

# PCoIP<sup>®</sup> Host Software for Windows<sup>®</sup> User Guide

TER1008001

Issue 2



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## Revision History

Version	Date	Description
1	Aug 26, 2010	Initial release
2	Feb 04, 2011	Updated for release 3.3.20

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## Definitions

EDID	Extended Display Identification Data
LAN	Local Area Network
NIC	Network Interface Card
OSD	On Screen Display
PCoIP®	Personal Computer over Internet Protocol (PC-over-IP®)
PCoIP Host	Host or server side of PC-over-IP system
PCoIP Zero Client	Desktop Portal or Integrated Display based on a PCoIP hardware device
Soft Client	VMware View™ software application that can establish a PCoIP session with a PCoIP Host
WOL	Wake-on-LAN

## Introduction

The PCoIP Host Software is a collection of drivers and applications that enable both Windows® and Linux operating systems (OS) to interact with the TERA1 PCoIP firmware allowing users to enable features such as local cursor and keyboard, locking the Host PC when a session is terminated, using a Host PC NIC for Wake-on-LAN (WOL), and disconnecting a session.

This document provides guidelines for installing/uninstalling, using and troubleshooting the PCoIP Host Software for Windows.

**Note:** PCoIP Host Software release 3.3.20 for Windows includes support for View 4.6 Windows soft clients connecting to PCoIP Host cards. Section 1.2 lists some restrictions soft client users should be aware of.

**Note:** PCoIP Host Software release 3.2.20 for Windows includes experimental support for using client display topology settings. Sections 4.4, 5.3 and 5.4 describe the feature along with some restrictions users should be aware of.

**Note:** PCoIP Host Software release 3.2.20 for Windows includes experimental support for enabling the local cursor and keyboard feature on rotated displays. Sections 4.1, 5.2 and 5.4 describe the feature along with some restrictions users should be aware of.

# 1 PCoIP Host Software

PCoIP Host cards loaded with firmware releases greater than or equal to 2.0 support an optional feature, the PCoIP Host Driver Function, which allows administrators to use a PCoIP software package on the host PC or workstation. This software package works with the exposed PCoIP Host Driver Function PCI device function. If the administrator installs the PCoIP Host Software package on the PC or workstation they will have the ability to manage and use the features of the PCoIP Host Driver Function.

The user application, called the PCoIP Agent, or Agent, is installed when the Host Software is installed. The Agent communicates with the PCoIP firmware via the device drivers installed by the PCoIP Host Software. Users can configure the features of the PCoIP Host Software through the Agent.

The compatibility matrix in Table 1-1 lists the firmware releases and the compatible PCoIP Host Software releases. Users are recommended to load the PCoIP Host Software release that corresponds to the firmware loaded on their PCoIP Host card and zero client.

Table 1-1: Firmware Compatibility Matrix

Firmware Release	PCoIP Host Software Release for Windows
2.1.0 (2.1)	1.0.0
2.2.0 (2.2)	1.2.4
2.3.0 (2.3)	1.4.3
3.1.0, 3.1.1, 3.1.2	3.1.11
3.2.0, 3.2.1, 3.2.2	3.2.20
3.3.0	3.3.20

Some features added to new releases of the Host Software require changes to the firmware running on the PCoIP Host and/or zero client. Table 1-2 below lists the features that have been added that require firmware changes. Each feature is available if the Host card is running a firmware release that is greater than or equal to the release listed in the table.

Table 1-2: New Feature Software/Firmware Requirements

New Feature Description	Windows Host SW Release	Firmware Release
Report session statistics (see section 4.3)	1.2.4	2.2.0
Report Host card network interface link status (see section 4.2)	1.2.4	2.2.0
PCoIP session disconnect (see section 4)	1.4.3	2.3.0
Support brokering sessions between PCoIP Hosts and zero clients or soft clients using VMware View Manager	3.1.11	3.1.0, 3.1.1, 3.1.2
Client keyboard repeat detection (see section 4.1)	3.2.20	3.2.0

Client display topology (see section 4.4)	3.2.20	3.2.0
Display rotation (see section 4.1)	3.2.20	3.2.0
Transparent local cursor shape (see section 4.1)	3.2.20	3.2.0
Support of soft clients connecting to PCoIP Host cards (see sections 1.2 and 4.4)	3.3.20	3.3.0
Support processing multimedia keys (USB HID usage page 12). Examples keys include volume up, mute and browser. Previous versions of the Host software did not process these keys when the local cursor feature was enabled.	3.3.20	3.3.0

Note: Experimental support for soft clients operating with PCoIP Host cards was introduced in firmware release 3.1.0, PCoIP Host Software release 3.1.11 and VMware View release 4.5. Support for this feature is available in firmware release 3.3.0, PCoIP Host software release 3.3.20 and VMware View release 4.6.

Note: PCoIP Host Software 3.1.11 for Windows supports using VMware View 4 to broker sessions on host machines running 32-bit versions of Windows. Refer to TER0911004 Using PCoIP Host Cards with VMware View 4 for additional information on configuring a system to operate in this mode.

Note: PCoIP Host Software 3.2.20 for Windows supports using VMware View 4.5 to broker sessions on host machines running 32-bit or 64-bit versions of Windows. Refer to TER0911004 Using PCoIP Host Cards with VMware View 4 for additional information on configuring a system to operate in this mode.

## 1.1 System Requirements

Before installing the PCoIP Host Software, ensure the PC or workstation meets the following requirements:

- PCoIP Host and zero client are loaded with firmware release 2.x, 3.1.x or 3.2.x
- *Host Driver Function* is enabled on the Host Card (see Section 2.1 Enabling Host Driver Function )
- Supported Operating Systems:
  - Windows XP with Service Pack 2 or later, 32- and 64-bit
  - Windows Vista<sup>®</sup>, 32- and 64-bit
  - Windows 7<sup>®</sup>, 32- and 64-bit

## 1.2 Soft Client Restrictions

PCoIP sessions between soft clients and PC/workstations with a PCoIP Host card are now supported. Below is a list of the high level requirements for these connections.

- PCoIP Host card running firmware release 3.3.0 or higher
- PCoIP Host Software for Windows release 3.3.20 or higher must be installed on the PC/workstation
- VMware View soft client release 4.6 or higher

- The local cursor and keyboard feature must be enabled. If the local cursor and keyboard feature is not enabled mouse and keyboard input from the soft client will not be sent to the PC/workstation.

Host Software releases for Windows starting with 3.1.11 impose some limitations on the user to prevent them from getting their system into a state where the keyboard and mouse do not work. The restrictions are described in this document and summarized below:

- Users should not attempt to install the Host Software while connected to the PC/workstation from a soft client. Refer to section 2.2 for additional details.
- Users cannot disable the local cursor feature on the login screen. This restriction affects both zero client and soft client connections. This was done to prevent zero client users from disabling the local cursor at the login screen, which would later prevent a soft client user from logging into the machine.
- Users cannot disable the local cursor feature while connected to the PC/workstation from a soft client.

### 1.3 Release Notes

PCoIP Host Software releases are accompanied by release notes. Refer to TER0904004 PCoIP Host Software Release Notes for latest information on PCoIP Host features and possible known issues.

## 2 Installing PCoIP Host Software

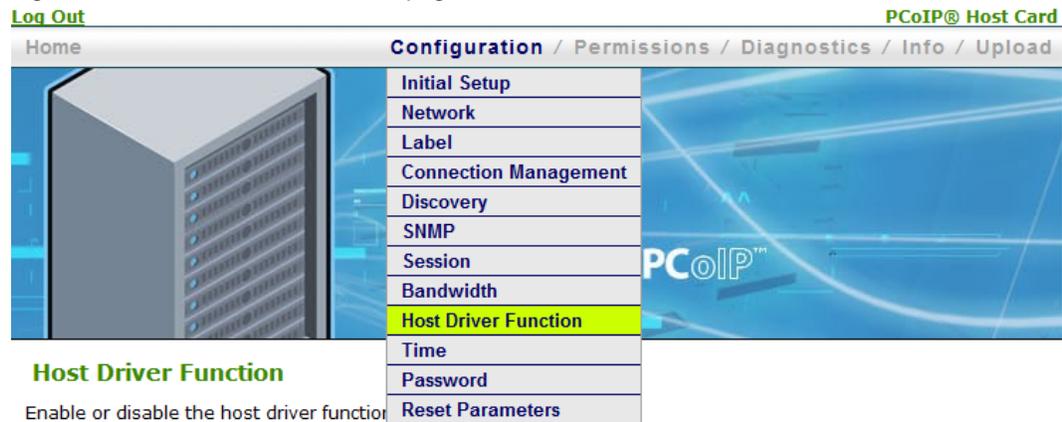
This section describes how to install or upgrade the PCoIP Host Software. It is highly recommended to install the version of the software that is released with the version of the firmware loaded on the PCoIP Host and zero client, see Table 1-1. Furthermore, prior to installing the software, users must enable the *Host Driver Function* on the Host Card as described below.

### 2.1 Enabling Host Driver Function

To enable the *Host Driver Function* on the PCoIP Host, execute the following steps:

1. Open a web browser on a PC or workstation connected to the same network as the PCoIP Host. Browse to the PCoIP Host's webpage
2. Login and navigate to the *Host Driver Function* webpage under the *Configuration* menu as shown Figure 2-1

Figure 2-1: Host Driver Function Webpage



Enable Host Driver Function:

Apply Cancel

3. Check the *Enable Host Driver Function* box shown and then click *Apply*. This will generate a prompt indicating the host PCoIP processor must be reset. Select *Reset* followed by *OK* to schedule a deferred reset
4. Restart the PCoIP Host by restarting the PC or workstation
5. After Windows boots, log into the PC or workstation as usual
6. If a *Found Hardware* dialog box appears after logging into Windows, click the *Cancel* button

## 2.2 Installing PCoIP Host Software

The PCoIP Host Software for Windows is provided as a Windows installation package. There are two versions of the installation package. The one with *x86* in the filename (e.g. *PcoipHostSoftwarePackage\_x86-Release\_v1.0.0.msi*) is for 32-bit operating systems; and the one with *x64* in the filename (e.g. *PcoipHostSoftwarePackage\_x64-Release\_v1.0.0.msi*) is for 64-bit operating systems. Users must use the installation package that corresponds to their operating system.

