



Release 13.2 Hotfix #2 – September 2019

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What's New in V13.2: Main Changes

Host Console Watermark and Border Options to Show Connection

This version of the Host now supports additional options for alerting a console user when a remote control session starts or is active. These settings are configured in the Host Control Panel and include the ability to show a border around the screen being captured (all monitors) and/or a translucent watermark that displays the connected user, also on all monitors. Note that this is in addition to the previous alert features including Popup Notifications, Beep, etc.

Ability to Launch the Installed Master from the Web Console

The installed Master connection window can now be launched when clicking on a Host name in the Web Console. This is in addition to the “Connect in Browser” and ClickOnce options and is available on the Windows platform. This capability is available for both live remote control sessions as well as playback of recorded sessions.

New Utility to Allow Host Settings Updates Through a Gateway

The new Host Updater Utility is a long-running desktop application that connects to a Gateway and allows an administrator to automatically apply a set of Host settings updates in JSON format to all Hosts that are in

communication with that Gateway, regardless of whether they are on the LAN or in the same domain. (This is in contrast to the Deployment Tool, which only works peer-to-peer with Hosts that are on the LAN). This new utility is installed alongside the Deployment Tool via the DeploymentTool.msi installation package.

New Gateway Host Grouping Rule (by Active Directory Computer Membership in Security Groups)

PC-Duo v13.0 supports automatically organizing Hosts in the Gateway Server by Active Directory "organizational unit" hierarchy. Version 13.2 extends this functionality to include a new type of Host Grouping Rule "AD Security Membership". This new rule is similar to the existing "Active Directory" rule (which is now renamed to "AD Organizational Unit"). However, instead of placing the Host in a group named for the one OU which contains the Host computer, the Host is placed in one group for each of the possibly many AD security Groups of which the Host computer is a member.

Ability to Have HOD Report to Multiple Gateway Servers

To meet certain availability and redundancy requirements, PC-Duo will allow a downloaded HOD to report to multiple PC-Duo Server installations. The first set will always be the Server installation the HOD was downloaded from while alternate/additional Servers can be configured by an administrator.

Host Settings JSON Representation Improvements

The PhSetup command has supported exporting and importing Host Settings from and to a Host for several releases. This release introduces new functionality to make this easier. First, the Deployment Tool now lets you Export a Host Configuration to JSON, either by saving to a file or copying to the Clipboard. Second, PhAdmin now has a hidden button that lets you import a JSON file, which can be made visible either by holding down the Shift key when you start it up, or by using a new "/all" option on the command line. This is a good option meant for administrators of the Hosts.

What's New in V13: Main Changes

Version 13.0 marks the beginning of the 3rd generation of PC-Duo technology.

One-click (no install) HTML 5 remote control from mobile devices

PC-Duo v13 now provides one-click remote control capabilities from devices without the need to install a specific native application. The new HTML 5 viewer permits remote view and control of PC-Duo host computers directly from the browser, including browsers on mobile devices.

2-Factor Authentication

Until now, authentication had been limited to Windows Authentication. Version 13 allows us to break from that in order to use alternate identity providers and provide multi-factor authentication. The initial release will include support for talking directly to the Microsoft Azure Active Directory (AAD) tenant service.

Hierarchical Grouping

The Gateway now supports hierarchical groups. These groups will possess security inheritance, and Active Directory synchronization via Host Grouping rules (i.e. organizing Hosts workstations according to their location in AD).

Active Directory Synchronization

This feature allows for Hosts to be organized in the same way that they are organized in Active Directory. This is driven by enhancements to the Host Grouping rules feature and the addition of hierarchical groups.

Streamlined Server Installation

In version 13, installation of the server software is greatly simplified by providing a bundle installer. This allows all of the server-side components to be installed by running a single installation file. We guide the user step by step to ensure the components are configured correctly, actively guarding against many potential misconfigurations.

Decoupling of components

The Gateway Server, Web Console, and supporting SQL Server instance can now be installed on different machines. This specifically includes running against a SQL instance managed separately (perhaps a SQL Server high-availability cluster).

Migration to SQL database

All data is now kept and managed by Microsoft SQL Server. Use of the "Jet" database engine (MDB files) has been retired.

Server Configuration Check utility

This is a new standalone utility added to help diagnose and modify a server installation. It will examine the server system's configuration and identify possible configuration errors. It also allows for easy changing of the DNS name, networking ports, and SSL certificate selections for the installation. This utility is conveniently accessible from the Windows Start menu.

