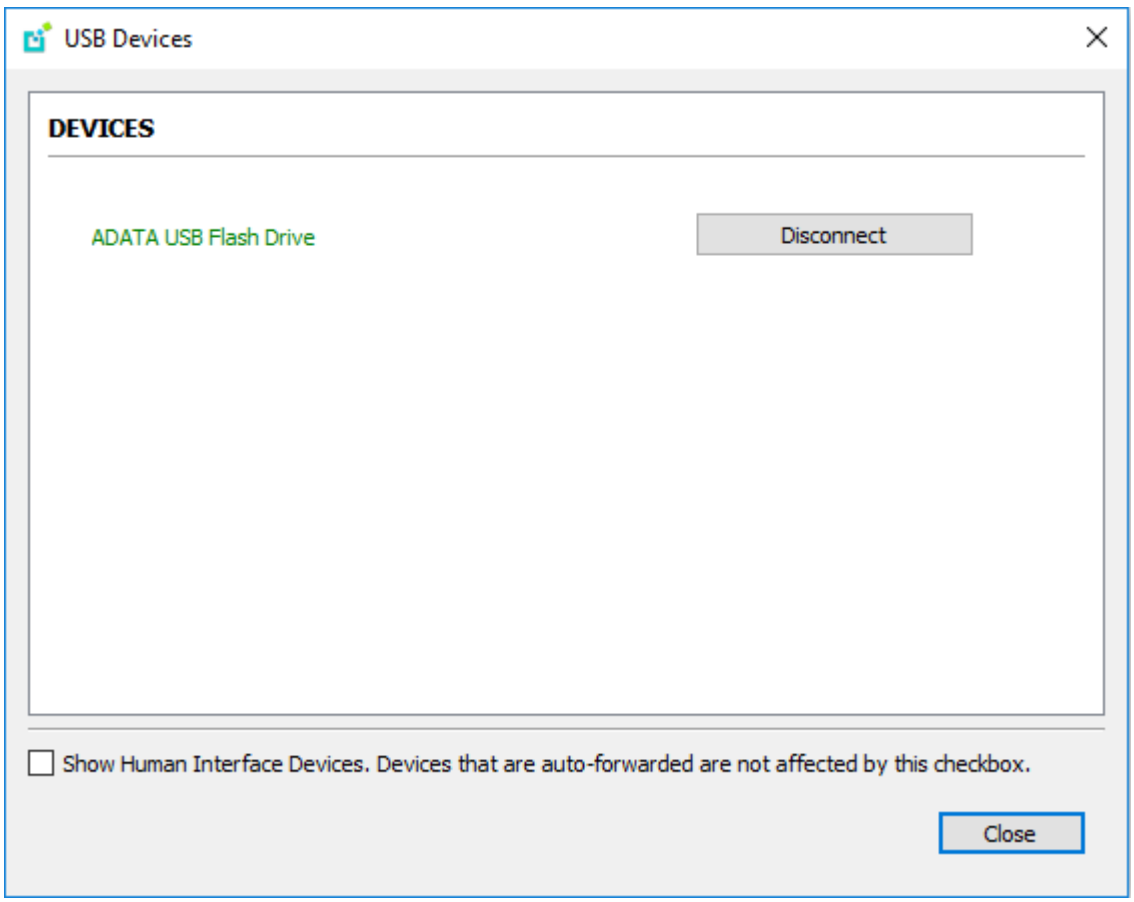
Most Human Interface Devices (HIDs), such as keyboards and mice, are automatically handled by the PCoIP Software Client and don't appear on in this list even if they use a USB connection.

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.



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USB Auto-Forward for 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.

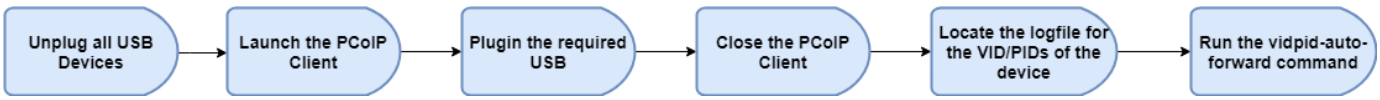
VID/PID Pairs

You can locate the VID/PID pairs from the PCoIP Client logs which are placed in `%localappdata%\Teradici\PCoIPClient\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.exe --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.

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Configuring Wacom Tablets

This section outlines how to configure your Wacom tablet through the PCoIP Client session. There are two available features within the PCoIP Client that can be used to configure the monitor display and orientation. This only applies to locally terminated Wacom Tablets.

Tablet Monitor

The Tablet Monitor feature enables you to select the monitor you want to use with your Wacom tablet. You can change between using a pen or mouse and select the orientation position.

To configure Tablet Monitor settings:

1. Select **View** from the in-session options bar.
2. Check the **Tablet Monitor** option.
3. Open **Wacom Tablet Properties** from the Wacom Desktop Center.
4. Select your device, tool and application.
5. Select your screen area from the dropdown menu.

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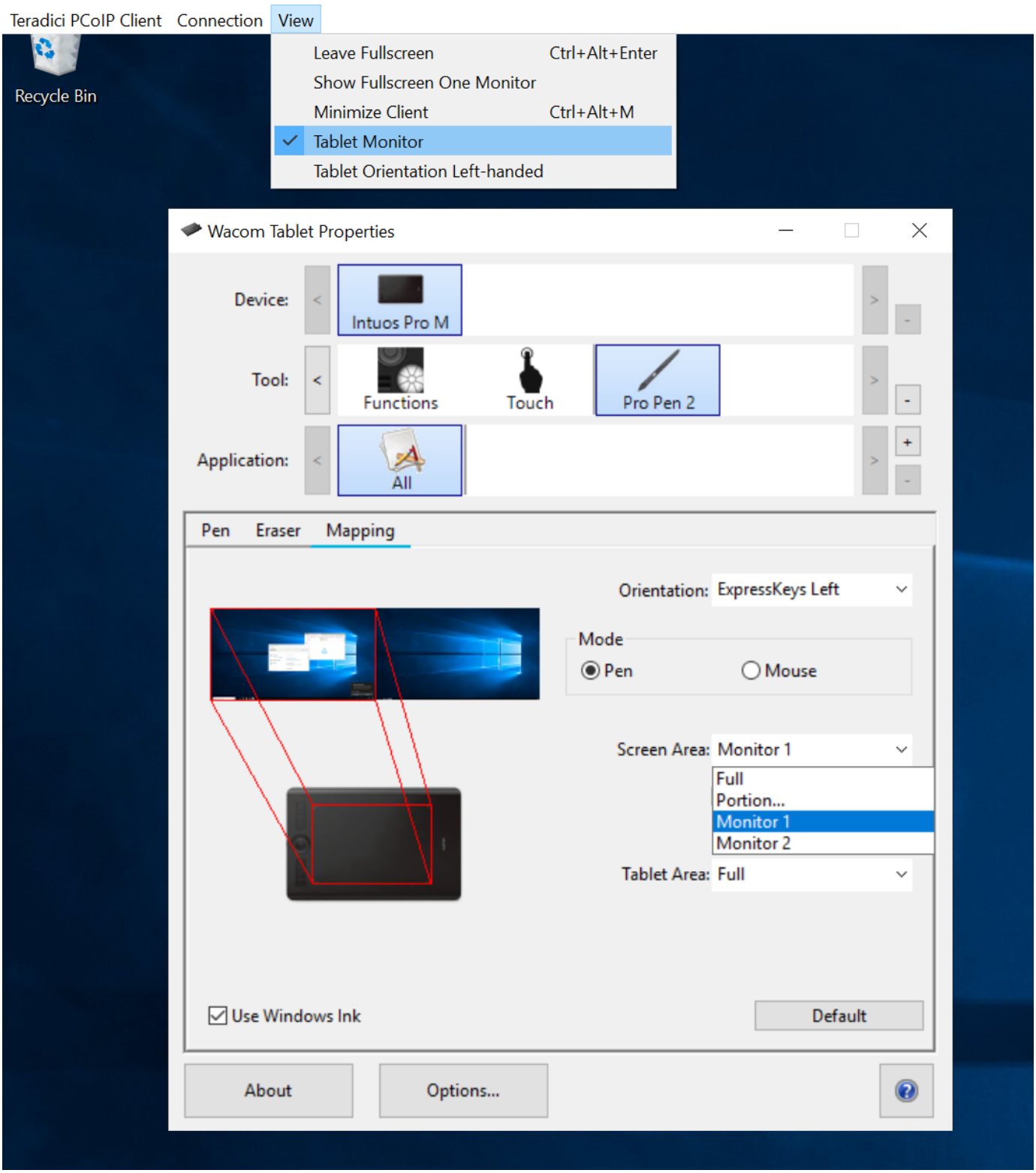

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Tablet Orientation Left-handed

The left-handed orientation configures the tablet for a left-handed orientation. Select **ExpressKeys Right** for a left-handed orientation, and **ExpressKeys Left** for a right-handed orientation. Rotate the tablet to the desired orientation.

