



PC-Duo® for Terminal Services

Remote control and support for thin client users on MS or Citrix terminal server sessions

Terminal Services Concept and Requirements

The PC-Duo Enterprise Host can be configured to provide remote viewing & remote control of Terminal Services sessions in addition to the server console (Root Host).

This feature is available when a special license key enabling this support is installed on the Host. This TS license key will specify the number of simultaneous TS sessions that can be supported.

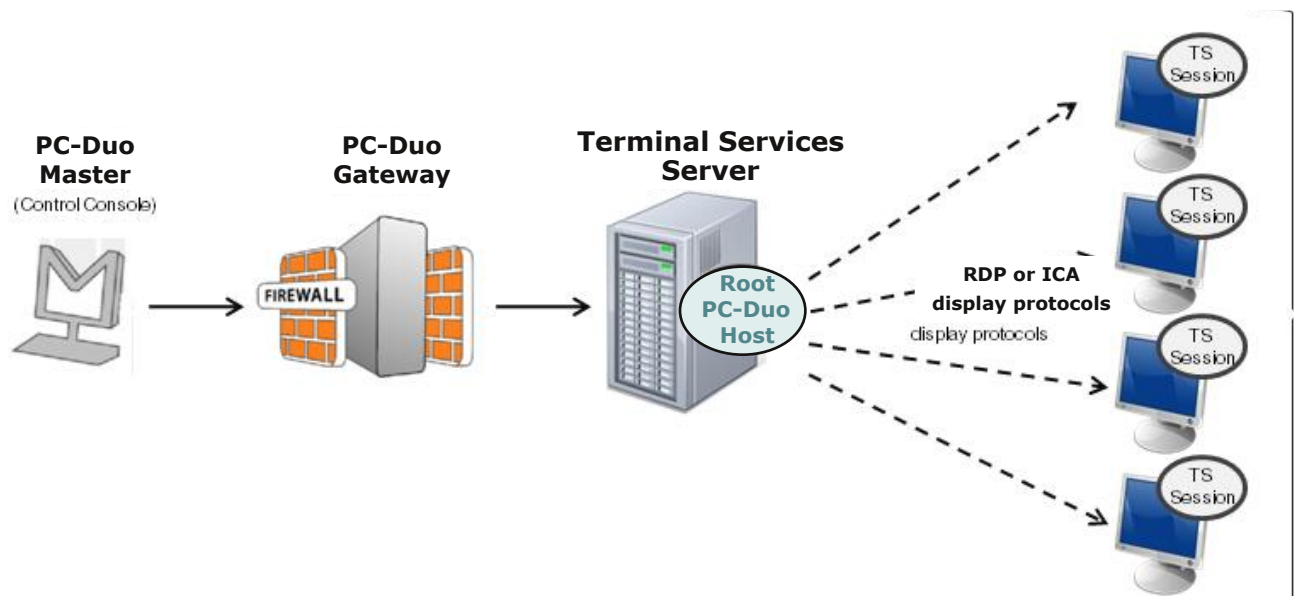
This feature is supported on the following operating systems:

- Windows Server 2003
- Windows Server 2008

This feature works with Terminal Services in "administrative" mode, but is designed primarily to support "application" mode, with a larger number of different users logged into the server.

How PC-Duo for Terminal Services Works

It is compatible with Microsoft RDP clients, as well as the Citrix ICA clients.



Note: Because Terminal Services sessions are captured by the PC Duo Host at the Windows Server level (and not at the end user device), the PC Duo Host effectively bonds a new instance of itself to every TS session created by the Windows Server. Using this technology, PC Duo Remote Control manages to be compatible with Microsoft Terminal Services clients as well as Citrix Presentation Server (now known as XenApp) clients.

Note: PC-Duo only supports TS sessions created on server-class Windows operating systems such as Windows Server 2003 and Windows Server 2008.

Terminal Services Connections

PC-Duo provides server-side support (screen capture, input control, screen recording) for session-based virtual desktops hosted by Terminal Services on Windows Server 2003 or Windows Server 2008 (now called "Remote Desktop Services"). Windows Server creates and hosts the Terminal Services (TS) sessions like virtual machines. A presentation technology using a display protocol such as RDP from Microsoft or ICA from Citrix is typically used to remote the session display, as well as the keyboard and mouse input, to and from an end user device (such as a thin client computer like a Wyse terminal).