Tighter integration between Gateway Server and Web Console

The Gateway companion service will no longer be necessary as Web Console and Gateway Server now communicate directly with each other.

All management functionality available in the Web Interface

The Web Console includes full administrative functionality, and the MMC-based Gateway Administrator has been retired.

Host on Demand for Windows as EXE Deployment

The Host on Demand can now be deployed as an executable download in all browsers, and no longer requires ClickOnce Deployment support. In browsers that support ClickOnce deployment, the Host on Demand is still deployed that way for an improved user experience.

Gateway Server "HTTPSYS" Transport Support

When Web Console and Gateway Server are installed on the same machine, the Gateway Server can now register with the Windows operating system "HTTP.SYS" driver and share the listening ports with the Web Console. This allows WSS-protocol connections (only) to be made to the Gateway Server on the port normally used to access Web Console (e.g. port 443), and in many configurations facilitates only having to open one port to the internet to allow access to all of Identity Manager, Web Console, and Gateway Server.

Reverse Web Proxy Support

PC-Duo Server now supports being placed behind a “reverse web proxy”. This is an appliance or other software product that terminates incoming HTTPS connections, and forwards them to the back-end service (PC-Duo Server).

Macintosh and iOS Master Enhancements

The Master for Macintosh and Master for iOS now have full authentication support, and can handle all authentication scenarios both on initial connection and when connecting to items from the “Recent Hosts” or “Recent Recordings” lists. (Previously, configurations that required a web-based login, like Azure Active Directory, did not work from the “Recent” lists.)

Macintosh software is supported on OS X 10.9 (Mavericks) and later, including the recently released 10.14 (Mojave). iOS software is supported on iOS v9 and later, including the recently released iOS v12.

What’s New in V13: UI Functionality, Performance, Usability

Refreshed UI

Both installed components and the Web UI have an updated look and feel.

Optimized Scrolling

Version 13 Masters connecting to version 13 Hosts have an optimization that greatly improves vertical scrolling.

Improved High DPI and Scaling Support

Host v13.0 automatically “scales down” a high DPI screen to reduce the amount of data sent to the Master, and to let the Master have a reasonable “Fit 1-to-1” view. Master has performance improvements in rendering the Host screen, especially in the case of “Fit-to-Window”.

Clipboard Transfer Improvements

Master v13 on Windows connected to Host v13 on Windows has enhanced Clipboard Transfer support, including the ability to transfer files and folders (e.g. via Windows Explorer), and to drag-and-drop files from the Master desktop onto the Master Connection Window to initiate a clipboard transfer operation to the remote Host.

Recording Retention Guard

Recordings can be created on demand or by policy (Auto-Recording feature), and may need to be preserved indefinitely by some customers in order to meet certain compliance requirements. The Gateway can now be configured to prevent the deletion of recording either by automatic controls, such as age settings, or by manual attempts. This includes archiving recordings of Hosts that are deleted from the Gateway to a new item, “Recordings of Deleted Hosts” in the “System” Gateway group.

Web Console: Usability and Functionality Improvements

Improvements across many pages of the Web Console. Session state now remembers group selection when navigating back to the Hosts page or upon Refresh. V13 provides easier access to key information across pages, with more reliable and flexible sorting of data.

New Setting: Allow access to Find a Desktop from External Addresses

This new setting, which is “on” by default, can be turned “off” to disallow any attempt to connect as an authenticated client to the Identity Manager, Web Console, or Gateway Server. In this configuration, the system can be exposed to the internet and the only functionality available to external users is “Share my Desktop” (i.e., Host on Demand).

Remote PrxSysInfo generation

Ability to generate PC-Duo System Information reports (prxsinfo) remotely. An administrator can now remotely request their respective servers, Host and Gateway, to initiate PrxSysInfo reports, and the results of those reports will be transmitted to the client for viewing and storage.

