

# vSpace Pro Enterprise Edition for Windows

## Version 12.5.2

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### RELEASE NOTES

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## PRODUCT RELEASE NOTES: NCOMPUTING VSPACE PRO ENTERPRISE EDITION

**Product:** NComputing vSpace Pro Enterprise Edition for Windows

**Version:** 12.5.2

### Supported Operating Systems\*:

- Windows Server 2019
- Windows Server 2016
- Windows Server 2012 R2 U1
- Windows Server 2012
- Windows Server 2008 R2 SP1
- MultiPoint Services Role - Windows Server 2016
- Windows MultiPoint Server 2012
- Windows MultiPoint Server 2011
- Windows 10 Enterprise Edition (64-bit)
  - Up to version 20H2
- Windows 10 Pro Edition (64-bit)
  - Up to version 20H2
- Windows 8.1 (64-bit)
- Windows 7 SP1 (64-bit)

### Supported NComputing Access Devices and Clients:

- RX420(RDP) with firmware version 1.12.8
- RX-RDP+ with firmware version 1.12.8
- RX300 with firmware version 4.0.5
- LEAF OS 2.2.18 or higher (BYOD or repurpose old x86/x64 PCs and laptops)
- L250, L300 and L350 (L-series) with firmware version 1.15.8 or newer
- M300, MX100S and MX100D (M/MX-series) with firmware version 2.4.8
- vSpace Pro Client for Windows\*\*, version 2.6.0
- vSpace Pro Client for Chromebook\*\*, version 1.8.2

### Supported vSpace Manager:

- vSpace Manager, version 1.8.7

\* For licensing details, see: <http://www.ncomputing.com/mslicensing>.

\*\* vSpace Client is supported for desktop session delivery only and does not include the management options available for other access devices.

Supported Server OS variants include: Standard, Enterprise, and Datacenter.

Note that only 64-bit versions of Windows operating systems are supported.

The following notes contain important information. Please read this entire document to ensure that your installation and deployment process goes smoothly.

## ABOUT THIS RELEASE:

vSpace Pro Enterprise Edition is the focal point for future enhancements and development for the vSpace Pro family. vSpace Pro Enterprise Edition includes advanced features such as scalability improvements for large deployments, latest Windows OS support including Windows Server 2019, multi-touch monitor support, advanced USB peripheral support and more. This vSpace Pro Enterprise Edition is available for NComputing customers who are in compliance with the Annual Maintenance Program (AMP) plans. Customers who are not in compliance with the AMP plan may have restriction to vSpace access.

You can download and install **vSpace Pro Enterprise** for free. By default you will begin in trial mode where all functionality is available but limited as described below. To remove trial mode you'll need to purchase the required licenses for the connected endpoints.

Limitations in trial mode vary by model. The following behaviors apply to customer accounts with no existing licenses. If you are unsure about your licensing requirements, please contact your NComputing representative.

**Table 1: vSpace Pro Enterprise Trial Mode Behavior (version 12.5.2 and higher version)**

Endpoint	Trial mode restrictions	Required license type to remove trial mode
<ul style="list-style-type: none"> <li>RX300</li> <li>L250, L300, L350</li> <li>M300</li> <li>MX100S, MX100D</li> </ul>	A maximum of 5 concurrent sessions are permitted. There is no session time limit.	AMP for Space Pro (per device) (SKU: NC-AMP-1A)
<ul style="list-style-type: none"> <li>RX420(RDP)</li> <li>RX-RDP+</li> <li>vSpace Pro Software client for Windows</li> <li>vSpace Pro Software client for Chrome</li> </ul>	A maximum of 5 concurrent sessions are permitted. The sessions will end automatically after 10 minutes. Users can sign-in again after the timeout.	vSpace Pro Software Connection license* (per concurrent user session) (SKU: vSpacePro-SW-1A)
<ul style="list-style-type: none"> <li>LEAFOS(x86/64)</li> <li>LEAFOS(PI4)</li> </ul>	A maximum of 5 concurrent sessions are permitted. The sessions will end automatically after 10 minutes. Users can sign-in again after the timeout.	LEAFOS Software Connection license* (per concurrent user session) (SKU: LeafOS-SW-1A)

\*Note: RX420(RDP) thin client, RX-RPD+ thin clients or LEAFOS devices purchased with bundled vSpace connection licenses are not subject to trial mode behaviors and will have full access.

Please use the following link to learn more about NComputing's Annual Maintenance Program (AMP) and its benefits: <https://www.ncomputing.com/products/vSpace/vSpace%20PRO%20AMP>

Please review the [NComputing software end-user license agreement](#).