Users require administrative rights in order to install the software.

**Note:** PCoIP Host Software releases 3.1.11 and higher are compatible with PCoIP Hosts running firmware releases greater than or equal to 3.1.0. Firmware releases 3.1.0 and higher include support for soft clients. **Administrators cannot run the Host Software installer while connected to a host system using a soft client. The local cursor becomes disabled during the installation process, which disables the user's keyboard and mouse, preventing the user from completing the installation process.** Administrators should run the installer using one of the following methods:

- Connect to the host using RDP
- Connect to the host using a zero client
- Connect a monitor, keyboard and mouse directly to the host system

**Note:** If installing a release version less than 1.2.4, then all previous versions of the software must be uninstalled prior to installing a different version. Section 3.1 provides instructions on how to manually uninstall old versions of software. The installer included with release 1.2.4 and greater uninstalls old versions of the PCoIP Host Software automatically, and does not require users to manually uninstall previous versions of software.

To install the software, execute the following steps:

1. Activate the installer by double-clicking on the file. This will activate a screen such as shown in Figure 2-3. Click *Next* to continue.

**Note:** If the installer supports the upgrade feature and an existing version of the software is already installed, a confirmation dialog will appear such as shown in Figure 2-2. Click *Yes* to continue.

Figure 2-2: PCoIP Host Software Package Setup Upgrade Confirmation Dialog

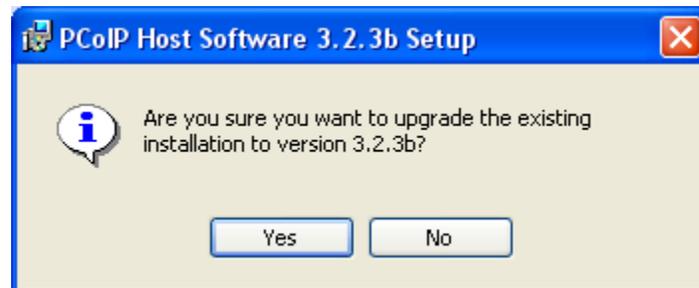
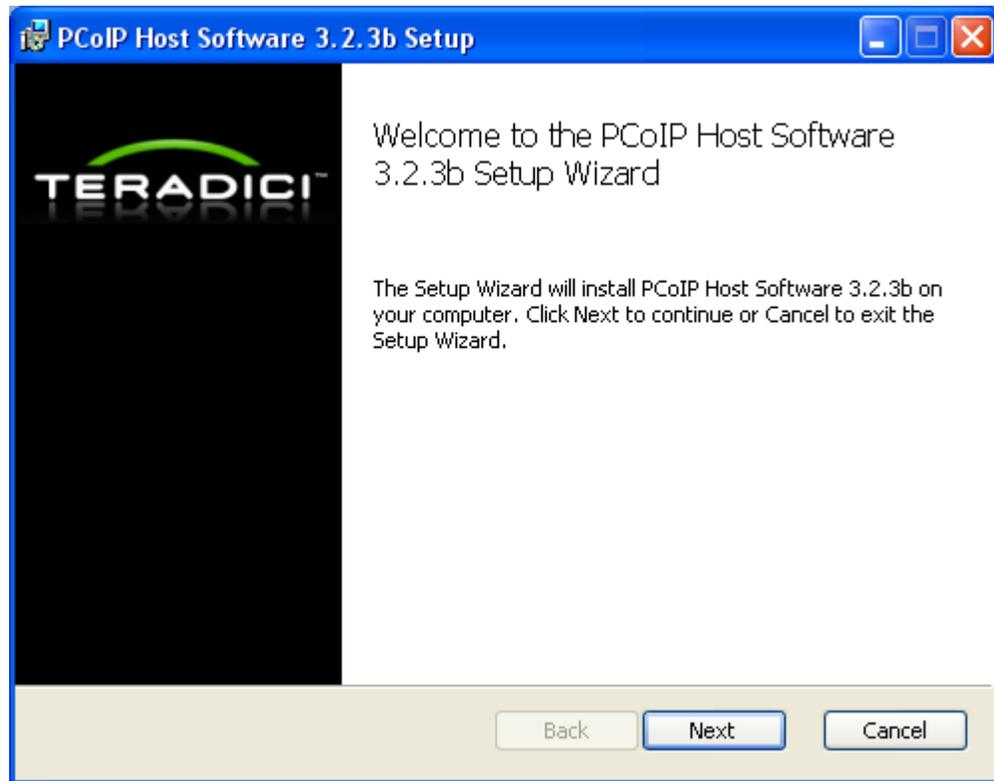
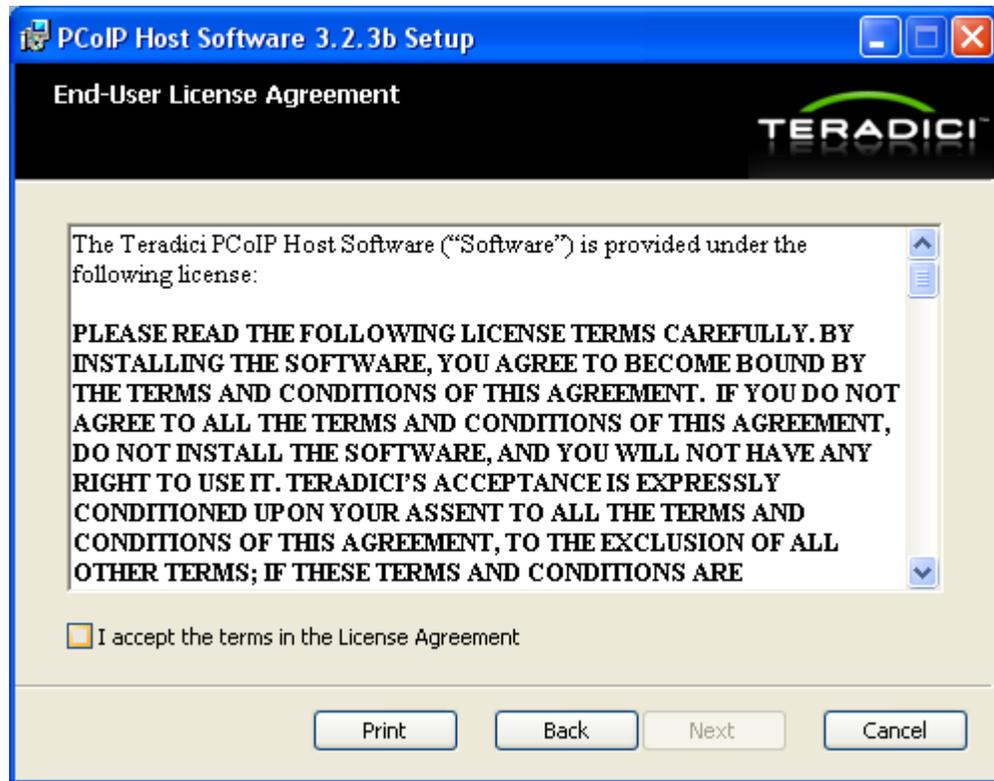


Figure 2-3: PCoIP Host Software Package Setup Welcome



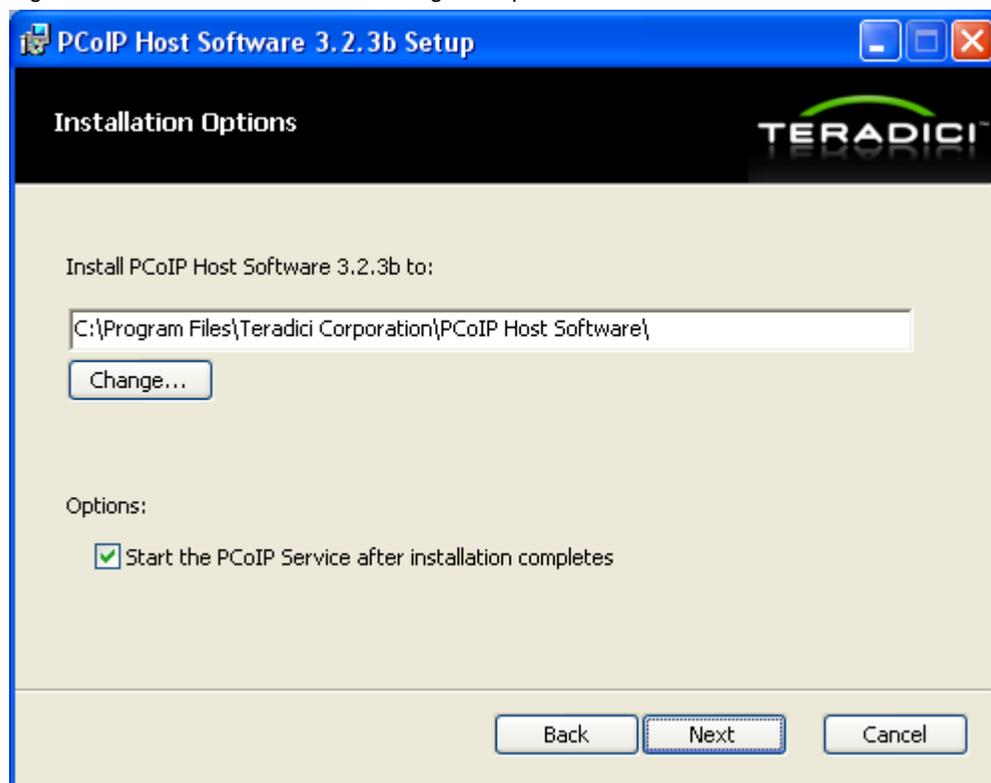
2. Review the End-User License Agreement. If you accept the terms, click the *I accept the terms in the License Agreement* check box and click *Next*.