What’s New in V13.2 Hotfix #2: Fixes and Minor Enhancements

- OpenSSL has been updated from the v1.0.2 series to the v1.1.1 series. This release includes OpenSSL v1.1.1c, and restricts the default ciphers used to be higher quality/more secure than previous PC-Duo versions, while maintaining backward with all PC-Duo versions that supported TLS v1.2. Additionally, TLSv1.3 is now supported in the Host and Master for Windows, Gateway Server, and ClickOnce Connection Window for Windows. Further support for TLSv1.3 will depend on operating system support in Windows (for Web Console, via IIS) and on Macintosh and iOS. Elliptic Curve Cryptography (ECC) certificates are also now supported by the Gateway Server and Gateway Server Certificate Manager.
- Deployment Tool “Export Settings to JSON File” functionality has not been working since v13.2, and is fixed in this release. Additionally, the Deployment Tool was not registered as an MMC snapin correctly, so that it did not appear in the “Add/Remove SnapIn...” list.
- Several installed Master issues are addressed in this release, including:
 - Installed Master v10 connecting to GWS v9 as a master-category user now works correctly
 - Master inactivity prompt no longer appears if Master Control Panel window does not have focus; this keeps that popup from interrupting ongoing work in a Connection Window.
 - Master Gateway Groups dropdown list now sorts items correctly even if user does not have access to top-level group(s).
- Gateway Server has a number of reliability and “edge case” processing fixes, primarily around Host status update processing. While the issues addressed generally only occur in unusual or uncommon situations, customers with installations involving either a large number of Hosts, or relatively large numbers of Host reverse connections, or that use Host for Macintosh, are advised to upgrade to this release to ensure the most reliable operations.

What’s New in V13.2 Hotfix #1: Fixes and Minor Enhancements

- Deployment Tool allowed the new “Watermark” settings to be configured, but did not include this setting when creating a Windows Installer Transform (MST) file.

- The new Web Console feature to launch the installed Master as the default connection experience was not remembering and using that setting if the browser was not Click-Once Deployment enabled.
- Additional information is included in the System Information report to facilitate diagnosing certain kinds of problems.

What's New in V13.2: Fixes and Minor Enhancements

- The "Suppress Input" feature of the Host was not working in v13.0. This feature is disallowed by default (in Host Control Panel, Options tab, Keyboard and Mouse Suppression), but when allowed, input suppression was not happening. This is fixed in this release.
- The ability of the Gateway Server to restrict a Master user to only File Transfer Read or File Transfer Write access to a Host was not working correctly in Host v13.0; the Master user was incorrectly given both File Transfer Read and File Transfer Write access. This only is an issue if users are in the Gateway Server security model as having only one of the two File Transfer rights, and this issue does not affect any other Host services or access rights.
- The Gateway Server incorrectly created two Audit log events with ID=209 for each closed reverse connection. This problem was introduced in v12.7 hotfix#6 and exists in all releases until now. This simply resulted in a redundant entry in the AuditLogs*.CSV files, and had no material impact on anything.
- A few regression issues in the installed Master v13.0 (versus installed Master v12.7 and earlier) were found and fixed. Specifically:
 - Having a pipe character (|) in the Host station name caused peer-to-peer connection attempts to fail with error 0xC004C001 (Host not found).
 - Connection Window window automatic resizing logic was not working for text-mode Hosts (like the Gateway Server "System" group Hosts).
 - The "Send Keystroke" menu on the full screen toolbar, when connected to a Host for Macintosh, did not reflect the Macintosh shortcuts, whereas the Send Keystroke menu on the main toolbar did.

What's New in V13.0: Fixes and Minor Enhancements

- This release contains an updated release of the Deployment Tool. Installation of this tool will upgrade v12.7 and earlier versions while preserving the relevant/supported state. This resolves the issues around creating and applying configurations for the Master component.
- The database used by PC-Duo Server (normally named RemoteControlGatewayDb, although this name may have been changed/configured at original install time) is now automatically backed up before performing a database upgrade. The backup is performed with the T-SQL "BACKUP DATABASE" command to the default location for backups configured in SQL Server. The file name for the backup is the database name, the text "_beforeupgrade_schema_", and the internal schema number of the database being backed up. In a default installation, upgrading from v13.0 to hotfix#1 results in a backup file

"RemoteControlGatewayDb_beforeupgrade_schema_1303580.bak". Note that once the database is backed up and upgraded, other install/uninstall operations will not create additional backups.