To configure Tablet Orientation:

1. Select **View** from the in-session options bar.
2. Check the **Tablet Orientation Left-handed** option.
3. Open **Wacom Tablet Properties** from the Wacom Desktop Center.
4. Select your device, tool and application.
5. Select your orientation from the dropdown menu.

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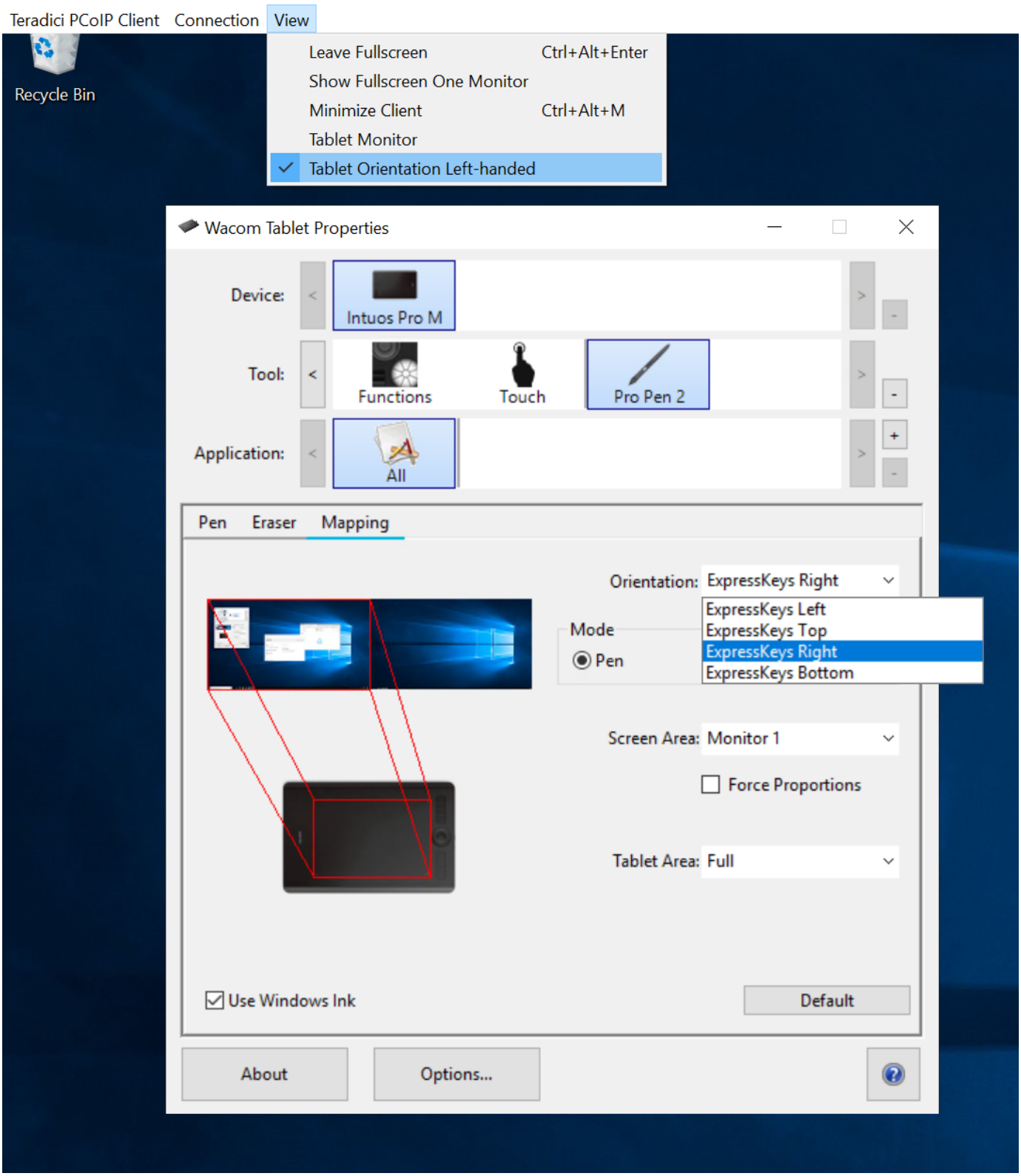

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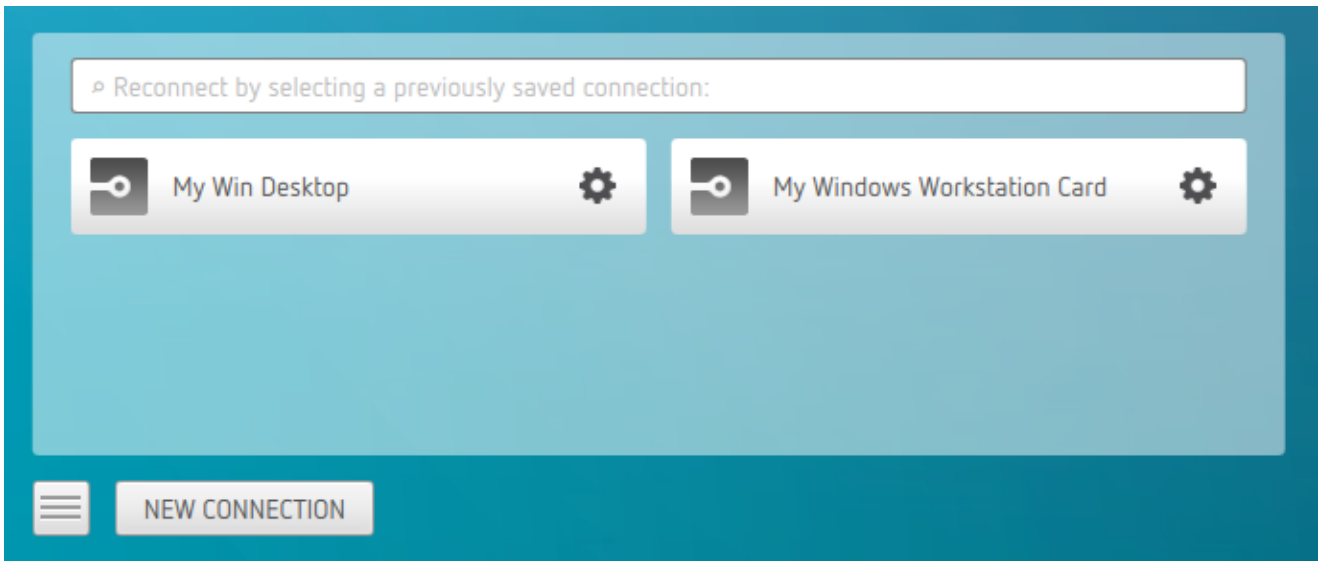
Using Saved Connections