Figure 2-4: PCoIP Host Software Package Setup License



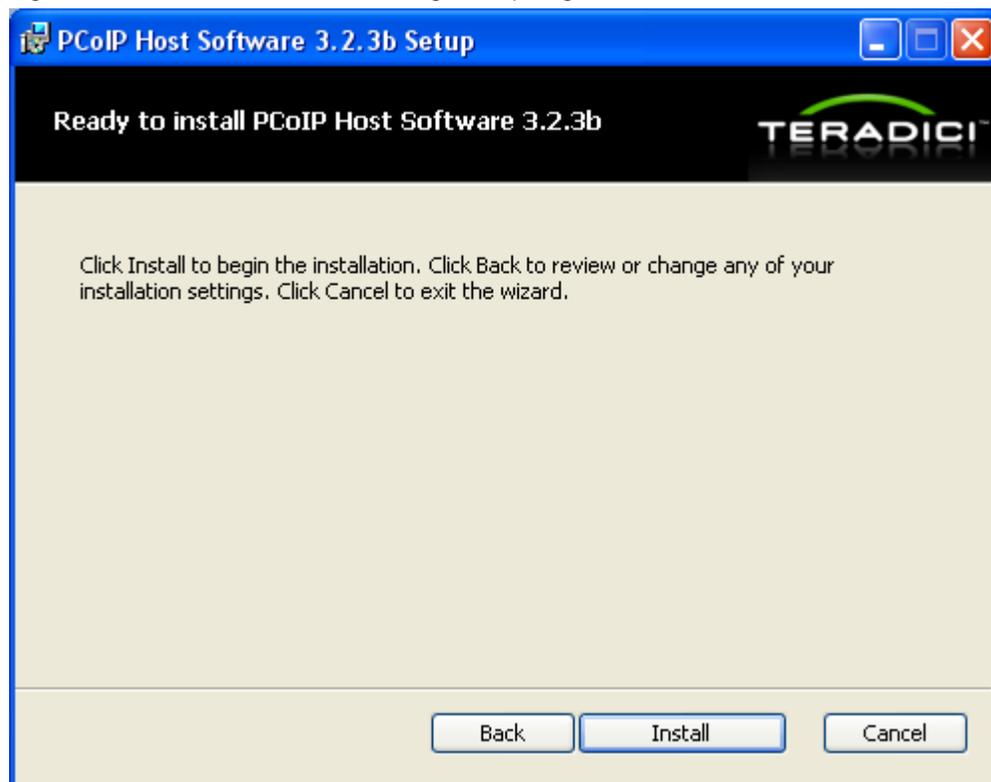
3. Users can optionally choose a different directory to install the software by specifying the path in the text box, or by clicking on the *Change...* button. Click *Next* to continue.

Figure 2-5: PCoIP Host Software Package Setup Path



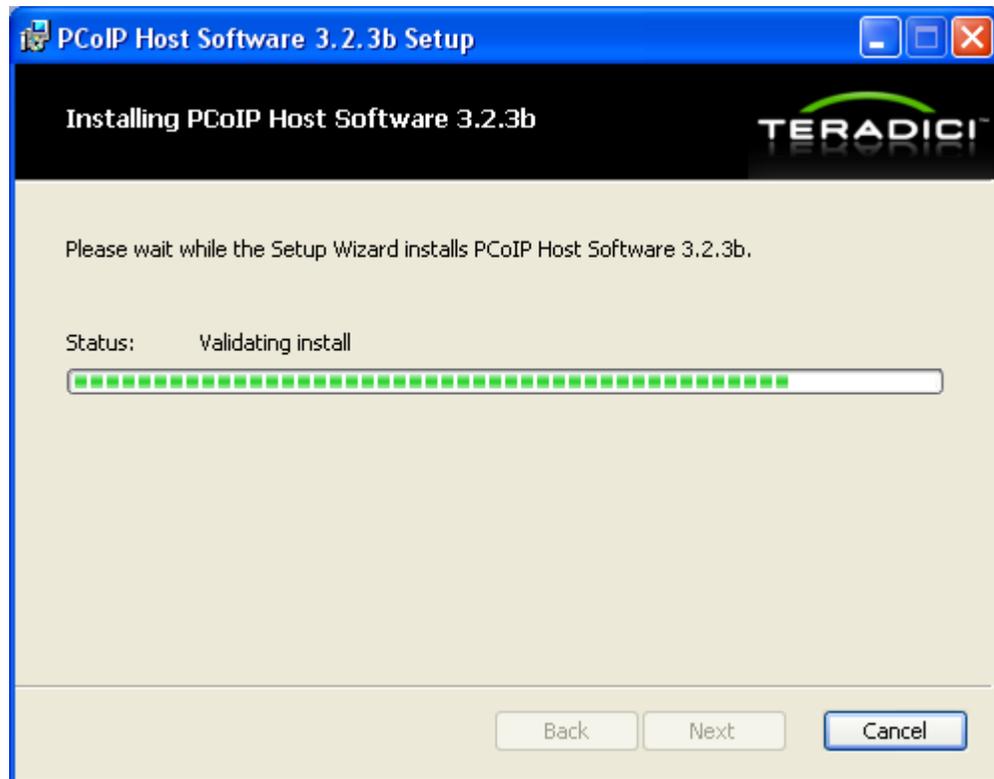
4. Click *Install*, to start the installation process

Figure 2-6: PCoIP Host Software Package Setup Begin Install



5. Wait for the installation process to finish

Figure 2-7: PCoIP Host Software Package Progress



Note: During the installation when drivers are installed, users may notice a balloon tip in the system tray. This can be safely ignored.

Note: Users may see multiple dialogs similar to Figure 2-8 explaining the PCoIP Host Software is not Windows Logo tested. Click on *Continue Anyway* to continue with the installation of the drivers when such dialogs appear.

Figure 2-8: PCoIP Host Software Package Continue

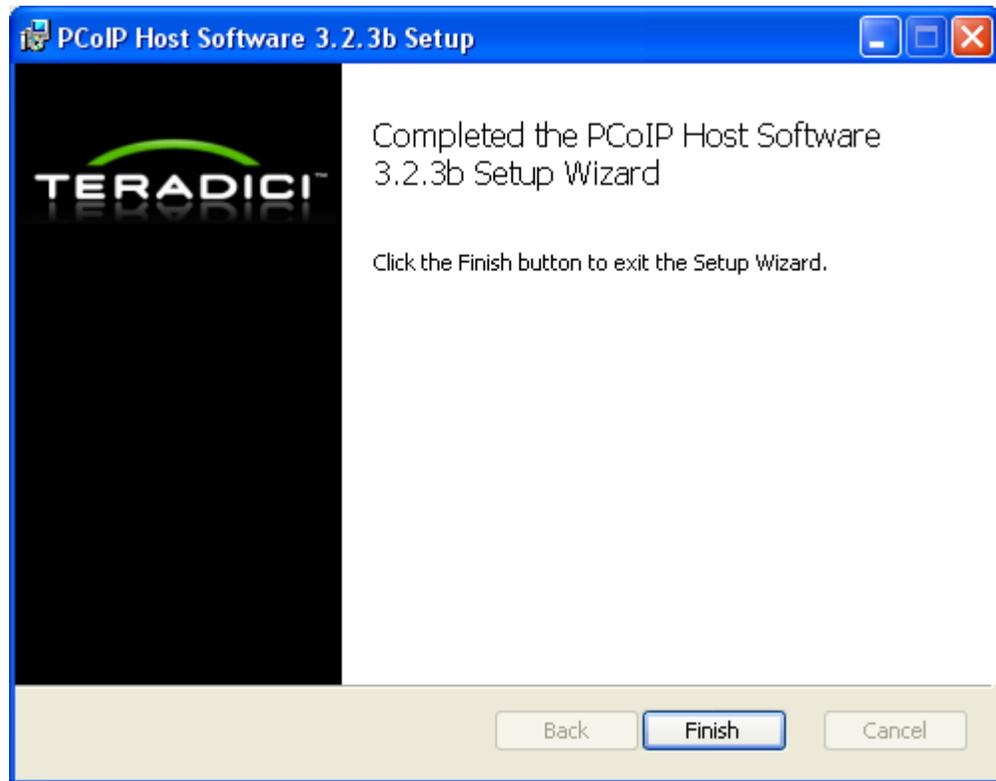


Note: For Windows Vista: During the installation when the drivers are installed, a Windows Security dialog may pop up. Click *Install* to continue with the installation. Optionally check off *Always trust software from Teradici Corporation* to avoid seeing this dialog in the future.

6. Click on Finish to complete the installation.

Note: If a message appears indicating Windows must reboot, click *Yes* to reboot the PC or workstation. After Windows reboots, the installer will automatically run to finish the installation.

Figure 2-9: PCoIP Host Software Completed



## 3 Uninstalling PCoIP Host Software

The PCoIP Host Software can be easily removed from the PC or workstation at any time by following the steps below. If the software is no longer needed, it is recommended that the user also disable the *Host Driver Function* in firmware, see section 3.2.

### 3.1 Uninstalling the PCoIP Host Software for Windows

To uninstall the PCoIP Host Software for Windows, execute the following steps:

1. On the PC or workstation, go to the Control Panel
2. On Windows XP, go to *Add/Remove Programs*; on Windows Vista and later, go to *Programs and Features*
3. Select the *PCoIP Host Software* entry and click *Uninstall*
4. Follow the onscreen instructions

**Note:** When users install an older version of the PCoIP Host Software they must uninstall the newer version, reboot the PC and then install the older version. Sometimes the older version will fail to install, if this happens the user should reboot the PC and try again.

**Note:** The WOL settings are discarded during an uninstallation or upgrade. Users must reconfigure WOL after installing a new version of the software.

### 3.2 Disabling Host Driver Function

Disabling the *PCoIP Host Driver Function* on the PCoIP Host will prevent Windows from seeing an unknown PCI Device under Device Manager and the Found New Hardware Wizard dialog associated with the unknown device.