- Improved forward web proxy support for clients and Host, when using the WS and WSS protocols. Forward web proxy support now looks for:
 - PC-Duo-specific registry overrides to control and configure the behavior, including the ability to turn auto-discovery of proxy configuration off and omitting all web proxy support. For more information about this configuration, please contact technical support.
 - For client software running as a logged-in user in Windows (e.g., Master), use the system per-user proxy configuration (in Internet Explorer > Internet Options, or system Control Panel > Internet Options, or Windows 10 Settings > Network > PC-Duo). If the auto detection flag is set, the operating system's WPAD support is used to automatically detect the proxy configuration.
 - For both client software, and the Host service, the system-wide proxy configuration set via the "netsh winhttp set proxy" command is read, and used if set. Note that these settings do not provide auto-configuration, but can provide an explicit proxy configuration.
 - If no instructions regarding web proxy have been found, auto-detection using the WPAD support is tried. Note that because auto-detection can be a time-consuming process, a direct connection (without proxy) is attempted while the web proxy configuration is detected. If the direct connection fails, and a web proxy configuration is discovered, the connection is automatically retried through the web proxy.
- Installers now fully support TLSv1.2-only environments. Previously, the software could run in this environment, but TLSv1.0 and TLSv1.1 had to be enabled to install or update the software.
- Installed Host reliably allows the Master to have input control of the Host machine. Previously, plug-and-play operations (e.g. unplugging a mouse or keyboard, or starting up without an attached mouse or keyboard) could cause the Host to lose the ability to inject input into the system.
- Web Console now recognizes and supports additional extensions for Chrome that provide Click-Once Deployment support.
- Gateway Server –
 - now has more robust computation of SPN name for Kerberos authentication to Hosts; this specifically helps in environments with multiple trusted domains.
 - has many improvements in reliability, supportability, and performance of Host status processing.
 - may fail to stop in a timely fashion when the Server Control Manager requests it to stop, and a crash-at-exit behavior has been fixed.
- Better handling of transparent/invisible cursor shapes has been implemented. Master now treats invisible pointer as equivalent to "null" pointer, so "show local cursor if Host cursor is missing or hidden" option works.

- Host Manage Visual Effects (MVE) feature is more reliable, should restore wallpaper correctly, and manages ClearType setting explicitly.
- Using PhSetup to repeatedly add security to Host configuration no longer creates duplicate entries.
- Master cycling monitor window is now always view-only and cannot take input control.

Operating System Requirements

PC-Duo v13.2 Host, Master, and other client components work on all Windows operating systems currently in support by Microsoft:

- Windows 7, Windows 8.1, Windows 10
- Windows Server 2008, Server 2008r2, Server 2012, Server 2012r2, Server 2016, Server 2019

The PC-Duo Server (Identity Manager, Web Console, and Gateway Server) require Windows Server 2012, Server 2012r2, Server 2016, or Server 2019.

PC-Duo for Macintosh now requires Macintosh OS X v10.9 (Mavericks) or later. Earlier versions of OS X do not support TLS v1.2 and therefore cannot communicate with PC-Duo v13.0 or later.

Compatibility

The PC-Duo Server can manage a variety of Host software versions in your environment. Due to restrictions to ensure reliable, secure encryption is always used, not all previous Host software versions are compatible with version 13. The minimum supported Host version is v11.6, although the latest release/hotfix version of the major version you're running is recommended.

In addition, because SSL support has been restricted to TLSv1.2 or later only in version 13, the following Host versions are required in order to connect to the Gateway Server v13 with the SSL or WSS protocols

- V12.1 build 2060 hotfix#4 or later (released February 2015)
- V12.5 or later (released May 2014)
- V12.7 original release or later (released June 2015)
- v13.0 original release or any later major or minor version

Furthermore, due to a bug in earlier versions of PC-Duo WSS protocol support, not all Host versions that support TLSv1.2 and WSS can be managed successfully when they report via WSS to the HTTPS port(s) introduced in v13.0. Incompatible Hosts will perform status reporting correctly, but cannot be connected to for services. The following Host versions are fully compatible with Gateway Server v13.0 HTTPS support:

- Host v13.0 original release or later
- Host v12.7 hotfix#8 or later (released August 2018)
- At the time of writing, no Host v12.6 is compatible (through hotfix#6).

Note on upgrading to this release:

The server-side components cannot be upgraded automatically from v12.7 or earlier releases. All other product components, including Host and Master, support upgrading from previous releases.

Documentation

Documentation is available at:

- The “PC-Duo Server Installation Guide” is a PDF included in the On-Demand Edition download (zip file)
- PC-Duo Web Console Operations Guide
<https://www.vector-networks.com/pcduo-docs/v13/wc/>
- PC-Duo Host Guide
<https://www.vector-networks.com/pcduo-docs/v13/host/>
- PC-Duo Master Guide
<https://www.vector-networks.com/pcduo-docs/v13/master/>
- PC-Duo Deployment Tool Guide
<https://www.vector-networks.com/pcduo-docs/v13/pdt/>

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This product includes software developed by the OpenSSL Project for use in the OpenSSL Toolkit (<http://www.openssl.org/>), cryptographic software written by Eric Young (eay@cryptsoft.com), and compression software from the ZLIB project (<http://www.zlib.net/>).