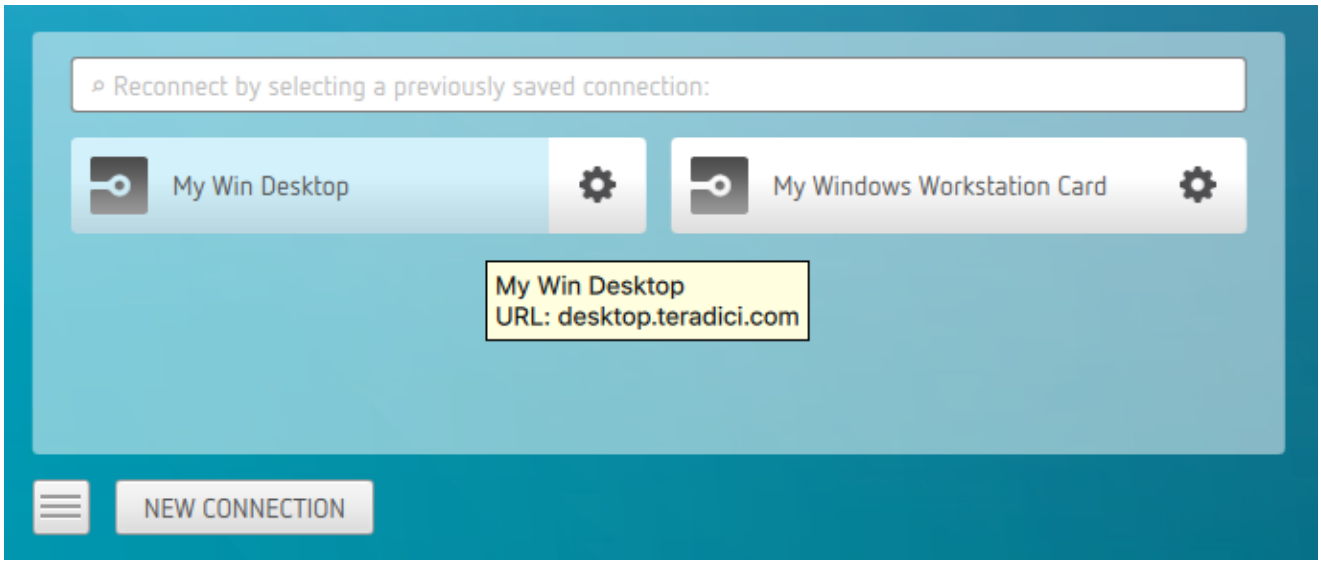
Once you have saved a connection, you can use it to reconnect easily.

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.



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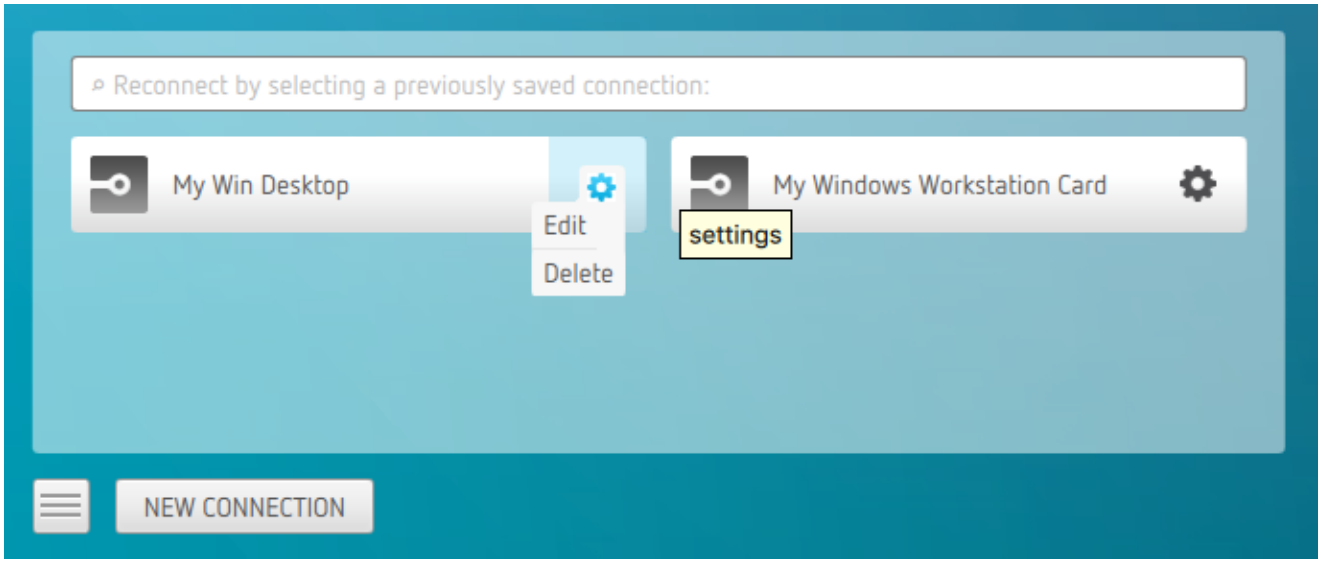
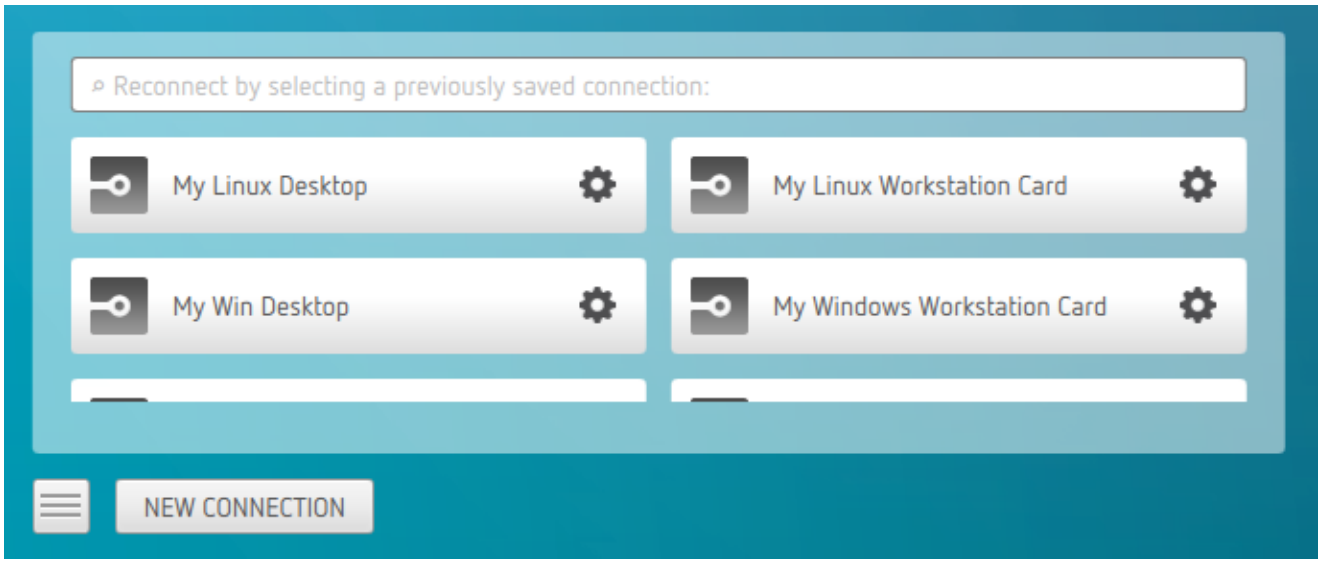
3. To edit or delete a saved connection, click the configure button on the right, and then select the desired option from the popup menu.



4. If you have saved multiple connections, click the desired one to reconnect. If you have multiple saved connections use the search bar to locate the connection and scroll down to find it.



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.