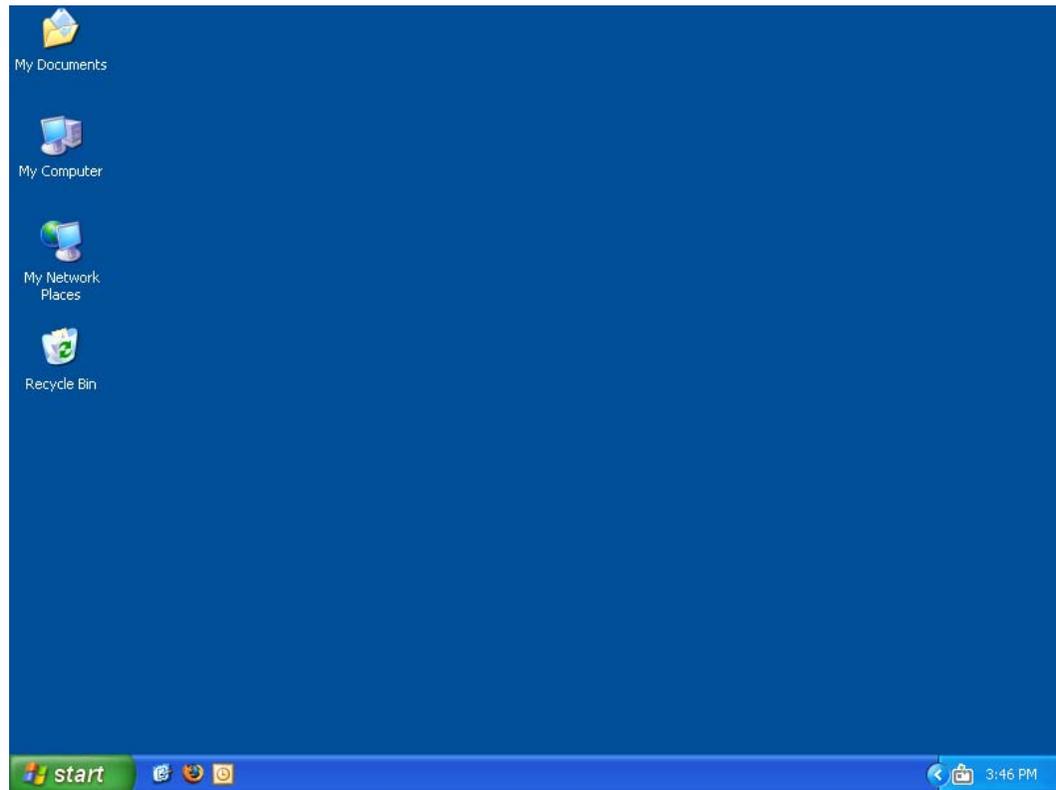
To disable the *Host Driver Function* on the PCoIP Host, execute the following steps:

1. Open a web browser on a PC or workstation connected to the same network as the PCoIP Host and browse to the PCoIP Host webpage
2. Login and navigate to the *Host Driver Function* webpage under the *Configuration* menu as shown Figure 2-1
3. Uncheck the *Enable Host Driver Function* box and then click *Apply*. This will generate a prompt indicating the Host PCoIP processor must be reset. Select *Reset* followed by *OK* to schedule a deferred reset
4. Restart the PCoIP Host by restarting the PC or workstation

## 4 Using the PCoIP Agent

Upon successful installation of the PCoIP Host Software Package, the PCoIP Agent will be accessible. To access the PCoIP Agent double-click the icon  located in the Windows system tray.

Figure 4-1: Example Desktop with PCoIP Agent Icon in System Tray



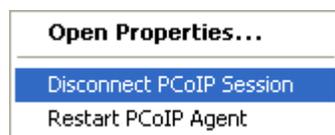
The Agent provides multiple tabs that users can select to access different features. These features are described in sections 4.1 through 4.5.

The Agent supports an additional feature that allows users to disconnect the PCoIP session, if one is active.

- This feature can be initiated by right-clicking the PCoIP Agent in the Windows system tray. Figure 4-2 displays the Agent right-click menu.
- This feature can also be initiated by calling the pcoip\_agent.exe executable with the "-disconnect" command-line argument. This method is useful for making a disconnect-session shortcut, or mapping to a 'Favorite' key on some keyboards.

**Note:** The executable is located in the installed directory. The default install directory is "C:\Program Files\Teradici Corporation\PCoIP Host Software".

Figure 4-2: PCoIP Agent Right-Click System Tray Menu

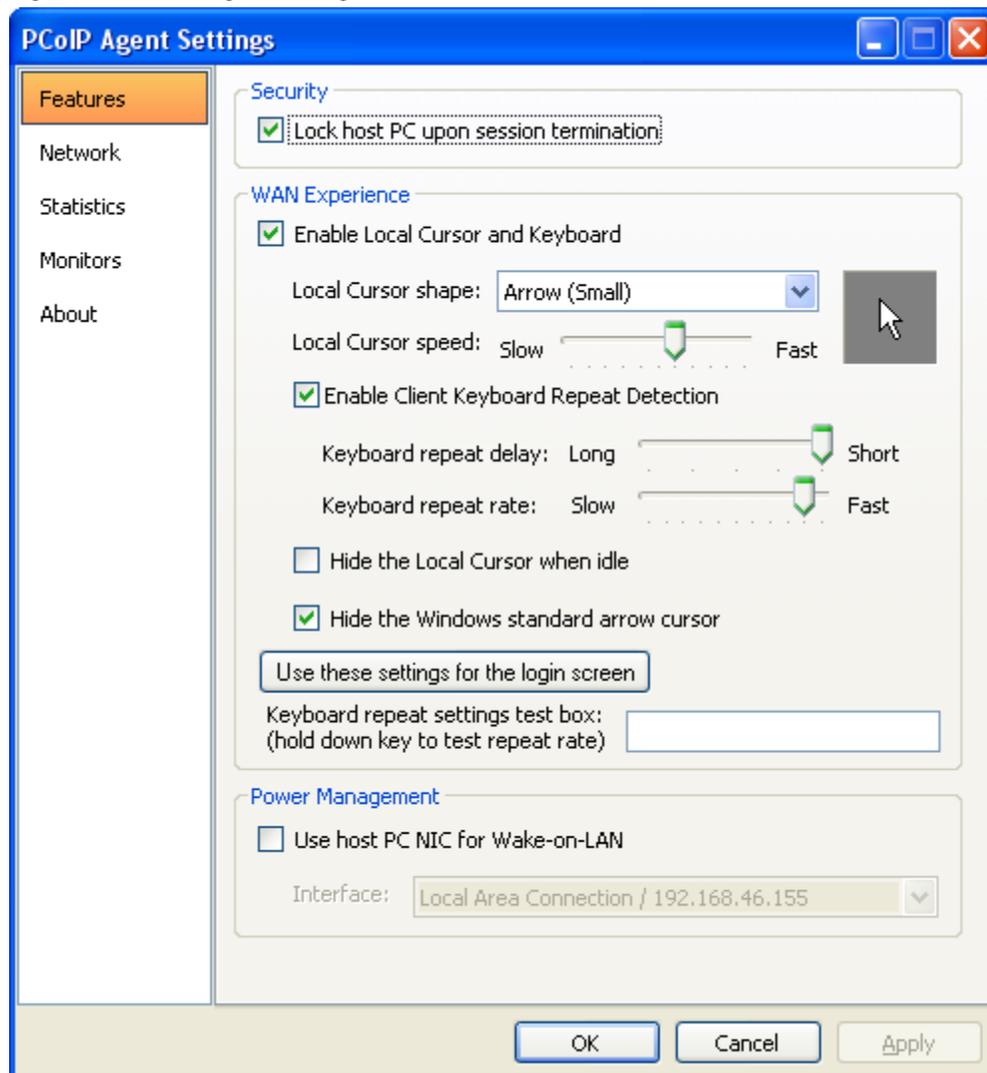


On Windows systems the PCoIP Service will automatically start PCoIP Agent when Windows is started. The Agent is the only software in the software package that is configurable by the user.

## 4.1 Features

The following figure shows the *Features* tab of the Agent.

Figure 4-3: PCoIP Agent Settings – Features



Users can configure the following options:

### Security

The *Security* feature allows locking the PC or workstation to ensure other users do not log into another user's Windows session when the user disconnects from a PCoIP session.

- *Lock host PC upon session termination*: When this option is selected the Agent will lock the Host PC when a PCoIP session is disconnected

## WAN Experience

The *WAN Experience* local cursor and keyboard features may be useful in WAN deployments where network latency exceeds 40-60 ms. In these environments, users may notice a visible lag between the movement of the mouse and the movement of the cursor. Furthermore, key presses may be dropped or falsely repeated key presses may occur under very high network latencies scenarios. Both of these side effects of high network latency hinder user experience. The local cursor and keyboard features help mitigate latency effects.

Latency effects are noticed differently by users. With network latency less than 40 ms, most users will likely notice the local cursor overlay and Windows cursor moving in tandem. With higher network latencies, the local cursor overlay will move according to the user's movements, and the Windows cursor will follow with visible lag. Because the overlay provides instantaneous feedback, the user can move the mouse freely without having to wait for the Windows cursor to catch up.

- *Enable Local Cursor and Keyboard*: The local cursor is enabled when this option is selected and the mouse device's movements are recorded at the zero client and the movement is reflected via the local cursor overlay in real time. The movements and mouse clicks are then sent to the PCoIP Host and then to Windows via the exposed PCoIP Host Function PCI device and device drivers. When Windows receives the movement information, the cursor on the PC or workstation is updated.

The local keyboard feature works on a similar concept. The keyboard key presses are captured and recorded by the zero client, and then sent to the PCoIP Host. This feature prevents key presses from being dropped. The local keyboard feature, however, does not display an overlay for the typed text, and the text displayed on the screen will be affected by the network latency.

*Note: The **Enable Local Cursor and Keyboard** option may be grayed out if not supported. When this happens a ["Why is this unavailable?"](#) link will be displayed on the **Agent Features** tab. Move the mouse over the link to see a tooltip explaining how to fix the problem.*

*Note: PCoIP Host Software release 3.2.20 and firmware release 3.2.0 added support for rotated displays. Users wishing to use the **Enable Local Cursor and Keyboard** feature on systems with rotated displays may encounter problems. Refer to section 5.4 for additional details.*

*Note: When a soft client session is active the **Local Cursor and Keyboard** feature cannot be disabled. See section 1.2 for additional details.*

- *Cursor shape*: The available shapes are:
  - Circle (Small)
  - Circle (Medium)
  - Circle (Large)
  - Crosshair (Small)
  - Crosshair (Medium)
  - Crosshair (Large)
  - Arrow (Small)
  - Arrow (Medium)
  - Arrow (Large)
  - Transparent

Note: A side effect of enabling the local cursor feature is two cursors appear while using applications that override the Windows standard arrow cursor. Applications that do this include Microsoft Paint and CATIA® from Dassault Systèmes. This will occur whether or not the user has checked the *Hide the Windows standard arrow cursor*. Some users find it difficult to use an application with two cursors. These users should either disable the local cursor feature or enable the local cursor feature and select the *Transparent* cursor shape. The *Transparent* cursor shape increases the maximum tolerable latency from 40-60 ms to ~80-100 ms.