## NEW PRODUCT FEATURES, CHANGES, AND IMPROVEMENTS (12.5.2)

vSpace Pro Enterprise Edition version 12.5.2 is a major product release that replaces the previously released version 12.4.0 (as well as all earlier Enterprise Edition versions) with feature enhancements and bug fixes. This version carries over all features and enhancements from the previous vSpace Pro Enterprise Edition versions.

### IMPORTANT NOTE:

NComputing has migrated to using enhanced security certificates for vSpace Pro software. Previous versions of vSpace Pro came with SHA1 security certificates. Following the industry trend we now only use SHA2 security certificates in vSpace Pro.

If you use Windows 7 or Windows Server 2008 R2 and do not have SHA2 security certificate patch applied to the OS, you will not be able to install vSpace Pro Enterprise 12.5.2. In this case, you must be updated to accept SHA2 security certificates. Other newer Windows OSes support SHA2 security certificates by default.

Please review our ['Knowledge Base article'](#) for details of the requirements including the specific Microsoft updates you must apply before you can install this version of vSpace Pro software on Windows 7 and Windows Server 2008 R2.

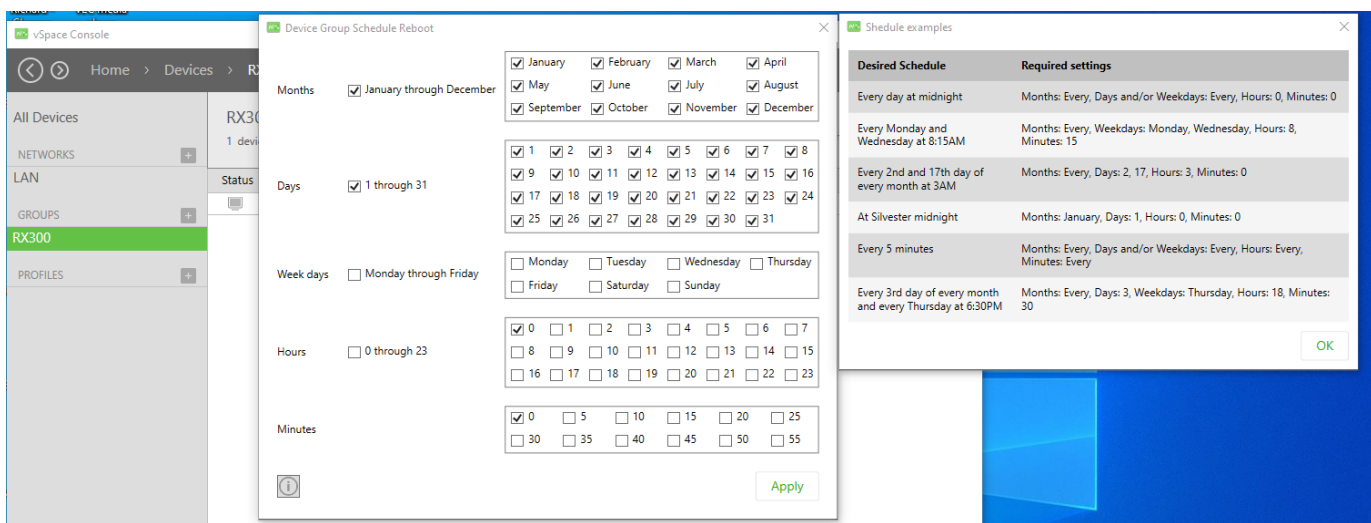
### vSpace Server enhancements:

- Support for Windows 10 20H2 release.
- vSpace Pro Enterprise Edition - vSpace Pro Software Client connection and LEAFOS software connection trial mode (please refer to Table 1 above).
- Improved browser scrolling performance.
- Up to 2560x1440 display resolution support for vSpace connection on selected endpoints. This resolution is commonly known as Quad High Definition (QHD) or 2K.
- Endpoints with 2K display resolution support in vSpace Pro Enterprise Edition includes:
  - RX420(RDP) thin client - (version 1.12.8 and higher),
  - vSpace Pro Software Client for Windows (version 1.6.0.1.132 and higher), and
  - LEAFOS devices (version 2.2.18 and higher).

### vSpace Console enhancements:

- Removed redundant and external .NET Framework dependencies from vSpace Console
- Added LEAFOS(PI4) new model support into vSpace Pro Enterprise Console
- If both WiFi and Ethernet are active on a RX thin client, then vSpace Console will only display an unique device (instead of two).

- Supported RX300 version 4.0.5 device management (without Raspbian Desktop operation mode).
- If both WiFi and Ethernet are active on a RX thin client, then vSpace Console will only display an unique device (instead of two).
- New “Task Schedule” feature support for device ‘Groups’ in vSpace Console; Refer [this KB](#) for details. See screenshot example below:
  - Scheduled device reboot (repeat schedule)
    - Supported endpoints include L/M/MX-series and RX-series thin clients (RX300, RX-RDP+ and RX420(RDP)).
  - Schedule device shutdown (repeat schedule)
    - Supported endpoints include all RX-series thin clients.
  - Scheduled firmware updates (single occurrence)
    - Supported endpoints include L/M/MX-series and RX300 thin client.