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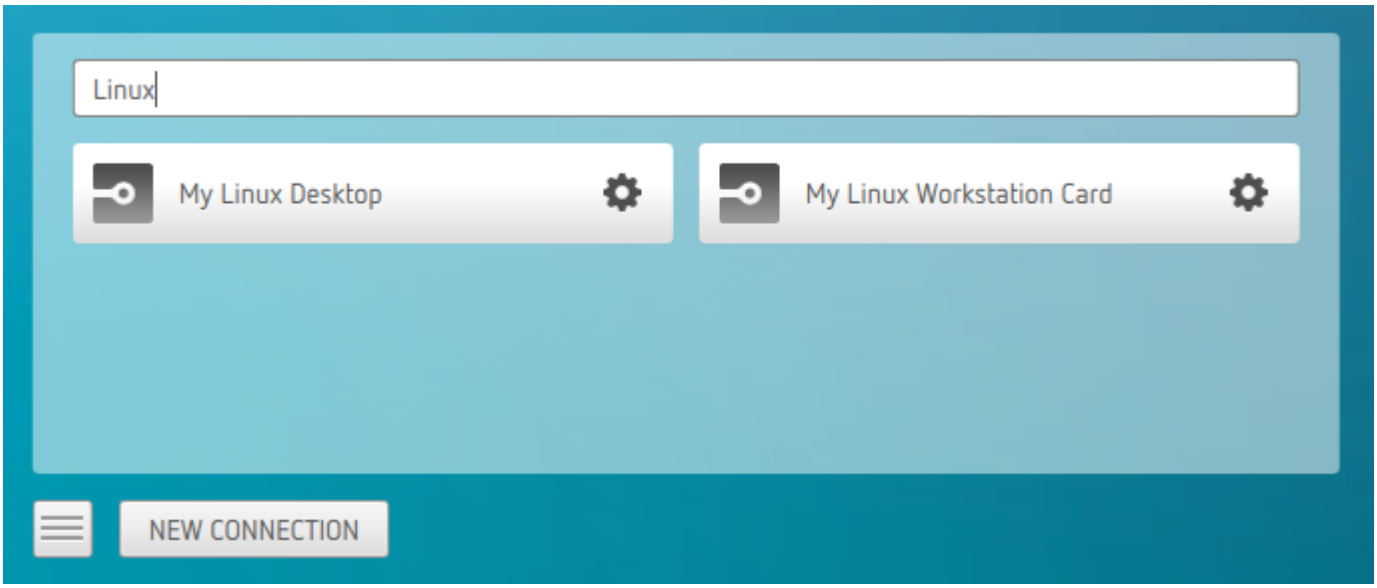
Filtering through your saved connections

You can use the search bar to now filter saved connections based on there connection names.



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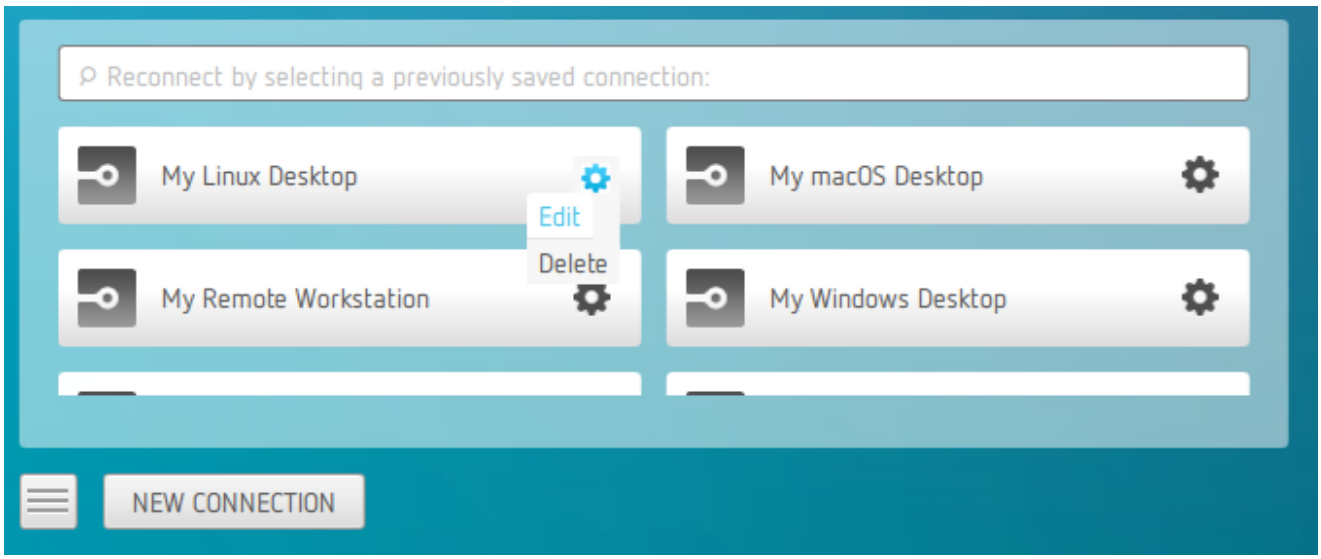
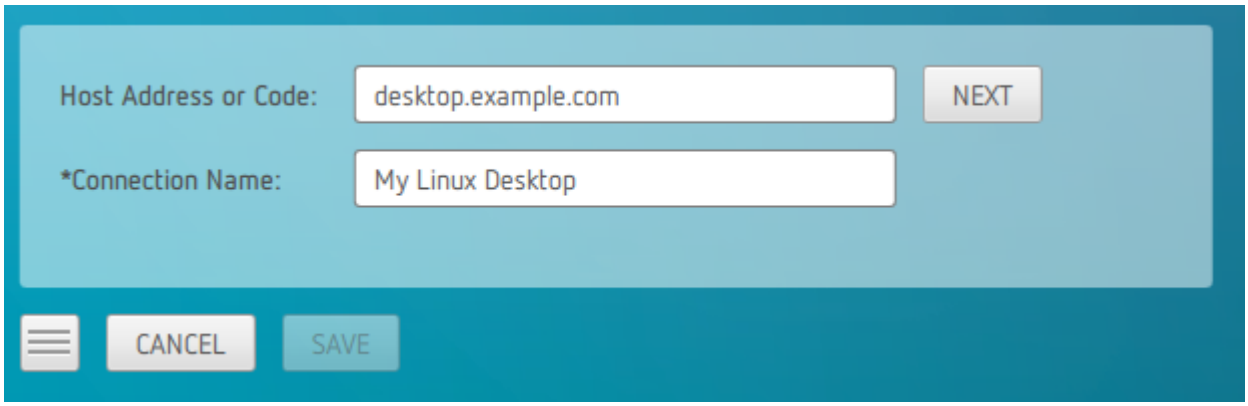
Reset Virtual Desktop

The following section outlines how to reset a saved desktop in the PCoIP Client. You can reset to a virtual desktop by following the steps outlined below:

1. Click the configure button and select **Edit** from the popup menu.



2. Click **NEXT** on the initial saved connection screen.



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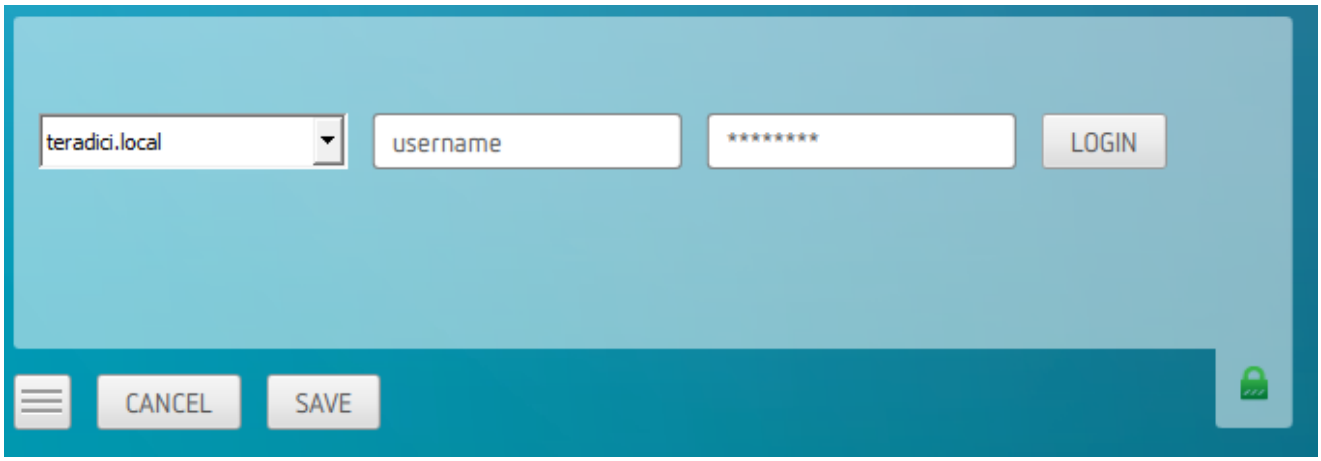
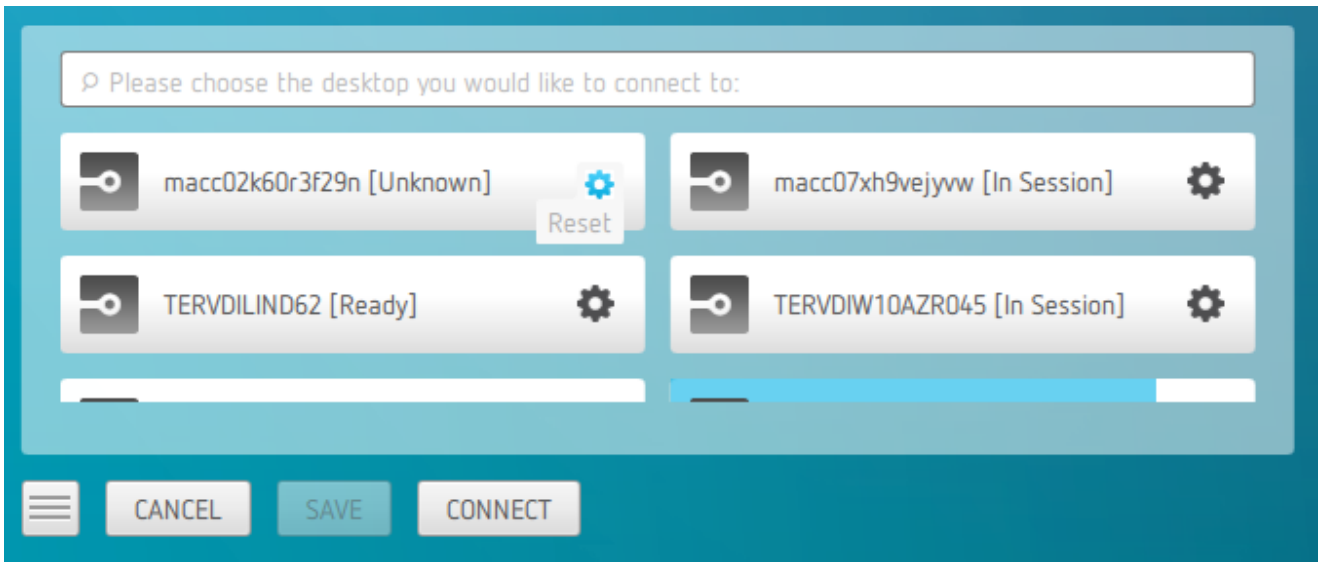
3. Enter your access credentials and click **SAVE**.