Note: The *Transparent* cursor shape should only be used with PCoIP systems running firmware release 3.2.0 or higher. The local cursor may become visible if the PCoIP Host and client are running a firmware release prior to 3.2.0.

Note: When the *Transparent* cursor shape is selected the user will be prevented from selecting the *Hide the Windows standard arrow cursor* option.

- *Cursor speed*: Sets the speed of the local cursor overlay. The local cursor speed setting is separate from the mouse speed in Windows.

Note: The zero client *Cursor speed* can also be configured via the OSD of the PCoIP Administrative Interface (refer to the TER0606004 PCoIP Administrative Interface User Manual).

Note: The *Cursor speed* slider only works with zero clients. The soft client cursor speed cannot be adjusted.

- *Enable Client Keyboard Repeat Detection*: Check this box to have the client perform keyboard repeat detection. Uncheck this box to have Windows perform keyboard repeat detection.

Note: This feature should be enabled if the latency of the connection exceeds ~150 ms. When this feature is disabled the host OS performs keyboard repeat detection. The host OS may incorrectly report repeated keys for high latency connections. This problem can be avoided by enabling client keyboard repeat detection.

Note: This feature is supported on PCoIP systems running firmware release 3.2.0 or higher.

- *Keyboard repeat delay*: Sets the amount of time that elapses before a character begins to repeat when you hold down a key. This setting is only used when the client performs keyboard repeat detection.
- *Keyboard repeat rate*: Sets the speed at which a character repeats when you hold down a key. This setting is only used when the client performs keyboard repeat detection.

Note: The zero client *Keyboard repeat delay* and *Keyboard repeat rate* can also be configured via the OSD of the PCoIP Administrative Interface (refer to the TER0606004 PCoIP Administrative Interface User Manual).

- *Hide the Local Cursor when idle*: Check this box to have the local cursor overlay disappear after one second of idle mouse movement. Uncheck this box to always have the local cursor overlay shown.
- *Hide the Windows standard arrow cursor*: Check this box to hide the Windows standard arrow cursor.

Note: This feature does not hide other cursors such as the hourglass, resize, move, etc., which allow users to receive feedback on context sensitive actions. Uncheck this box to always have the Windows standard arrow cursor shown.

- *Use these settings for the login screen* button: Click this button to use the current settings on the screen for the Windows login screen.

Note: On Windows XP 32-bit, the Windows standard arrow cursor may not be hidden at the login screen even if the option is set. This has been observed on PCoIP sessions with 125 or more ms of network latency.

Note: Starting with release 3.1.11 the PCoIP Host Software for Windows installer configures default settings for the local cursor login settings and the settings are overwritten each time the Host Software is installed. The installer configures the settings to enable the local cursor, disable hiding the local cursor, disable hiding the Windows cursor and set the local cursor shape equal to the small arrow. Users can modify these settings using the Agent after installing the Host Software but they will be overwritten if the Host Software is reinstalled or upgraded/downgraded. Users cannot disable the local cursor on the login screen. This is done to prevent problems when establishing a PCoIP session from a soft client, which requires the local cursor feature to always be enabled.

- *Keyboard repeat settings test box*: Position the cursor in this test box and hold down a key to test the keyboard repeat settings.

Note: The *Enable Local Cursor and Keyboard*, *Cursor shape*, *Cursor speed*, *Hide the Local Cursor when idle* and *Hide the Windows standard arrow cursor* features are configurable for each user account on the PC or workstation.

## Power Management

The *Power Management* section allows the user to choose the PC or workstation NIC as an alternative to the PCoIP Host NIC for Wake-on-LAN (WOL) power management.

If there is an update to the PC or workstation NIC IP address, the Agent will pick up the new IP and automatically send it to the zero client. The Agent handles the following cases autonomously:

1. The IP address on the selected NIC changes: the IP address is sent to the zero client
2. The selected NIC is no longer available: the Agent will start a timer for 20 seconds. If the selected interface becomes valid again, i.e. obtains an IP address, then the Agent will send the new IP address to the zero client. If the timer times out, then a balloon tooltip will popup telling users that the WOL configuration is invalid, and WOL is automatically disabled by the Agent.
3. Agent detects no valid NICs, and automatically disables the WOL feature on the zero client. This case is mutually exclusive with the second case.

Note: The *Power Management* feature is not supported by the PCoIP Host Software for Windows for View brokered connections because the PCoIP Host device cannot be placed in a low power state.

PCoIP power management allows a PC or workstation that is in sleep or shut down states to be wakened or powered up by a WOL Magic Packet.

- *Use host PC NIC for Wake-on-LAN*: Select this option to use a NIC on the PC or workstation, instead of the NIC on the PCoIP Host, for waking up the Host PC. The Agent will list all PC or workstation NICs with a valid IP address.
- *Interface*: The user can select the NIC on the PC or workstation to use from the drop down list.

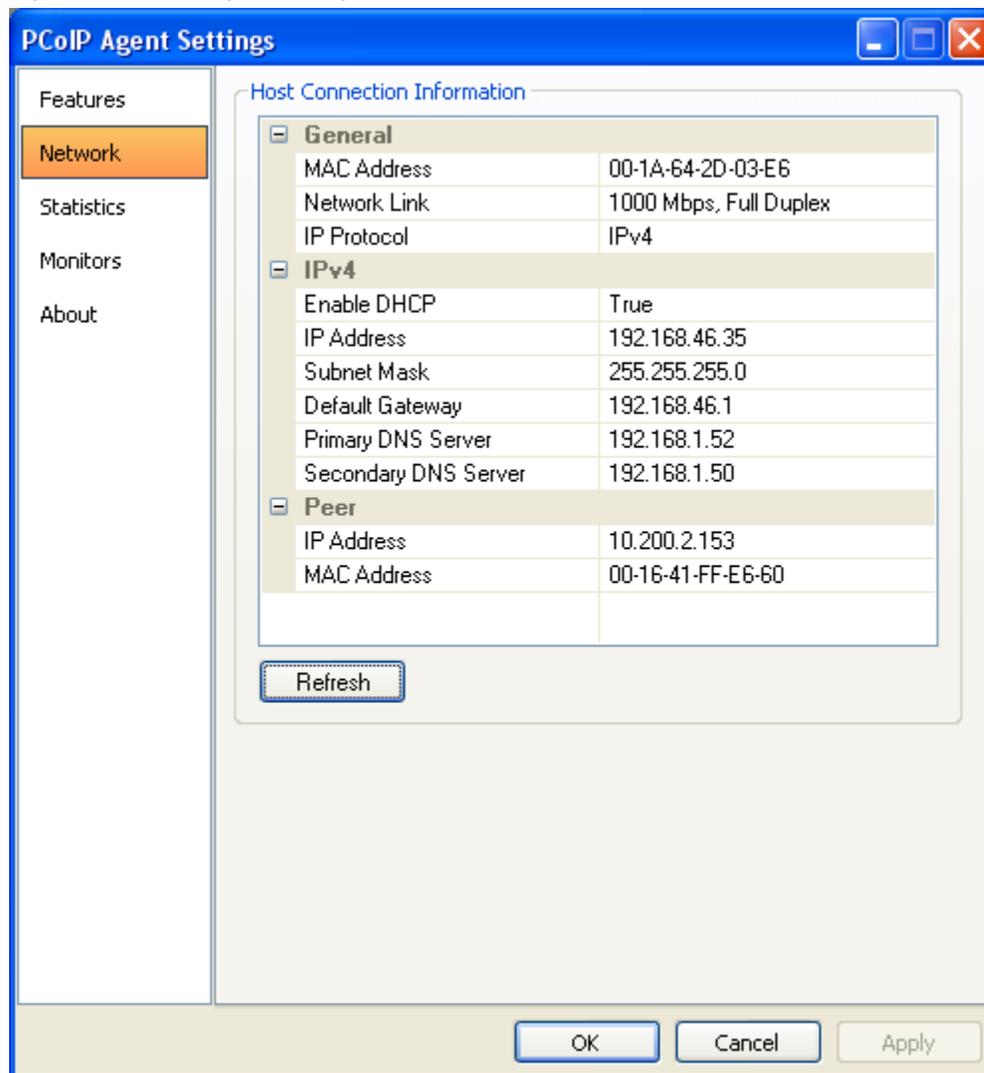
Note: The user must ensure that the WOL feature is configured properly on the selected PC or workstation NIC when using this option.

Note: The WOL settings are discarded when uninstalling or upgrading the PCoIP Host Software. Users must reconfigure WOL after installing a new version of the software.

## 4.2 Network

The following figure shows the *Network* tab of the Agent. This allows users to view the network settings of the PCoIP Host.

Figure 4-4: PCoIP Agent Settings – Network



The *Network* tab shows the current network information for the Host. This tab also reports status information on the NIC of the PCoIP Host (speed, duplex setting and link state - up/down) if the Host is loaded with firmware release 2.2.0 or greater. It also displays the IP and MAC addresses of the zero client connected to the Host under the *Peer* settings.

- *Refresh*: Click this button to get the most up to date network settings of the Host

Note: The Agent software does not support changing the network settings. The network settings can be configured by the PCoIP Management Console (refer to the TER0812002 PCoIP Management Console User Manual), the PCoIP Administrative Interface (refer to the TER0606004 PCoIP Administrative Interface User Manual), or a connection broker.