### vSpace Server and vSpace Console bug fixes:

- RDSL-7371 - vSpace sessions do not connect to vSpace Server for the first few minutes after installation for certain Windows Oses.
- RDSL-7369 - Login screen size incorrect in rare cases.
- RDSL-7364 - When display resolution is set to 2560x1440 in dual displays, mouse coordinates are incorrect in vSpace session.
- RDSL-6409 - Certain USB pen drives connected to endpoints are visible on all vSpace sessions in Windows 10 and Windows Sever 2016 host machine.

### Following are the new product features introduced in RX300 firmware version 4.0.5 which comes with vSpace Pro Enterprise Edition 12.5.2:

- Additional VPN clients:
  - L2TP/IPsec VPN client.
  - IKEv2/IPsec VPN client.
  - FortiClient SSL VPN client.
- Notifications about availability of firmware updates.
- Support for Subnet Tags (when managed by the upcoming PMC 2.6).
- Ability to set up a custom boot splash image.

- Support for the shutdown command sent by vSpace Console.

***IMPORTANT WARNING:*** *The RX300 firmware version 4.0.5 removes the Raspbian Desktop operation mode permanently and is irreversible. The mass storage partition containing the Raspbian OS will be removed during 4.0.5 firmware update without any additional notice. All data stored on the Raspbian OS partition will be irrecoverably erased. If any user files were created when the device was switched into Raspbian Desktop mode and stored on the Raspbian OS partition, they must be copied to an external storage device before updating the device firmware to version 4.0.5. Otherwise the files will get lost.*

**Other improvements introduced in RX300 firmware version 4.0.5:**

- VPN reconnect after plugging in the Ethernet cable.
- NTP date and time update after plugging in the Ethernet cable.
- New default NComputing wallpaper.
- Updated vCAST web streaming components.

**The following RX300 firmware issues have been fixed in version 4.0.5:**

- RX-1910 - Incorrect calculation of MD5 sums for certificate files added manually.

**PREVIOUS RELEASE NOTES (VSPACE PRO ENTERPRISE EDITION 12.4.0)**

vSpace Pro Enterprise Edition version 12.4.0 is a major product release that replaces the previously released version 12.3.2 (as well as all earlier Enterprise Edition versions) with feature enhancements and bug fixes. This version carries over all features and enhancements from the previous vSpace Pro Enterprise Edition versions.

**vSpace Server enhancements:**

- Support for the new RX-RDP+ clients operating in vSpace Client mode (requires separate vSpace Pro Client connection license).
- Support for native redirection of webcams in vSpace sessions connected from RX300, RX420(RDP), RX-RDP+ clients and vSpace Pro Client for Windows:
  - The following matrix table contains the native webcams support in various Windows OSes in vSpace Client mode for each device. Webcams support is tested in Microsoft Teams, Zoom, Webex, GoToMeeting and Skype conferencing applications.
  - With Windows Server 2019 or Windows 10 host, each user, under Privacy settings, needs to allow the applications to access the redirected camera.

Native webcams support (vSpace Client mode)	RX300 (version 3.10.3 or higher)	RX-RDP+ (version 1.10.10 or higher)	RX420(RDP) (version 1.10.10 or higher)	vSpace Pro Client for Windows (version 2.6.0 or higher)
Windows Server 2019	✓	✓	✓	✓
Windows Server 2016	✓	✓	✓	✓
Windows Server 2012 R2	✓	✓	✓	✓
Windows Server 2008 R2	✓	✓	✓	✓
Windows 10	✓	✓	✓	✓
Windows 7	✓	✓	✓	✓

#### vSpace Console enhancements:

- Dual display support in session 'View' and 'Take Control' tools.
- Resizable session 'View' and 'Take Control' windows.

#### vSpace Server and vSpace Console bug fixes:

- VCON-961 - Health Monitor settings are pushed/pulled only from vSpace Manager running on 'localhost'.
- VCON-843 - Discrepancy between display settings shown in vSpace Console and RX300.
- VCON-716 - In vSpace Console's sessions 'View', the horizontal scrollbar is hidden under Windows taskbar.

Following are the new product features introduced in RX300 firmware version 3.10.3 which comes with vSpace Pro Enterprise Edition 12.4.0:

- Native redirection of webcams in all operation modes (excluding Raspbian Desktop mode).

#### Other improvements introduced in RX300 firmware version 3.10.3:

- RX-1869 - Prevent the use of native audio channel in UXP mode when audio redirection is not set to Native.