4. Click the configure button and select **Reset**. If the **Reset** option is not available, then this feature is not supported by the Connection Manager.



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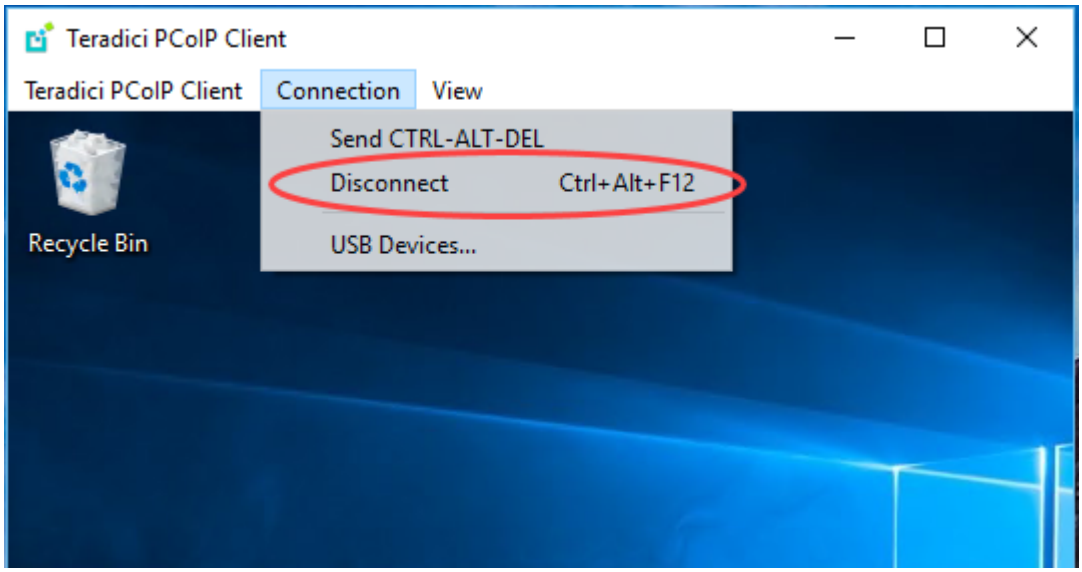
Disconnecting a Session

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



Quickly disconnect from a session

To quickly disconnect from a session, press **Ctrl + Alt + F12**.

Quitting the PCoIP Client 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.

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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**.

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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.

Minimizing 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.

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Detect Monitors

The detect monitors feature enables you to add and remove displays from the desktop through the PCoIP Clients 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**.

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.

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Enhanced Audio and Video Synchronization

Enhanced Audio and Video Synchronization (A/V Sync) 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 video 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 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.

PCoIP Ultra AV-Lock Tech Preview

PCoIP Ultra AV-Lock enables regulated synchronization of audio and video frames and reduces dropped video frames during video playback. For some use cases, such as video editorial, audio video synchronization is critical, including under various network conditions (such as congestion) that may be present with remote work. For information, and to get access to this preview, go to the Teradici Tech Preview Program page.

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.

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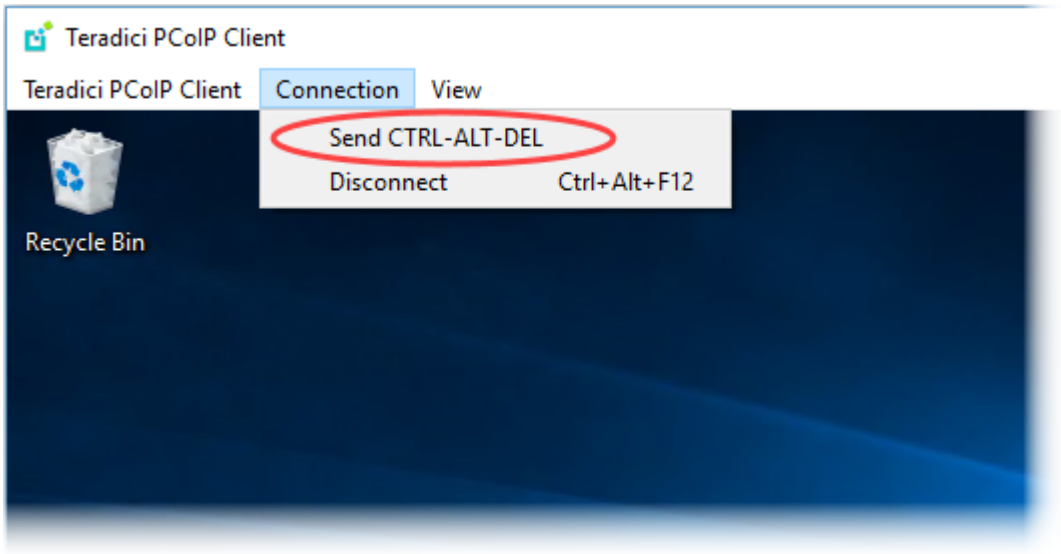
Sending a Ctrl-Alt-Del Command

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



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Changing the Language

In addition to English, the PCoIP Software Client also supports these languages: Chinese (Simplified), French, German, Italian, Japanese, Korean, Portuguese (Brazil), Portuguese (Europe), Russian, Spanish, and Turkish. During installation, you can select one of the supported languages.

To change the language after installation:

In **Control Panel > Region and Language > Formats** tab, select another language in the **Format** list.

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

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

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System Precedence

The following section outlines the scope precedence commands between the **System Scope** and **User Scope**. If you are updating individual user settings then the user scope locations and parameters can be followed. Due to this order of precedence where by the system scope setting takes precedence over the user scope setting, a change in the user settings may not take effect if the system scope setting has been updated.

System Scope

```
%PROGRAMDATA%\Teradici\Teradici PCoIP Client.ini
```

User Scope

```
%APPDATA%\Teradici\Teradici PCoIP Client.ini
```

To add a new key append key=value to the .ini file:

If you are creating a new file, the format of the file should be:

```
[General]
<key>=<value>
```

For example:

```
[General]
security_mode=2
```

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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.
-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.
	`--usb-auto-forward`	Auto-forward all non-HID devices.