### 4.3 Statistics

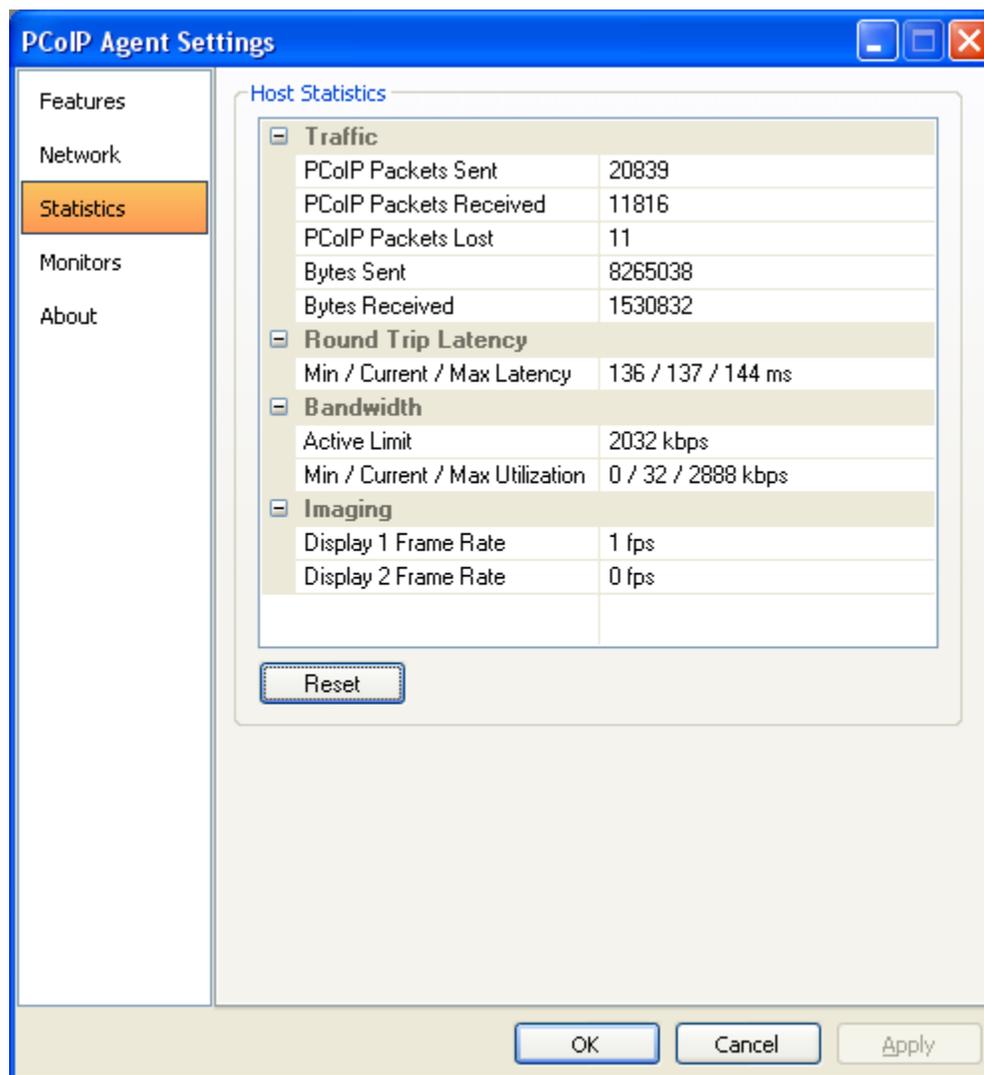
The following figure shows the Agent *Statistics* tab. This allows users to view the PCoIP Host session statistics.

The statistics are reset when a PCoIP session starts and when the user clicks the *Reset* button.

**Note:** Systems using Host Software release 3.1.11 and higher display the statistics reported by the PCoIP Host card. Pressing the Agent *Reset* button resets the PCoIP Host statistics. Systems using Host Software releases below 3.x.x report the change in PCoIP Host card statistics since the Agent started. Pressing the Agent *Reset* button does not reset the PCoIP Host statistics.

**Note:** The PCoIP Host card statistics can also be accessed through the PCoIP Administrative Interface (refer to the TER0606004 PCoIP Administrative Interface User Manual).

Figure 4-5: PCoIP Agent Information – Statistics



Users can view the following PCoIP Host statistics:

## Traffic

The *Traffic* statistics display information on the packets sent and received by the PCoIP Host.

- *PCoIP Packets Sent*: Total number of PCoIP packets sent by the Host.
- *PCoIP Packets Received*: Total number of PCoIP packets received by the Host.
- *PCoIP Packets Lost*: Total number of PCoIP packets that were not received by the Host.
- *Bytes Sent*: Total number of bytes sent by the Host.
- *Bytes Received*: Total number of bytes received by the Host.

## Round Trip Latency

The *Round Trip Latency* statistics reports the total round trip PCoIP system (e.g. Host to zero client, and back to Host) and network latency in milliseconds (+/- 1 ms). The Agent reports the minimum, current and maximum values.

## Bandwidth

The *Bandwidth* statistics display information on the Host's active bandwidth settings.

- *Active Limit*: The maximum amount of network traffic the PCoIP Host may currently generate. The value is derived from the Host's configured bandwidth settings (refer to the TER0606004 PCoIP Administrative Interface User Manual) and the current network congestion levels.
- *Min / Current / Max Utilization*: The minimum, current and maximum amount of traffic generated by the PCoIP Host at a particular moment in time.

## Imaging

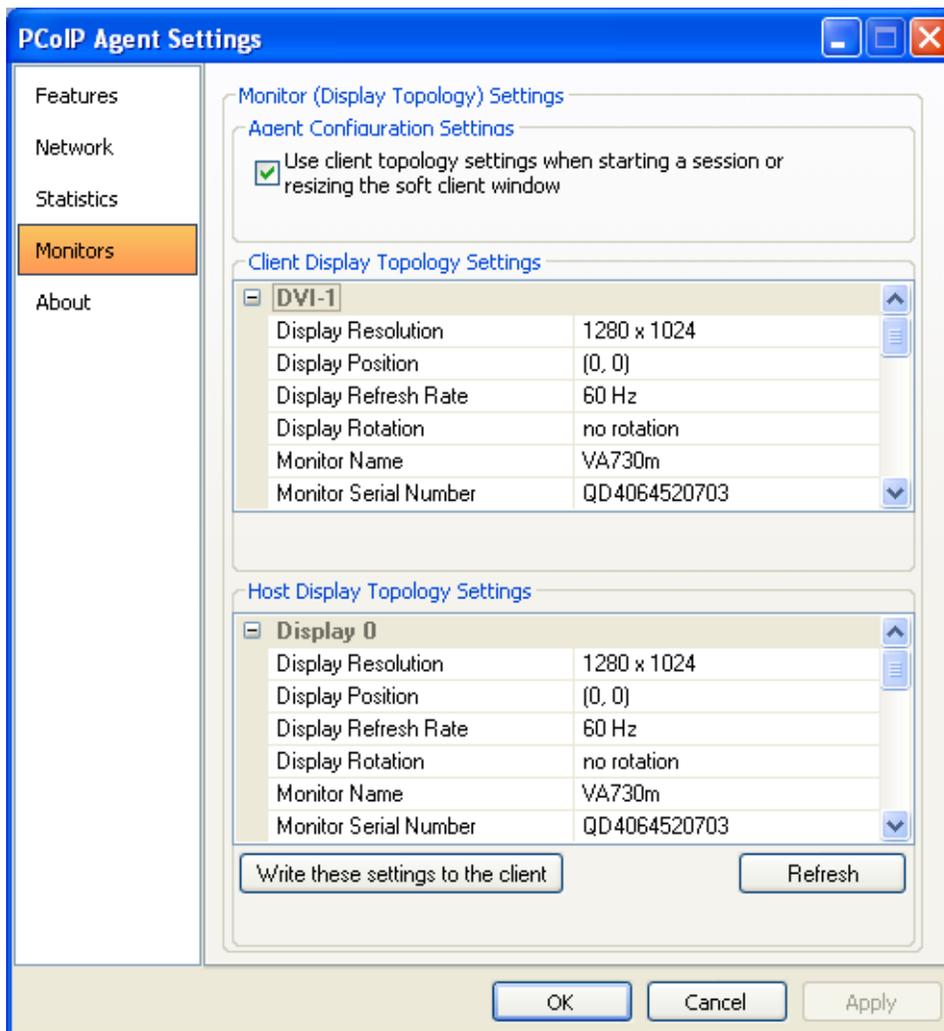
The *Imaging* statistics display frame rate information for the displays connected to the client.

- *Display 1 Frame Rate*: The frame rate of Display 1. The statistic is reported in frames per second (fps).
- *Display 2 Frame Rate*: The frame rate of Display 2. The statistic is reported in frames per second (fps).

## 4.4 Monitors

The following figure shows the Agent *Monitors* tab. This page supports configuring the Agent to write the client display topology settings to the host OS at the start of a session. This page also allows users to view the client and host display topology settings.

Figure 4-6: PCoIP Agent Settings – Monitors



Users can configure the following options and/or view the following settings:

### Agent Configuration Settings

The *Agent Configuration Settings* section allows the user to choose whether the client display topology settings are written to the host OS. When this feature is enabled the host topology settings are updated at the start of a session for both soft and zero clients. The topology settings are also updated when the size of the soft client window is adjusted.

- *Use client topology settings when starting a session or resizing the soft client window:* the client display topology settings will be written to the host OS at the start of a session and when the soft client window is resized when the following conditions are true:
  - this box is checked
  - the *Enable Configuration* box on the zero client *OSD Options->User Settings->Display Topology* page is checked (applies only to zero clients)
  - the PCoIP Host and zero client are running firmware release 3.2.0 or higher
  - the VMware View soft client version is release 4.6 or higher

Note: This feature only works with clients in PCoIP sessions. The client topology settings are not written to the host OS when in an RDP session.

Note: If a problem occurs while trying to write the client display topology settings to the host OS a [“Why are the client topology settings not in use?”](#) link is displayed on the *Agent Monitors* tab. Move the mouse over the link to see a tooltip explaining how to fix the problem.

Note: Testing has shown this feature does not work on all systems. Table 5-2 in section 5.4 lists the different system configurations this feature has been tested in along with problems that have been observed.

## Client Display Topology Settings

The *Client Display Topology Settings* section displays the client display topology settings.