#### The following RX300 firmware issues have been fixed in version 3.10.3:

- RX-1871 - OpenVPN: Device caches the .ovpn file and user credentials even when not configured to do so.
- RX-1866 - Cracking sound in RDP session when using Zoom application.
- RX-1863 - No sound in USB headset when the headset was connected after a webcam.
- RX-1859 - vSpace Client crash when opening a specific page in web browser running in vSpace session.
- RX-1852 - OpenVPN client is not asking for key password when .ovpn file contains encrypted RSA private key.

## PREVIOUS RELEASE NOTES (VSPACE PRO ENTERPRISE EDITION 12.3.2)

vSpace Pro Enterprise Edition version 12.3.2 is a major product release that replaces the previously released version 12.3.1 with feature enhancements and bug fixes, as well as all earlier Enterprise Edition versions. This version carries over all features and enhancements from the previous vSpace Pro Enterprise release versions.

#### vSpace Server enhancements:

- Support RX420(RDP) vSpace connection with native dual display, full-screen, full-motion HD multimedia playback and NComputing vCAST streaming support; requires separate vSpace Pro Client connection license.
- Added vCAST Streaming support for Microsoft Edge Browser. vCAST Streaming reduces server-side CPU usage when users watch web videos like YouTube, Vimeo, or local media content, and does so without the need for expensive GPUs. This technology results in higher quality video streaming without CPU bottlenecks, allowing for more concurrent users on your system.
- Further Improved stability of vSpace Pro Enterprise server under high-CPU load and low resource host environment.

#### **vSpace Console enhancements:**

- Support 'Run' command dialog box in vSpace Console which allows admins to type the name of a program, folder, document, or web pages to simultaneously open on any remote vSpace user session or sessions(s).

#### **vSpace Server bug fixes:**

- RDSL-7307 - RX300 displayed a black screen instead of a session when 'Video stream support' is disabled in vSpace Console.
- RDSL-7292 - vSpace Console broadcast feature did not work on Windows 10 1903.
- RDSL-7306 - Rare BSOD of host with high CPU load over an extended period of time.

#### **Following are the new product features introduced in RX300 firmware version 3.9.2 which comes with vSpace Pro Enterprise Edition (12.3.2):**

- Support for the VERDE Remote Access feature (VERDE 8.2.7 or higher version).

#### **Other improvements introduced in RX300 firmware version 3.9.2:**

- Reduced Wi-Fi settings application time.
- Improved behavior of the Wi-Fi icon.
- 1270x720 will be set as Automatic resolution when the device will be booted up without any HDMI monitor connected.
- Improved system daemons reloading procedure when applying configuration changes.
- Improved RDP sessions stability by disabling audio redirection when "No audio output/input" is at the top of audio priority list.
- Improved dialog box for selecting USB devices identified by custom VID:PID.

#### **The following RX300 firmware issues have been fixed in version 3.9.2:**

- RX-1833 - GUI crash when Ethernet, VPN and PMC were connected and the Ethernet cable was unplugged/plugged.
- RX-1832 - OpenVPN: The key file specified as parameter of the tls-auth entry of .ovpn file does not get copied from memory stick.
- RX-1828 - The Ethernet interface sometimes get disabled after firmware recovery.



## PREVIOUS RELEASE NOTES (VSPACE PRO ENTERPRISE EDITION 12.3.1)

vSpace Pro Enterprise Edition version 12.3.1 is a maintenance product release that replaces the previously released version 12.3.0 with feature enhancements and bug fixes, as well as all earlier Enterprise Edition versions. This version carries over all features and enhancements from the previous vSpace Pro Enterprise release versions.

### **vSpace Server enhancements:**

- Support for Microsoft Teams conference calls. Audio & Video quality may depend on the client type and Internet bandwidth connection.
- New RX300 firmware (version 3.8.1) with integrated VPN support.
- Support for HID DigitalPersonal fingerprint readers.
- Support for previous Fujitsu devices powered by NComputing.
- Added display information in vSpace Manager for AMP and Aged Device Connection license count.

### **vSpacer Server bug fixes:**

- RDSL-7293 - Fixed the issue where vCAST MOJO streaming does not work on Windows 10 1903 and higher versions.
- RDSL-7292 - Fixed the issue where vSpace Console broadcast feature does not work on Windows 10 1903 and higher versions.
- RDSL-7291 - Fixed the issue where the session reconnection with a different display resolution would freeze the vSpace client on Windows 10 1903 and higher versions.
- RDSL-7290 - Fixed the improper saving of "Disconnected Session Cleanup Timeout" value in vSpace Console on Windows Server 2008R2 and Windows 7 host machines.
- RDSL-7285 - Fixed a rare BSOD issue after connecting RX300 devices with connected USB peripheral devices.