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Short	Long	Default Description
	`--vidpid-auto-forward`	String of VID, PID hex values separated by a comma. For example 0x540c 0x04ce wont work, you need to write 0x540c,0x04ce.
	`--vidpid-black-list`	Blocks specific VID,PIDs from autoforward regardless of whether the `usb-auto-forward` parameter or the USB dialog is used.
	`--disable-menubar`	Disables the PCoIP Client menubar. Prevents the user from accessing menu functionality.
	`--disable-hotkeys`	Disables session hot keys.
	`--full-screen`	Activates full-screen mode from windowed mode in a PCoIP Session.
	`--set-host-resolution`	Locks the resolution of your host application displays.
	`--enable-scaling`	Enables scaling on the PCoIP Client without having to specify the desktop resolution.
	`--maintain-aspect-ratio`	Maintains the aspect ratio between the host and client.
	`--force-native-resolution`	Sets the resolution of the client monitor to the native resolution when the session client's launched.
	`--desktop`	Enables users to select which desktop they which to use.

For example, running the `--help` command will have the following format:

```
"c:\Program Files (x86)\Teradici\PCoIP Client\bin\pcoip_client.exe" --help
```

For additional information on customizable in-session options, see Customizable Session Features.

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Launching PCoIP Software Client with a URI

It is possible to launch the PCoIP Software Client with a URI. The Teradici URI uses JSON Web Tokens (JWT). For more information on the use of JWT, see here. The URI is defined as the following:

```
pcoip://[broker]/connect[?data={jwt}]
```

When additional parameters are passed through the encoded JWT a session can be launched:

Field	Description	Optional vs Required
pcoip://	Scheme registered to operating system so that PCoIP Client can be launched	Required
broker	Broker through which a PCoIP session is supposed to be brokered through	Optional
/connect	Connecting to a PCoIP Client with the parameters defined in "?data"	Required
?data	Query parameter to store a jwt encoded user credentials	Optional

The table below details supported optional JWT payload claims:

Claim	Description
usr	Username
dom	Domain
vm	Virtual machine/resource name
sid	Broker JSESSIONID

Below is an example of a JWT payload:

```
{
    "usr": "username",
```

```
    "dom": "mydomain.com",
    "vm": "mydesktopname"
}
```

The following is an example of a connect command:

```
pcoip://fake.broker.com/connect?
data=eyJhbGciOiJIUzI1NiIsInR5cCI6IkpXVCJ9.eyJ1c3IiOiJ1c2VybmFtZSIsImRvbSI6Im15ZG9tY
```

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 *%APPDATA%\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.

Troubleshooting HID Local Termination Blacklist

The following lines should appear in the PCoIP Agent log if a device is using HID local termination:

```
pcoip server log: `LVL:2 RC: 0 MGMT_KMP :Client added HoIP device (id:0x000a0005)
with vendor id=0x056a, product id=0x0391`
pcoip client log: `LVL:2 RC: 0 MGMT_USB :HoIP supported device detected (Vid:
0x056a, Pid: 0x0391), using HoIP protocol for local termination'
```

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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 *%appdata%\Teradici\Teradici PCoIP Client.ini*.

The PCoIP High Performance client enables higher frame rates with fewer dropped frames than the default PCoIP Software Client. This mode is especially beneficial for 4K video workloads up to 30fps.

> **PCoIP High Performance Client Limitations**
>
> The PCoIP High Performance Client is recommended for customers wishing to optimize the presentation of high frame rate content such as video or animations. 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 you need to edit the `Teradici PCoIP Client.ini` file. To enable the high performance mode, set the following value:

```
%appdata%\Teradici\Teradici PCoIP Client.ini

enable_native_opengl=1
```

You can use the `--vidpid-auto-forward` parameter which will automatically forward USB peripherals such as Wacom Tablets and Game Pads, see here.

Additional information on the high performance client:

- Compatible for fullscreen, all monitors only. You cannot use windowed mode.
- Limited menu options are available.

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Menu Options on the High Performance Client

The following menu options are available on the High Performance Client:

- Teradici PCoIP Client
  - Quit Teradici PCoIP Client
- Connection
  - Send Ctrl+Alt+Del
  - Disconnect (To disconnect use `ctrl-alt-~`)
- View
  - Minimize Client (You can minimize the client by using `ctrl-alt-m`)
  - Tablet Monitor
  - Tablet Orientation Left-handed
  - PCoIP Ultra AVLock

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.
- **Encoding:** 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.

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

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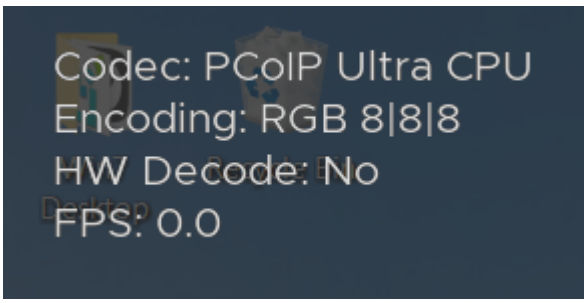

To enable the statistics overlay of the PCoIP Client you have to edit the `Teradici PCoIP Client.ini` file. To edit the file you can use tools like "vi", "nano" or "vim"/ Please see the manuals of your prefered text editor on how to use it. To enable the statistics overlay on the high performance client, 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``.

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Custom Logo in Pre-Session

The PCoIP Software Client can be configured to place a custom logo beside the PCoIP logo at the bottom right corner of the PCoIP Software Client login dialog. For best results, the logo should be a .png file with a transparent background, and ideally should be 245x100 or smaller. The image must be named ***customlogo.png***.

- Windows location: *%PROGRAMDATA%/Teradici/PCoIPClient/*

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Customizable Session Features

The following PCoIP session features can be customized:

- Session Menu Bar Visibility
- Disable Hot Keys
- Windowed or Fullscreen Mode
- Set Host Resolution
- Image Scaling
- Maintain Aspect Ratio
- Force Native Resolution

> **Examples show command-line usage**
>
> The examples shown here invoke the PCoIP Software Client via the command line. You can also set these priorities when invoking the PCoIP Software Client programmatically.

Session Menu Bar Visibility

To enhance the user experience the PCoIP Session Client enables the menu bar by default, however some use cases may require that it be disabled, or hidden, in order to prevent the user from accessing menu functionality. To disable the menu bar feature use the parameter `disable-menubar` .

Disable Hot Keys

To improve usability, session hot keys, such as **Ctrl+Delete+F12** (which disconnects a PCoIP session) are available to users by default. The parameter for this feature is `disable-hotkeys` .

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Windowed or Fullscreen Mode

Depending on your application needs, you can display the PCoIP session in either windowed or fullscreen mode. Fullscreen mode allows the display topology to support multiple monitors as an extended desktop; windowed mode gives you the flexibility to display multiple application windows in parallel and switch between them quickly. Windowed mode improves the user experience, as well as resulting in an increase in performance. Windowed mode is the default mode, and to activate fullscreen mode use the `full-screen` parameter.

Set Host Resolution

Normally, the session client opens with arbitrary window dimensions. In some cases, you may wish to lock the resolution of your host application displays. This ensures the user's viewing experience is consistent across different monitors and their native resolutions. The parameter for this feature is `set-host-resolution` .

- Host Resolution Limitations: It is only possible to specify one target resolution for all displays. The host resolution will not perform to its optimal capability if you have monitors with different resolutions.

Image Scaling

The image scaling feature enables scaling on the client without having to specify the desktop resolution. You can apply image scaling when the resolution of the client monitor is not the same as the resolution provided by the host. This feature provides a smoother process for image scaling on the client. The parameter for this feature is `enable-scaling` .

Maintain Aspect Ratio

If the host and client aspect ratios do not match, and this parameter is not used then the display will be stretched to fit. The parameter for this feature is `maintain-aspect-ratio` . If the native aspect ratios of the host's display and the client's display do not match, the host's aspect ratio will be preserved and will appear in the client with black bars either on the sides or top and bottom of the display.

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Force Native Resolution

The resolution of the client monitor can be set to the native resolution when the session client is launched using the `force-native-resolution` parameter.