- *Display Resolution*: the number of pixels in each dimension that can be displayed
- *Display Position*: the X and Y coordinates of the display's upper left hand corner
- *Display Refresh Rate*: the display's refresh rate in Hz
- *Display Rotation*: specifies the rotation of the display relative to the normal landscape display orientation (no rotation, 90° clockwise, 180° rotation or 90° counter-clockwise)

Note: This parameter specifies the rotation of the physical display, not the image.

- *Monitor Name, Serial Number, Vendor ID and Product ID*: the client extracts this information from the attached monitor's EDID (Extended Display Identification Data)

## Host Display Topology Settings

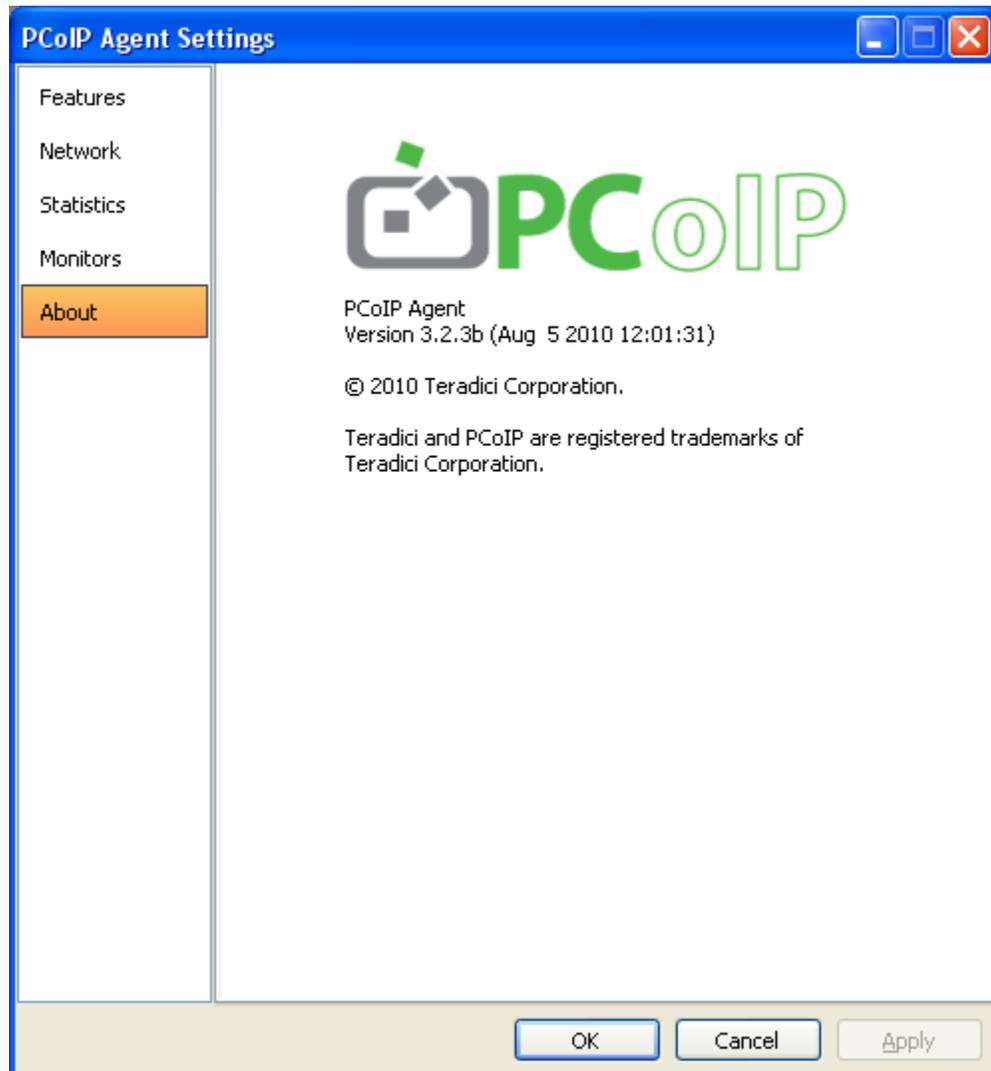
The *Host Display Topology Settings* section displays the active topology settings read by the Agent from the host OS.

- *Display Resolution, Display Position,, Display Refresh Rate and Display Rotation*: refer to the description of these terms in the previous section
- *Monitor Name, Serial Number, Vendor ID and Product ID*: the Agent extracts this information from the EDID reported by the host OS
- *Write these settings to the client*: Click this button to write the current host display topology settings to the client
- *Refresh*: Click this button to get the most up to date client and host display topology settings

## 4.5 About

The *About* tab allows users to view the version information of the PCoIP Agent software.

Figure 4-7: PCoIP Agent Information – About



## 5 Troubleshooting

This section outlines some common issues and suggested solutions.

### 5.1 Troubleshooting

Table 5-1: Troubleshooting

Item	Description	Solution
1	Windows was rebooted while running the Host Software installer. After the reboot the installation failed to resume.	Manually restart the installation process by double-clicking on the installation package.
2	Installation fails while installing an older version of the Host Software.	<p>Perform the following steps to install older versions of the Host Software:</p> <ol style="list-style-type: none"> <li>1) Uninstall the newer version</li> <li>2) Reboot the PC/workstation</li> <li>3) Install the older version</li> <li>4) If an error occurs reboot the PC and repeat step 3. Sometimes it may be necessary to reinstall the newer version and repeat the entire process.</li> </ol>
3	The local cursor overlay is disabled or out of sync with the Windows cursor when the display is rotated by 90, 180, or 270 degrees.	<p>Host Software releases prior to 3.2.20 do not support the local cursor feature on rotated displays. Install firmware release 3.2.0 or higher and host software release 3.2.20 or higher.</p> <p>If the problem exists while using FW release 3.2.0 or higher and host software release 3.2.20 or higher there is problem with the way the graphics driver rotates the display. If this is the case try upgrading the graphics driver.</p> <p>Refer to section 5.4 for additional information.</p>
4	The <i>Enable Local Cursor and Keyboard</i> option is grayed out when the PC or workstation is configured to use dual monitors with a newer ATI video card.	<p>This problem affects host systems running Host Software releases 1.x.x and 3.2.20 or higher. The ATI driver in systems that experience this problem does not report correct monitor information to Windows, and thus the PCoIP Agent cannot detect the monitors in use. The end result is the zero client is unable to determine which monitors to use for drawing the local cursor overlay.</p> <p>Solutions to the problem:</p> <ul style="list-style-type: none"> <li>- install FW release 3.1.x and Host Software release 3.1.11</li> <li>- use a different video card</li> </ul>

		- use only one monitor
5	The <i>Use these settings for the login screen</i> button is grayed out.	<p>The user must have Administrative Rights to set the settings for the login screen. Under Windows Vista and Windows 7, the User Account Control (UAC) prevents the PCoIP Agent from accessing the registry. On Windows Vista systems disable the UAC to enable the use of this button. On Windows 7 systems set the UAC slider bar equal to <i>Never Notify</i>. Reboot the host PC or workstation after modifying the UAC setting to activate the new setting.</p> <p>Host Software release 3.1.11 and above prevents users from disabling the local cursor feature on the login screen. When the <i>Enable Local Cursor and Keyboard</i> feature is disabled the login screen settings cannot be updated.</p>
6	When two displays are connected to the zero client and the graphics software driver enables Clone mode (the same image appears on both screens) the local cursor overlay only appears on one of the displays.	<p>The current PCoIP Host Software only supports displaying one local cursor, which means Clone mode is not supported.</p> <p>When using Host Software release 3.1.11 the local cursor overlay is only drawn on the monitor connected to zero clients' lowest numbered DVI port. Users wishing the overlay to be drawn on the other monitor should swap the zero client monitor cables.</p> <p>When using Host Software releases 1.x.x or 3.2.20 and higher the local cursor overlay is only drawn on the primary monitor as determined by Windows. Users wishing the overlay to be drawn on the other monitor should set the other monitor to be the primary monitor.</p>
7	Only the left, middle, right, forwards, and backwards buttons work on the mouse when local cursor and keyboard is enabled.	The current PCoIP Host Software supports the left, middle, right, forwards, and backwards mouse buttons in local cursor mode.
8	The multimedia keys on the keyboard do not work when local cursor and keyboard is enabled.	PCoIP Host Software releases prior to release 3.3.20 support only the standard keyboard keys. Multimedia keys (USB HID usage page 12) are supported on systems running Host Software release 3.3.20 or higher and firmware release 3.3.0 or higher.

9	The local cursor and keyboard feature is not automatically enabled at the login screen after the host PC finishes booting, even though it is enabled via the PCoIP Agent.	The local cursor and keyboard feature requires the PCoIP Agent to be running. On some Windows systems, it may take up to 30 seconds before the PCoIP Agent starts while in the login screen.
10	The local cursor speed is different than the Windows cursor speed.	<p>The local cursor does not use Windows' pointer speed nor acceleration settings. The local cursor speed is configured using the <i>Local cursor speed</i> slider on the Agent <i>Features</i> tab or the zero client OSD administrative interface.</p> <p>The <i>Cursor speed slider</i> only works with zero clients. The soft client cursor speed cannot be adjusted.</p>
11	Some features in the PCoIP Agent are grayed out and the help tooltip says <i>No link to the PCoIP device or Feature not supported.</i>	<p>Ensure the installed version of the PCoIP Host Software is the same version released with the firmware on the PCoIP Host and zero client (see Table 1-1).</p> <p>Ensure the PCoIP session is active.</p> <p>Ensure the Host Driver Function is Enabled (see section 2.1).</p> <p>Disconnect and reconnect the PCoIP session.</p> <p>Restart the PC or workstation.</p> <p>Uninstall and reinstall the PCoIP Host Software.</p>
12	The <i>Enable Local Cursor and Keyboard</i> checkbox is grayed out.	<p>Hover the mouse over the <a href="#">Why is this unavailable?</a> The tooltip that appears lists possible causes and solutions.</p> <p>Review the local cursor and keyboard requirements in section 5.2 of this document.</p>
13	On Windows XP 32-bit, the Windows standard arrow cursor is still shown on the login screen, even though the option to hide it has been set.	<p>The current software exhibits this behavior on PCoIP sessions with 125 or more ms of network latency.</p> <p>Try disconnecting and reconnecting the PCoIP session.</p>
14	Key presses on the keyboard are dropped when the <i>Local Cursor and Keyboard</i> feature is enabled and the latency of the PCoIP session exceeds 60 ms.	<p>This will happen if the keyboard is attached to the zero client through a USB hub. To fix this connect the keyboard directly to the zero client.</p> <p>This can happen when the latency of the connection exceeds 150 ms. To fix this check the <i>Enable Client Keyboard Repeat Detection</i> box on the Agent <i>Features</i> tab.</p>