### **Following are the new product features introduced in RX300 firmware version 3.8.1 which comes with vSpace Pro Enterprise Edition (12.3.1):**

- Integrated OpenVPN client:
  - Supported authentication methods include pre-shared keys, certificate-based, and username/password-based authentications.
- Integrated OpenConnect VPN client (for connections to Cisco AnyConnect and compatible VPNs):
  - Supported authentication methods include certificate-based and username/password-based authentications.
- Integrated PPTP VPN client supporting username/password-based authentication.
- Ability to establish vSpace sessions on vSpace Servers using custom UXP port numbers.
- Support for HID DigitalPersona fingerprint readers in vSpace Client, RDP Client, and VERDE VDI Client operation modes.
- Ability to automatically start published RemoteApp resources.
- Reset to factory defaults button.

- Option to allow/disallow non-ASCII characters in usernames and passwords for RDP and VERDE connection settings.

**Other improvements introduced in RX300 firmware version 3.8.1:**

- Improved error handling for RDP sessions.
- Country selection for Wi-Fi configuration to enable/disable available Wi-Fi channels.
- Possibility do upload certificate files with any file name extension.

**The following RX300 firmware issues have been fixed in version 3.8.1:**

- RX-1782 - Fixed the issue where resetting to factory defaults has no effect for keyboard language setting.
- RXRDP-413 - Fixed the issue where Wi-Fi channels 12 and 13 are not visible in Wi-Fi scan results.
- RX-1778 - Fixed a rare issue where the device GUI would get stuck based on certain Ethernet configuration.

## PREVIOUS RELEASE NOTES (VSPACE PRO ENTERPRISE EDITION 12.3.0)

vSpace Pro Enterprise Edition version 12.3.0 is a major product release that replaces the previously released version 12.2.2, as well as all earlier Enterprise Edition versions. This version carries over all features and enhancements from the previous vSpace Pro Enterprise release versions.

vSpace Pro Enterprise Edition version 12.3.0 comes with the following enhancements and bug fixes:

**vSpace Server component:**

- Support for repurposed PCs and laptops running NComputing LEAF OS.
- New NComputing display driver (based on the Remote Indirect Display Driver model) to ensure compatibility with upcoming Windows OS updates.

**vSpace Console improvements:**

- Ability to manage repurposed PCs and laptops running NComputing LEAF OS, which includes LEAF OS user session management, LEAF OS device management and firmware updates.

**Following are the new product features introduced in RX300 firmware version 3.6.5 which comes with vSpace Pro Enterprise Edition (12.3.0) release:**

- Troubleshooting information collector tool

**Other improvements introduced in RX300 firmware version 3.6.5:**

- Improved device configuration settings applying routines for PMC
- VERDE client improvement to report more device details to VERDE server

**The following RX300 firmware issues have been fixed in version 3.6.5:**

- RX-1755 - Inaccurate message about 'Empty group' after applying profile from vSpace Console.
- RX-1753 - User authentication may fail in RDP Client mode when user name is specified as UPN.
- RX-1752 - RemoteApp connection fails when RD Session Host is using a non-standard port number.

## PREVIOUS RELEASE NOTES (VSPACE PRO ENTERPRISE EDITION 12.2.2)

vSpace Pro Enterprise Edition (version 12.2.2) is a maintenance update that replaces vSpace Pro Enterprise Edition (version 12.1.0) and earlier Enterprise Edition versions.

This latest version comes with the following enhancements and bug fixes:

### **vSpace Server component:**

- (RDSL-7231) Fixed the issue where installing vSpace Pro Enterprise Edition on Windows Server 2008 R2 host machine would result in black screen when manually login on the host machine.

### **vSpace Console improvements:**

- Fixed an issue where vSpace Console could not connect to vSpace Manager in Windows Server 2008 R2 and Windows 7.
- (VCON-947) Improved RX300 serial number presentation in vSpace Console.
- Additional performance optimization and stability improvement.

**Following are the new product features introduced in RX300 firmware version 3.6.0 which comes with vSpace Pro Enterprise Edition (12.2.2) release:**

- 802.1x network authentication support on Ethernet interface.
- Remote Desktop Gateway support for RDP connections.
- Native redirection of ReinerSCT cyberJack smart card readers.
- Support for vSpace for Linux.
- User experience settings for RDP connections.
- Date and time saving on device shutdown and restoring on device bootup.
- History collection for manually entered RemoteApp RD Web Access URLs.

**Other improvements introduced in RX300 firmware version 3.6.0:**

- FreeRDP client updated to the latest stable version.
- Username field validation in Kiosk Mode / User auto-logon configuration.
- Username field auto-population on logon screens.
- Domain field auto-population on RDP/RemoteApp logon screen.
- Improved input fields focusing rules on logon screens.
- Improved error handling when RemoteApp support is enabled.
- Internet Proxy support for VERDE VDI connections.