PC-Duo allows technicians to capture (and if desired, record) the session presentation information at the Windows Server before it is remotored to the end user device over the RDP or ICA display protocol. PC-Duo is able to do this by injecting a Host instance into each server-side TS session, which in turn captures and sends presentation information directly to PC-Duo Enterprise Gateway for recording and/or further transmission to a PC-Duo Master.

Root Host for TS Sessions

The "Terminal Services" feature of Windows Server 2003 and Windows Server 2008 allows multiple virtual desktop sessions to be active simultaneously. PC-Duo provides remote access and remote control to these sessions on the Windows Server by injecting a separate instance of the Host service into every new TS session. A special version of the Host called the "root" Host must be loaded on the TS server (a "root" Host is a standard Host with a special TS license key - see "About tab" for more information); it will automatically spawn a new Host instance every time a new TS session is created.

Transient Hosts

Each TS instance of the Host will have its own unique workstationID and must be configured to report to a Gateway. When it first reports to the Gateway Server, it will be automatically managed and added to the "All Hosts" group. The TS Hosts are considered transient, since they go away when the TS user logs out of his/her session. In order to keep track of transient TS Hosts, the PC-Duo Enterprise Gateway will create a new Group called "Terminal Services on <Servername>", and automatically insert transient Hosts into this Group. They are automatically deleted from the Gateway when the TS session ends. The main purpose of this Group is to allow security to be assigned to the Hosts and TS sessions that belong to this Group, and to provide the correct and appropriate access to the TS-based Host instances.

Note: PC-Duo Host for Terminal Services works on Server 2003 & Server 2008, and requires a Gateway Server v11.6 or later.

Recording TS Hosts

Recordings are normally deleted from the Gateway database when their associated workstation record is deleted. Transient TS Host workstation records are automatically deleted from the Gateway when the TS user logs out of his/her session. However, to prevent recordings of TS Hosts from being automatically deleted when the TS session ends, the TS session recordings are reassigned to an artificial permanent workstation record called "Recordings on <Servername>". All recordings of all TS Hosts on a given TS server will be associated with this one record. This approach has the following advantages:

- Recordings are not orphaned
- All recordings can be kept in one place
- TS recordings can be kept separate from console (root Host) recordings
- Security can be configured separately for each recording

Limitations of TS Hosts

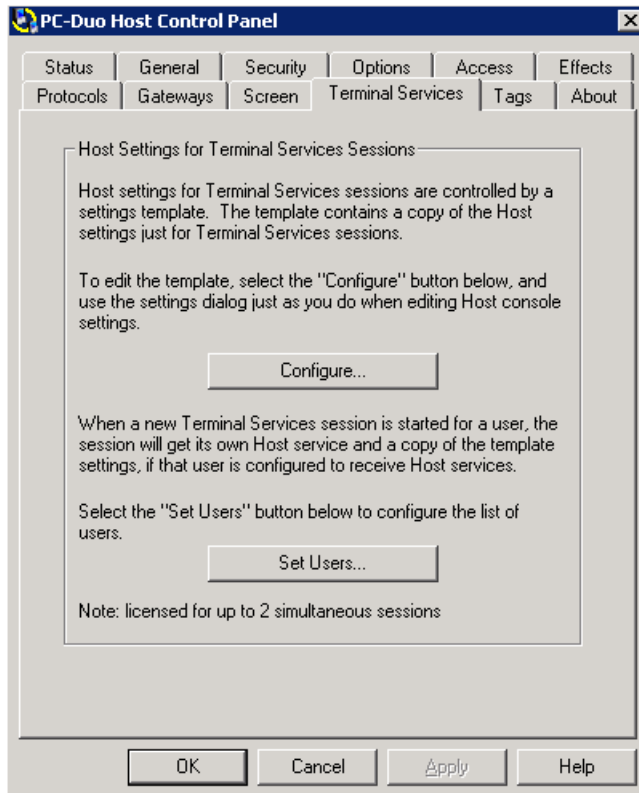
Due to technical limitations and the nature of Terminal Services sessions, the following Host features are NOT supported.

- Remote printing
- Keyboard and mouse suppression (requires kernel-based input stack intercept)
- Screen blanking (requires kernel-based support and physical display to blink)
- Peer-to-peer connections: all protocols are disabled, and the only connections that can be made are through a configured Gateway Server.
- Kernel-mode screen capture (even on Windows Server 2003, requires kernel-mode display support).

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Terminal Services tab

PC-Duo Host can be configured to allow remote viewing and remote control of one or more simultaneous Terminal Services sessions, as well as the Terminal Services server console.