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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

Use the following procedure to set the PCoIP Software Client's security mode.

To set the security mode for the PCoIP Software Client:

1. Close the PCoIP Software Client.
2. Open a Windows Explorer window and navigate to %appdata%\Teradici.
3. Using a text editor, open Teradici PCoIP Client.ini.
4. Add the line `security_mode=<value>` to the file, where `<value>` is your desired security option (**0**, **1**, or **2**).

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5. Save the file.

Installing the Internal Root CA Certificate in a PCoIP Client

Your root CA certificate must be installed in any PCoIP client that will be used to connect to the PCoIP Agent.

Installing Root CA Certificates in the PCoIP Software Client for Windows

Root CA Certificate must have a .crt extension

You must change the root CA certificate's extension from .pem to .crt before installing it on a PCoIP Software Client.

Windows must trust your root certification authority

When you use your own private key and certificate, you must add your internal root CA certificate to the Windows Trusted Root Certification Authorities certificate store on the client computer.

Users without a trusted root CA will receive an Unable to get local issuer certificate error and fail to connect.

Active Directory group policies

For information on using Active Directory Group Policy to distribute certificates to client computers, see http://technet.microsoft.com/en-us/library/cc772491.aspx.

To import the root CA certificate for the PCoIP Software Client for Windows:

1. Copy your root CA certificate file (*.crt) to a directory reachable by your Windows client.
2. Open the Microsoft Management Console on the agent machine:
    a. Press + `r` to open the run dialog
    b. type **`mmc`** and press `Enter`.

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3. Add the Certificates snap-in:
    a. Select **File** > **Add/Remove Snap-in**.
    b. Select **Certificates** from the Available snap-ins list and then click **Add**.
    c. Select **My user account** and then click **Finish**.
    d. Click **OK**.
4. Import the root CA certificate:
    a. Expand **Certificates - Current User**.
    b. Right-click on **Trusted Root Certification Authorities**, select **All Tasks** > **Import** from the context menu, and then click **Next**.
    c. Use the Browse button to navigate to the directory where your root CA certificate is located and select your root CA certificate.
    d. Click **Open** and then **Next**.
    e. Select the option to place all certificates in the Trusted Root Certification Authorities certificate store.
    f. Click **Next** and then **Finish**.
    g. At the security warning, click **Yes**.

After the certificate installs successfully, it appears in the Trusted Root Certification Authorities > Certificates list.

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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.

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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.

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Creating a Technical Support File

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

To create a support file:

1. Open a PowerShell command prompt.
2. Set the PowerShell execution policy to enable the script to run:

```
Set-ExecutionPolicy -Scope Process -ExecutionPolicy Bypass
```

3. Launch the support bundler:

```
& 'C:\Program Files (x86)\Teradici\PCoIP Client\bin\pcoip-client-support-bundler.ps1'
```

The support file will be created and placed in `$env:ProgramData\Teradici\Support\`. A new File Explorer window will open with the generated support file selected.

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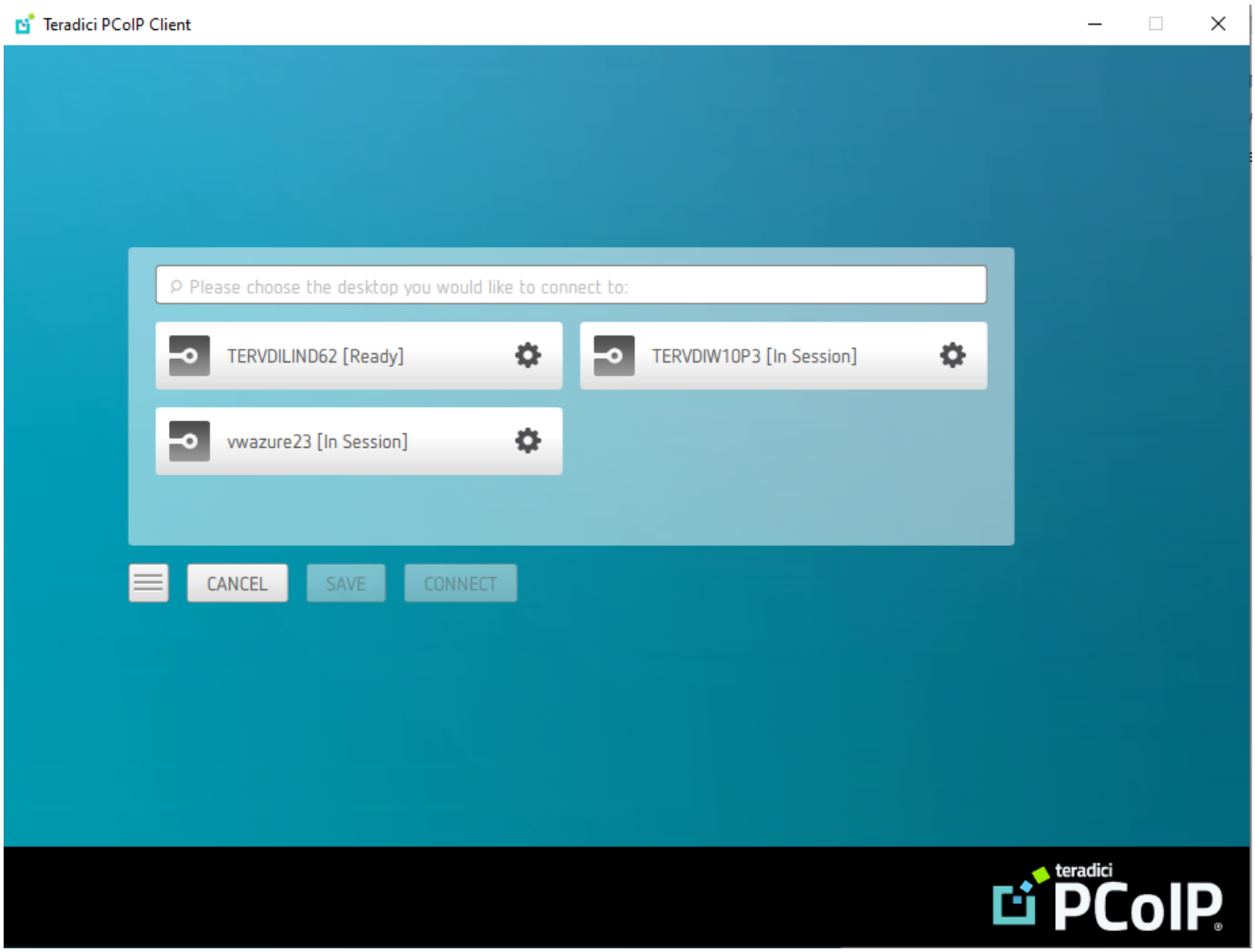
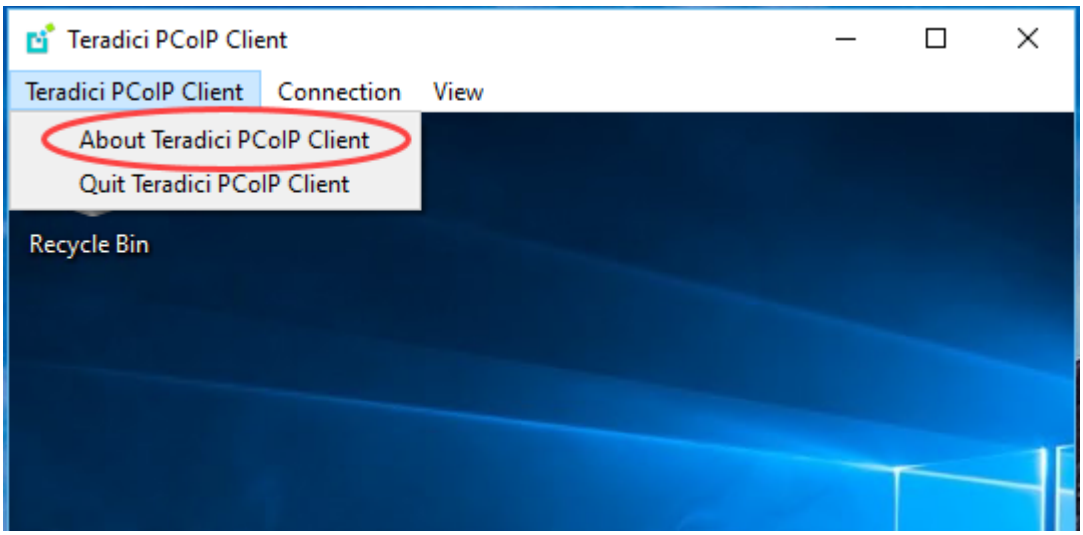
Checking the PCoIP Software Client Software Release

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 the Software Client for Windows

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

Software Client for Windows logs are text (.txt) files that contain system and session information about your connection. They are useful for troubleshooting problems. A new log file is created each time you use a Software Client for Windows to initiate a PCoIP session.