- Support for ext2, ext3, and ext4 file systems on locally mounted USB storage devices (used for native redirection or installation of certificates).
- Updated NComputing Pi Zero SDA firmware.
- Network connection loss detection for vSpace sessions.
- Increased video playback smoothness during vCAST Media Streaming with VLC player 3.0.6.
- Displaying the wallpaper during firmware update installation.
- Cosmetic changes and spelling improvements in the GUI.

The following RX300 firmware issues have been fixed in version 3.6.0:

- RX-1732 - Dual screen: When using touchscreen as primary display with position set to 'Second' and the Pi0 SDA as secondary display the touchscreen events are applied to secondary display.
- RX-1731 - Device fails to connect to PMC through auto-detected address when the DHCP reply is delayed.
- RX-1730 - Possibility to freeze the RX300 device when user presses the Sleep button when the auto-connect countdown reaches zero
- RX-1722 - Unplugging Ethernet when vSpace client is connected to vSpace Server ends with frozen session.
- RX-1715 - Device gets stuck without GUI when HTTP URL will be specified as RD Web Access URL.
- RX-1673 - WiFi interface remains active after scanning WiFi networks.
- RX-1665 - Touchscreen doesn't work when USB SDA adapter is connected.
- RX-1655 - Syslog gets spammed with "'action 17' suspended" messages.
- RX-1654 - Kiosk Mode application and application directory are not excluded from xfreerdp arguments when launching RDP RemoteApp programs.
- RX-1649 - Setup GUI allows saving an empty administrator password.
- RX-1643 - Green LED does not indicate SD card activity anymore after using the sleep/power button to wake the device up from sleep mode.
- RX-1641 - USB composite devices do not redirect into VERDE/RDP sessions (with Incentives Pro VID:PID list redirection)
- RX-1639 - [Dual display] RX300 + Pi0 SDA: session disconnect in less than a minute from logon.
- RX-1631 - Some keyboard shortcuts are blocking mouse and keyboard events.
- RX-1630 - User does not get logged out from RemoteApp list if screen saver action is set to "Disconnect sessions..."
- RX-1629 - ntfs-3g deb package for NTFS filesystem will not be installed if firmware update starts on firmware older than version 3.2.16.
- RX-1628 - Loss of PMC connection after disabling WiFi if autodiscovered PMC address was in use.
- RX-1626 - Device is collecting wallpapers instead of replacing old wallpaper with the new one.
- RX-1619 - VNC screen shadowing stops working after display resolution change.
- RX-1607 - Inability to use VNC if it was turned on at the same time when reconfiguring screen resolution.
- RX-1602 - RemoteApp: All icons presented by task-switcher are identical.

- RX-1595 - vCAST Web Streaming waits in infinite loop on some Vimeo videos.
- RX-1591 - DisplayLink adapter doesn't work after waking the device up from sleep mode.

Previous release notes (vspace pro enterprise edition 12.1.0 vSpace Pro Enterprise Edition (version 12.1.0) is a maintenance update that replaces vSpace Pro Enterprise Edition (version 12.0.2) with the following enhancements and bug fixes:

- vSpace Server:
  - RDSL-7200 - Support for Windows 10 compatibility up to version 1903 (May 2019 Update)
  - RDSL-7206, RDSL-7207 - Fixed the issue with dual display on Windows 7 and Windows 2008 where the mouse pointer does not move to the second screen and desktop icons are displayed on the second screen.
- vSpace Console:
  - RDSL-7202 - Fixed the issue where the Multiview application cannot be opened from the system tray with a pre-defined passcode.

For customers with active Annual Maintenance Program (AMP) plans vSpace Pro Enterprise Edition adds the following new product features:

- Support for Windows Server 2019.
- Support for multi-touch monitors.
- Support for smart boards/interactive whiteboards.
- Support for more than 100 concurrent terminal sessions.
- Enhanced vSpace Console software to manage user sessions/devices for large deployments.
- Enhanced audio protocols for L-series, M-series and MX-series thin clients.
- Enhanced health monitoring service for vSpace Pro deployment.

Following are the new product features introduced in RX300 firmware version 3.4.9:

- Support for RemoteApp and Desktop connections.
- Support for native (functional) redirection of printers in RDP sessions.
- Support for VNC screen shadowing.
- Ability to setup a desktop wallpaper.
- Enhanced single- and multi-touch screen and smart board support
- Calibration tool for touch screen monitors.
- Enhanced vCAST Web Streaming with Vimeo support.
- Enhanced vCAST VLC Media Streaming with NComputing SDA support.
- PMC connection status display.
- Ability to select screen saver action.
- Lock-up of the 'Domain' field on the logon screen if a domain name is pre-configured in Kiosk Mode settings.
- Additional splash screen at the early stage of device boot-up process.
- Ability to configure 'Custom RDP parameters' for RDP connections in VERDE VDI Client mode.
- Improved behavior of the logon screen in VERDE VDI Client mode when the 'Allow using custom VERDE Connection Brokers' option is enabled.