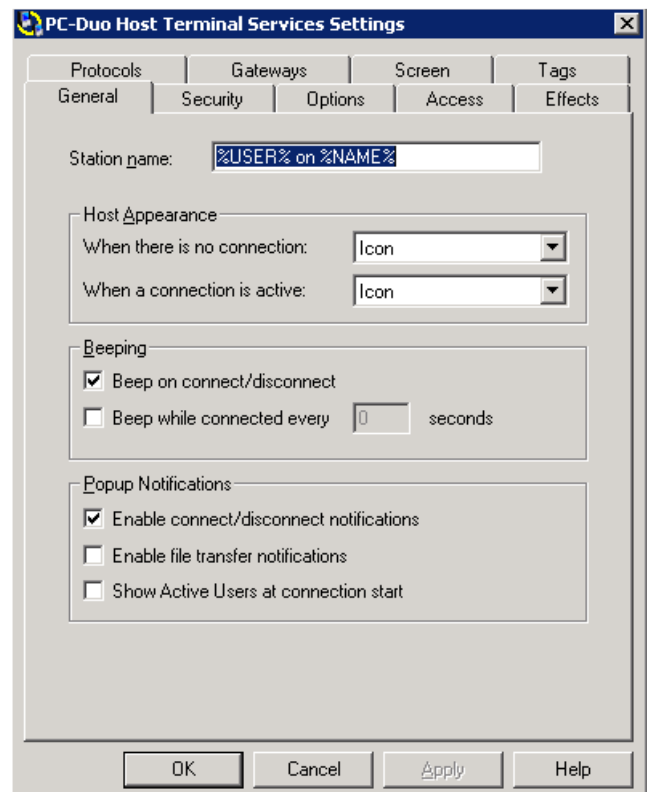


A standard PC-Duo Host with a special TS license key must be installed and configured on the server console to serve as the "root". When a new Terminal Services session is started, it will execute the Startup procedure inherited from the server console, which includes a task to start a Host service. PC-Duo Host will distinguish the session from the server console and start up a Host service specifically for the session.

The root maintains a Terminal Services template to hold the Host configuration settings for these Host service instances (in this way, the Host settings for the root may be different than those specified in the TS template). To view or edit this template, go to the Terminal Services tab in the root Host Control Panel and click on Configure.

Note: You must first configure a standard Host to be the root. This is done by entering a special license key that will enable the Host to support a specified number of simultaneous Terminal Services sessions.

Most of the configuration options are the same as those available on the standard Host Control Panel, although the About and Status tabs are not present because the settings on these tabs are not directly applicable to TS session Hosts.



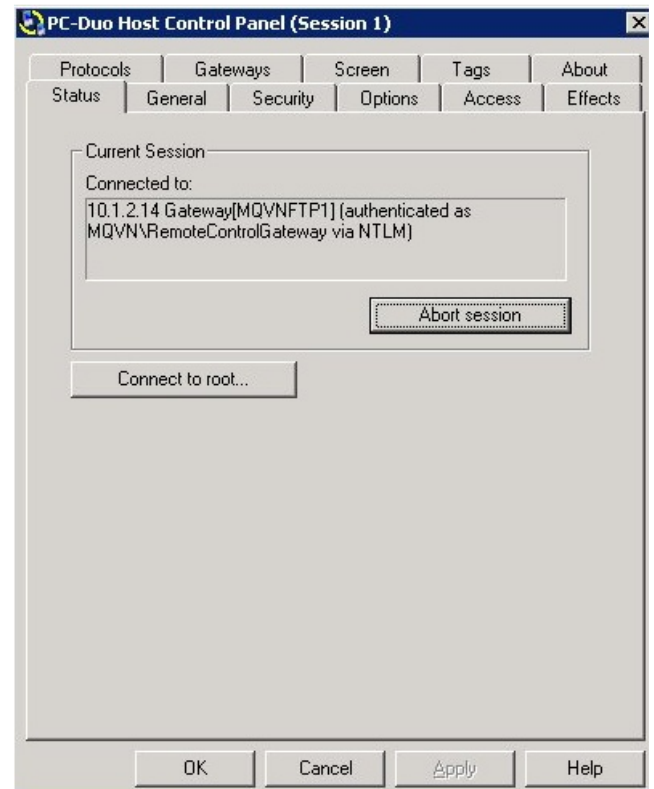
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Once the Host service for a specific Terminal Services session is started, you can view the effective settings for this Host service by clicking on the Host Control Panel icon in the TS session:

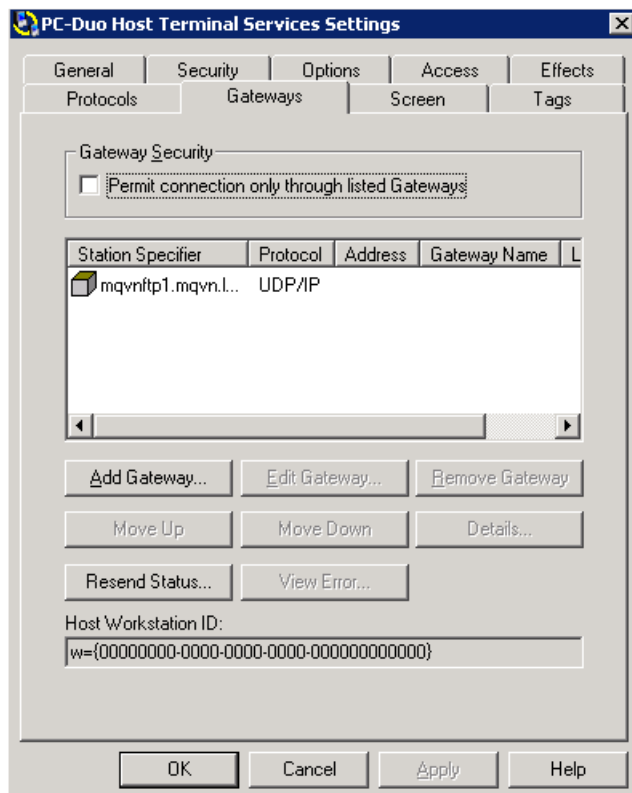
Note: The title bar shows the session number. Each root Host is capable of supporting as many simultaneous sessions as the license key allows.

You can view information about the root Host by selecting Connect to root. The Control Panel for the root Host will appear.

The configuration information in the Control Panel for terminal session Hosts is view only because the settings are based on the settings in the root Host Control Panel.



Gateways tab



The root Host for must be configured to report to one or more PC-Duo Enterprise Gateways; it is through these connections that terminal services session Hosts will be reached. Note: That connection status icon next to Gateway entries and the Host Workstation ID are generic in the root Host template. These will be replaced by actual icons and values when the Host service is started in the terminal session.

For security purposes, all connection attempts can be forced to go through the specified Gateways by selecting **Permit connection only through listed Gateways** on the Gateways tab. With this option, administrators can take advantage of Gateway-based security policies and prevent unauthorized connections via peer-to-peer or unlisted Gateways. The list of valid Gateways to which the Host should report can be managed with the following options:

- "Add Gateway"
- "Edit Gateway"
- "Remove Gateway"
- "Move Up"
- "Move Down"
- "Details"
- "Resend Status" "View Error"

The **Host Workstation ID** is a unique identifier generated at installation time, which the PC-Duo Enterprise Gateway uses for reporting and reference purposes.

Screen tab

For Terminal Services Hosts, only user-mode screen capture is available.

User-mode screen capture (UMSC): Uses user-mode code to capture screen data. Supported on Windows 7, Windows XP, Windows Server 2003, Windows Vista, and Windows Server 2008. Runs as a 32-bit x86 user mode code, but can capture either x86 or x64 systems. Only supported screen capture technology for Windows 7, Windows Vista, Windows Server 2008, and in Terminal Services Sessions (any OS).

When user-mode screen capture is selected, the amount of bandwidth used to capture and transmit remote desktop screen can be restricted or "throttled" by reconfiguring a user-mode screen capture profile. The default profile is "High Quality/High Bandwidth" but other profiles corresponding to smaller bandwidth limits are available. See Bandwidth throttling for more information. The Screen tab for Terminal Services Hosts indicates that user-mode screen capture algorithm is the only option, and also indicated the preferred user-mode screen capture profile.

Macros for Terminal Services sessions Hosts

The following macros are available for customizing station name for Hosts running in Terminal Services sessions. They should be applied in the Terminal Services Hosts Control Panel template but can also be specified in the root Host Control Panel.

Macro	Description
%CLIENTNAME%	Machine name that the client of the TS session has connected from, or the name of the server machine (same as %NAME%) if the session is not a TS instance.
%CLIENTADDR%	IP address that the client of the TS session has connected from, or the IP address of the server machine (same as %ADDR%) if the session is not a TS instance.
%SESSION%	TS session number. This will be 0 (zero) for the root Host instance and non-zero for TS instances.

Further Information -

For more information about the PC-Duo Terminal Services support, please email solutions@vector-networks.com or contact your local supplier.