Client logs are placed in `%localappdata%\Teradici\PCoIPClient\logs`.

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.

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Session Log IDs

The Software Client for Windows 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.

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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:

1. From the command prompt, navigate to `C:\Program Files (x86)\Teradici\PCoIP Client\bin.`
2. Enter the following command:

   ```
   pcoip_client.exe -l x
   ```

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

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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.

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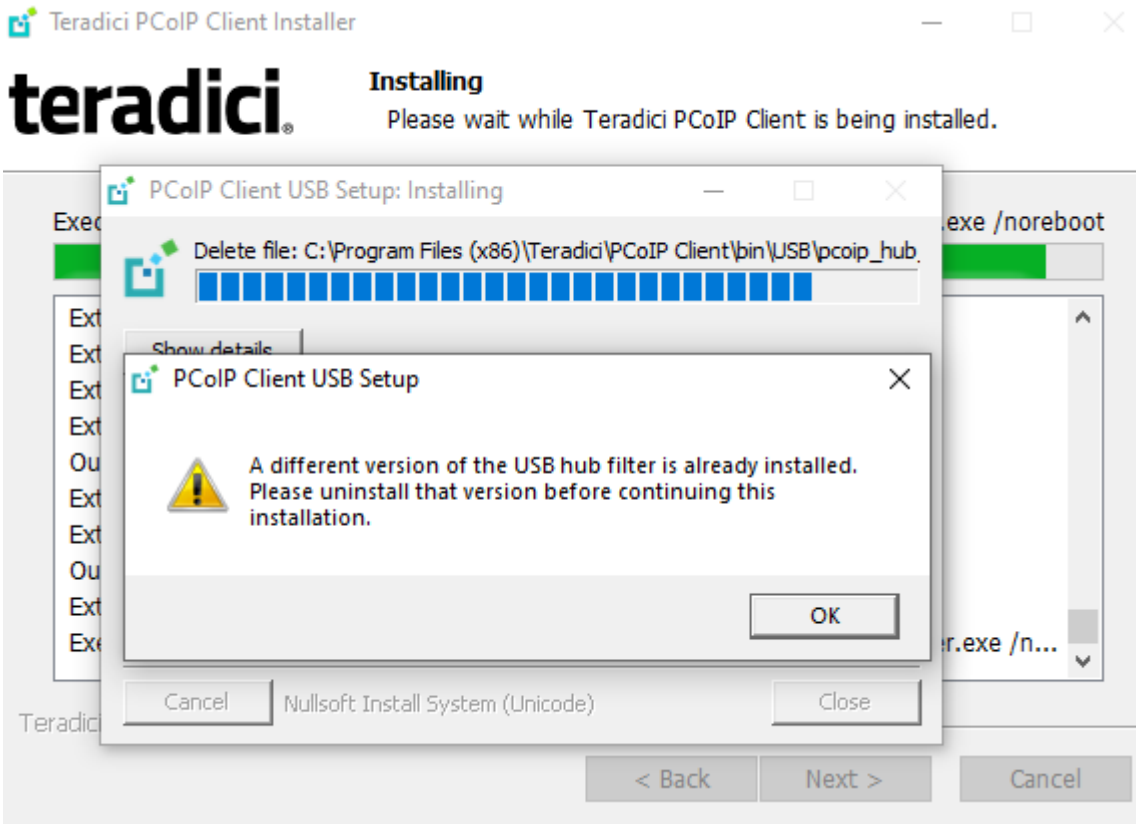
Recovering a USB Driver with the PCoIP Software Client

When using USB drivers on the PCoIP Software Client for Windows you can sometimes encounter issues around versioning of the USB hub filter, as displayed in the error message below:



If you encounter this issue or another issue relating to your USB driver, Teradici recommends carrying out the following steps:

1. Uninstall the PCoIP Client.
2. Reboot your machine.
3. Open the **Registry Editor** editor.

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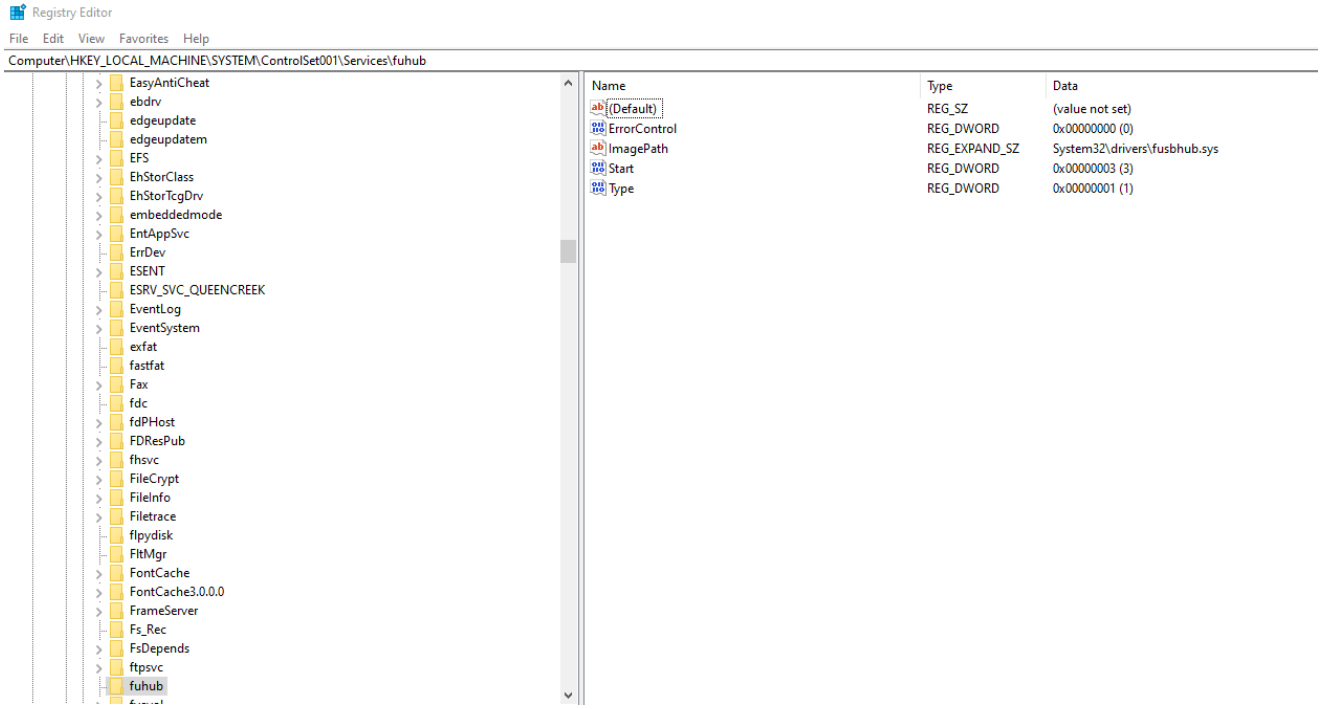
4. Search for **fusbhub** under **HKLM**



5. Remove the registry key which is the item in the left pane with the folder icon, in this case it is the **fuhub** key, containing **fusbhub**. If you cannot remove this registry key note the .inf file name associated with the registry entry. The .inf file name usually starts with oem, for example ***oem9.inf***. Open the commandline and run the following prompt:

```
pnputil -f -d oem9.inf
```

6. Keep repeating step 5 until **fusbhub** is completely removed from the registry editor.
7. Reboot your machine.
8. Install the PCoIP Client.

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