- Cosmetic changes and spelling improvements in the GUI.

## PREVIOUS RELEASE NOTES (SINCE VSPACE PRO 11.X AND VSPACE PRO ENTERPRISE EDITION 12.0.2):

The following vSpace Server component issues have been fixed in this product version:

- RDSL-7152, RDSL-7157 - Session does not appear on clients - only black screen (Windows Server 2016, Windows Server 2019).
- RDSL-7146 - Server does not send KeepAlive messages to RX300 after reconnecting to previously disconnected session.
- RDSL-7028 - Audio stops working in VLC player (used without vCAST) after changing playback position by clicking the progress bar.

The following vSpace Console issues have been fixed in this product version:

- VCON-943 - Sessions do not appear in vSpace Console Sessions view.
- VCON-940 - vSpace Console crash when trying to open old RX300 profile created by previous Console.
- VCON-939 - vSpace console fails to start MultiView window.
- VCON-938 - vSpace Console crashes occasionally when changing RX300 3.2.13 firmware settings.
- VCON-937 - Incorrect registration status when connecting vSpace Console to remote vSpace manager.
- VCON-887 - Empty Session column in Devices view (sessions are not assigned to devices).
- VCON-842 - Delay before displaying Premium Features.
- VCON-834 - Closed disconnected sessions do not disappear from session list after disconnection session cleanup timeout elapses.
- VCON-823 - Error saving Health Monitor settings when vSpace Server is on a different computer than vSpace Manager.
- VCON-803 - Dynamic refresh of vSpace Console data.
- VCON-801 - vSpace Console hangs after Multisuser service crash.
- VCON-792 - Incorrect behavior when vSpace Manager gets unavailable and then comes back.

The following RX300 firmware issues have been fixed in version 3.4.9:

- RX-1614 - GUI termination due to receiving the SIGUSR1 signal just after boot.
- RX-1525 - VERDE Client: Domain name disappears when username is being entered.
- RX-1506 - Static IP Configuration: No error message is displayed if alphabetic characters are entered.
- RX-1460 - Some special Japanese keys do not work in vSpace sessions.
- RX-1458 - Connections to VERDE VDI or vSpace Servers fails after switching Network from Wireless to Ethernet (and vice-versa).

The following L-series firmware issues have been fixed in version 1.15.8:

- TT-794 - vSpace Console displays unknown characters when kiosk mode is enabled but with empty user name and password.
- TT-790 - After firmware update to version 1.15.5 user name and password are corrupted.
- TT-788 - Client only reacts after 3 minutes when vSpace Server goes down or a network issue occurs.
- TT-787 - Auto-connect to the server group has a 3 minutes delay when vSpace Server is in different subnet than L300 device.
- TT-783 - User autologin does not work with user names longer than 20 characters.
- TT-782 - Incorrect characters in user name after updating L300 firmware to 1.15.2.

## KNOWN ISSUES:

- Please refer to <https://support.ncomputing.com/portal/kb> for known issue details.

## GENERAL INSTALLATION INSTRUCTIONS:

New vSpace Pro Enterprise Edition installations should be performed on machines with fresh installs of supported Windows OS versions. vSpace Pro Enterprise Edition relies on Remote Desktop Services thus the Remote Desktop Services must remain enabled after vSpace Server installation to ensure correct system operation. When installing vSpace Pro Enterprise Edition on a standalone Windows Server (not belonging to Active Directory domain) the Remote Desktop Services will be automatically enabled during vSpace Server installation. When installing vSpace Pro Enterprise Edition on a Windows Server joined to an Active Directory domain the Remote Desktop Services must be enabled prior to vSpace Pro Enterprise Edition installation.

Any application software should be installed after completing vSpace Pro Enterprise Edition installation and rebooting the system.

Refer to '[vSpace Pro Quick Installation Guide](#)' for more detailed installation instructions.

## UPGRADING INFORMATION:

vSpace Pro Enterprise Edition can only be installed on machines running supported Windows OS, where no vSpace Pro 10.x nor vSpace Server 8.x is installed, as upgrades from these versions are not supported. Upgrades from vSpace Pro 11.0 (version released to selected customers only), 11.1, 11.2, and 11.3 LTS, as well as from earlier versions of vSpace Pro Enterprise Edition versions 12.x are supported.

## LEAF OS MANAGEMENT:

vSpace Console included in this vSpace Pro Enterprise Edition release can only manage a subset of LEAF OS configuration settings. For full LEAF OS feature set management, the separate PMC device management system should be used.