15	The local cursor does not move when the <i>Local Cursor and Keyboard</i> feature is enabled.	This will happen if the mouse is attached to the zero client through a USB hub. To fix this connect the mouse directly to the zero client.
16	Keyboard and mice connected to the client do not work immediately after disabling the local cursor and keyboard feature.	When the state of the local cursor feature changes to disabled, the zero client keyboard and mice must be enumerated by Windows. This process can take more than 30 seconds to complete.
17	The system is configured to use the client display topology settings but the settings are not activated when the PCoIP session starts.	<p>Hover the mouse over the <a href="#">Why are the client topology settings not in use?</a> The tooltip that appears lists possible causes and solutions.</p> <p>Review the using the client display topology settings requirements in section 5.3 of this document.</p> <p>Refer to section 5.4 for additional details.</p> <p>The problem might be caused by the graphics driver. Graphics driver problems observed while testing this feature included the graphics driver not responding to monitor hot plug events, rotating the display without properly informing the host OS and not providing accurate EDID information to the host OS. Upgrade the graphics driver to the latest supported version.</p> <p>The graphics driver may not support the client display resolution setting. Try setting the client setting to <i>Native</i>. If this works test with other resolutions until an acceptable resolution is found.</p> <p>A problem may occur if the zero client has a monitor connected to one of its DVI ports and the monitor is turned off. Either disconnect the monitor or turn on the monitor.</p>
18	On a dual monitor setup with the local cursor enabled the Windows cursor is active on one display while the local cursor is active on the second display.	<p>This may occur while using host software release 3.1.11 with firmware releases 3.0 and 3.1.x. These releases impose a restriction where the zero client's lowest numbered DVI connector must be the left monitor in a horizontal display arrangement or the top monitor in a vertical display arrangement.</p> <p>Solutions to the problem:</p> <ul style="list-style-type: none"> <li>- Install host software release 3.2.20 or higher and firmware release 3.2.0 or higher, which no longer restrict the monitor arrangement.</li> <li>- If using host SW release 3.1.11 and</li> </ul>

		firmware releases 3.0 or 3.1.x connect the zero client monitors according to the following rules. Horizontal display arrangements must connect the left monitor to the lowest numbered DVI port. Vertical display arrangements must connect the top monitor to the lowest numbered DVI port.
19	Zero client resets while connecting to a PCoIP host.	<p>This will happen when the following conditions are true:</p> <ul style="list-style-type: none"> <li>○ host is running firmware release 3.2.x</li> <li>○ zero client is running firmware release 3.1.x</li> <li>○ host software release 3.2.20 or higher is loaded on the PC/workstation</li> </ul> <p>To fix this download the host 3.2.x firmware release to the zero client.</p>
20	Host SW does not work after modifying the audio permissions on the PCoIP Host card.	<p>The PCoIP Host card has a configuration setting that allows the user to enable/disable HD audio. This setting is configured on the Host card's Permissions-&gt;Audio web page. If this setting is modified after the host SW is installed the host SW will not work when the PC/workstation is rebooted.</p> <p>Perform the following steps to fix this problem:</p> <ul style="list-style-type: none"> <li>○ Uninstall the host SW</li> <li>○ Modify the audio setting</li> <li>○ Reboot the PC/workstation</li> <li>○ Install the host SW</li> </ul>

## 5.2 Requirements for Local Cursor and Keyboard Feature

The local cursor and keyboard feature depends on a number of requirements. If the *Enable Local Cursor and Keyboard* checkbox is grayed out, please ensure that the following requirements are met:

- PCoIP Host and zero client are both using the same firmware that supports local cursor and keyboard
- The *Host Driver Function* option is enabled on the PCoIP Host and the PC or workstation has been restarted after the option was changed from disabled to enabled
- A PCoIP session is established between the PCoIP Host and zero client or soft client

- The graphics card is not configured to scale the image, i.e., not using technologies such as horizontal/vertical span mode from NVIDIA®
- The graphics card is configured to use the monitor's built in scaling when a non-native resolution is selected
- The display or displays are not rotated

Note: this requirement is true for systems running firmware releases prior to 3.2.0 and host software releases prior to 3.2.20. Systems using firmware release 3.2.0 or higher and host software release 3.2.20 or higher can enable the local cursor with rotated displays on some systems. Table 5-2 in section 5.4 lists the different system configurations this feature has been tested in along with problems that have been observed.

- The mouse and keyboard devices are connected directly to the USB ports on the zero client, i.e. the devices are not connected to a USB hub
- The mouse and keyboard devices function correctly with the zero clients' OSD
- Multi-monitor systems that arrange the monitors horizontally must connect the left display to the zero clients' lowest numbered DVI connector and systems that arrange the monitors vertically must connect the top display to the zero clients' lowest numbered DVI connector

Note: this requirement is true for systems running firmware release 3.0 and 3.1.x with host software release 3.1.11. This requirement does not apply to systems running firmware release 3.2.0 or higher and host software release 3.2.20 or higher.

- The local cursor feature might not work with some non-native display resolutions. This only affects connections from zero client devices. Users are recommended to use the display's native resolution or choose a resolution that the feature works on.

Note: this requirement is true for systems running firmware release 3.x.x with host software release 3.x.x. This requirement does not apply to systems running firmware releases prior to 3.x.x and host software releases prior to 3.x.x.

### 5.3 Requirements for Using the Client Display Topology

Using the client display topology settings on the host depends on a number of requirements. If the *Why are the client topology settings not in use?* text appears on the *Monitors* tab ensure the following requirements are met:

- PCoIP Host and zero client are running firmware that supports using the client display topology settings (firmware release 3.2.0 or higher)
- The version of the VMware View soft client is release 4.6 or higher
- The *Use client topology settings when starting a session or resizing the soft client window* tab is checked
- When using a zero client the *Enable Configuration* box on the zero client OSD *Options->User Settings->Display Topology* page is checked
- The *Host Driver Function* option is enabled on the PCoIP Host and the PC or workstation has been restarted after the option was changed from disabled to enabled
- A PCoIP session is established between the PCoIP Host and client
- The graphics card is configured to use the monitor's built in scaling when a non-native resolution is selected

Note: Table 5-2 in section 5.4 lists the different system configurations this feature has been tested in along with problems that have been observed.

## 5.4 Tested System Configurations

PCoIP Host Software release 3.2.20 and firmware release 3.2.0 added support for rotated displays and using the client display topology settings. Users wishing to use the *Enable Local Cursor and Keyboard* or *Use client topology settings when starting a session* or *resizing the soft client window* features may encounter problems, depending on the workstation configuration.

Rotation is not supported by VMware View soft clients running on Windows XP systems. On these systems Windows does not report valid rotation information. Users wishing to rotate the soft client window must run the client from a workstation running Windows Vista or Windows 7.

Periodically the Agent reads the current host display topology settings from the OS. Testing has shown this information is not correct on some systems with rotated displays or when establishing sessions with one host from multiple zero clients. These problems occur on systems with specific graphics cards, drivers and OS versions. Table 5-2 lists a combination of tested graphics cards, drivers and OS's. The OS column of each tested combination includes one or more of the following symbols/codes. Blank entries indicate the combination has not been tested.

- ✓ – tested and verified
- CK – change key
- NR – rotation not supported
- NC – use client topology not supported

Users wishing to enable the *Enable Local Cursor and Keyboard* or *Use client topology settings when starting a session* or *resizing the soft client window* features on systems with rotated displays are recommended to choose a tested and verified configuration or conduct tests if using an untested configuration.

System configurations with the *rotation not supported* (NR) code showed problems where the local cursor failed to become active and the client topology settings are not activated at the start of a session. This happened when a display was rotated or the client topology settings rotated a display. The problem occurs because a Windows display API called by the Agent reports incorrect screen orientation information. Currently this problem only affects XP systems with NVIDIA graphics cards.

System configurations with the *use client topology not supported* (NC) code showed problems where the client topology settings are not activated at the start of a session. This happened when two different zero client devices connect to a host at different times. The problem occurs because a Windows display API called by the Agent reports information about the previously connected monitors. When this happens the Agent cannot determine which system display corresponds to the client display(s). Currently this problem only affects XP systems with NVIDIA graphics cards.

System configurations with the *change key* (CK) code showed problems where the local cursor and Windows cursor are not in sync when the display is rotated 90° clockwise or 90° counter-clockwise. The problem occurs because the Windows display API called by the Agent reports displays rotated 90° clockwise as being rotated 90° counter-clockwise and vice-a-versa. The Agent has a registry key that can be modified to work around this problem. Change the registry key *LocalCursorSwapPortraitOrient* in the folder `HKEY_CURRENT_USER\Software\Teradici Corporation\PCoIP Agent\Settings` from the default value '0' to '1'.

Table 5-2: Tested System Configurations

Graphics Card Model Number	Graphics Driver Version	XP 32	XP 64	Vista 32	Vista 64	Win 7 32	Win 7 64
NVIDIA GeForce® 7900 GS	258.96	NR, NC		✓	✓		
NVIDIA GeForce 8600 GT	191.21			✓	✓		
NVIDIA GeForce 9500 GT	197.45			✓			
NVIDIA GeForce 9600 GT	258.96	NR, NC	NR, NC			✓	✓
NVIDIA GeForce 9800 GT	258.96	NR, NC	NR, NC		✓	✓	✓
ATI Radeon™ HD 3650	8.753.0.0 (Catalyst 10.7)	CK, NC			✓		✓
ATI FirePro™ RG220	8.723.0.0 (Catalyst 10.4)	NC		✓	✓		