## LEAF OS CONNECTION LICENSE & TRIAL MODE:

LEAF OS is compatible with vSpace Pro Enterprise Edition (version 12.3.0 and above). LEAF OS software can be downloaded and try for free.

By default, vSpace Pro Enterprise Edition provides a LEAF OS trial mode of up to five 10-minute vSpace concurrent sessions. After 10 minutes, the session will be 'signed out'. You can sign-in again to continue evaluating the product.

To remove the five 10-minute vSpace concurrent session limit, LEAF OS Connection Licenses are required based on the number of LEAF OS computers concurrently connected to vSpace Pro Enterprise Edition sessions.

Please note that AMP compliance is required to use vSpace Pro Enterprise. LEAF OS Connection Licenses are available with the following SKUs:

- LeafOS-SW-1A (1 year)
- LeafOS-SW-3A (3 years)
- LeafOS-SW-5A (5 years)

## RX300 FIRMWARE:

This vSpace Pro Enterprise Edition comes with RX300 firmware version 4.0.5. For correct operation with this vSpace Pro version and to ensure best performance and remote management all RX300 devices need to be upgraded to firmware version 4.0.5.

vSpace Console included in vSpace Pro Enterprise Edition can only manage a subset of RX300 configuration settings. For full RX300 feature set management the separate PMC device management system should be used (requires active Annual Maintenance Program).

## RX-RDP+ AND RX420(RDP) FIRMWARE:

RX-RDP+ and RX420(RDP) endpoints are compatible with vSpace Pro Enterprise Edition (version 12.4.0 and above).

By default, vSpace Pro Enterprise Edition provides a vSpace trial mode of up to five 10-minute vSpace concurrent sessions, including RX-RDP+ and RX420(RDP) endpoints. After 10 minutes, the session will be 'signed out'. You can sign-in again to continue evaluating the product.

To remove the five 10-minute vSpace concurrent session limit for RX-RDP+ and RX420(RDP), vSpace Pro Client Licenses are required based on the number RX-RDP+ and RX420(RDP) concurrently connected to vSpace Pro Enterprise Edition sessions.



Please note that AMP compliance is required to use vSpace Pro Enterprise. vSpace Pro Client Licenses are available with the following SKUs:

- vSpacePro-SW-1A (1 year)
- vSpacePro-SW-3A (3 years)
- vSpacePro-SW-5A (5 years)

vSpace Console included in this vSpace Pro Enterprise Edition release can only manage a subset of RX-RDP+ and RX420(RDP) configuration settings. For full RX-RDP+ and RX420(RDP) feature set management, the separate PMC device management system should be used.

## L-SERIES FIRMWARE:

This vSpace Pro Enterprise Edition comes with L-series firmware version 1.15.8. For correct operation with this vSpace Pro version and to ensure best performance and device management all L-series devices need to be upgraded to firmware version 1.15.8.

## M/MX-SERIES FIRMWARE:

This vSpace Pro Enterprise Edition comes with M/MX-series firmware version 2.4.8. For correct operation with this vSpace Pro version and to ensure best performance and remote management all M/MX-series devices need to be upgraded to firmware version 2.4.8.

## ADDITIONAL NOTES AND WORKAROUNDS:

- **Native (functional) redirection of webcams in vSpace sessions**  
vSpace Pro Enterprise 12.5.2 supports native webcam redirection functionality. On Windows Server 2016, 2019 and on Windows 10, each user, under Privacy settings, needs to allow the applications to access the redirected camera.
- **Enhanced audio protocol for L-series, M-series and MX-series thin clients**  
vSpace Pro Enterprise Edition comes with enhanced audio protocols for the above thin clients to provide better audio delivery including website video content and flash video content.
  - (a) In the case if the user still experiences interrupted and/or distorted audio quality during rich-content playback (e.g. Flash content), please refer to the instruction below to modify the registry key value to further improve the audio quality:  
Add the variable “[PollingTimeout](#)” in the “[HKLM\SYSTEM\CurrentControlSet\Control\MultiUser](#)” key in the registry.
    1. By default, “[PollingTimeout](#)” is set at 20 milliseconds.
    2. Increase this value to 40 milliseconds to check for audio quality improvement.

3. If further audio quality improvement is needed, increase this value to a maximum of 60 milliseconds without affecting the user experience.

Note: The “PollingTimeout” registry value needs to be in 32-bit D-word value. The value is represented in milliseconds (i.e. 1000 = 1 second)

- (b) In the case if the user wants to revert back to the previous audio protocol used in vSpace Pro 10.x or 11.x for their L-series, M-series or MX-series thin client, please follow the instructions below:

1. To revert L-series thin client audio protocol to the previous vSpace Pro 10.x or 11.x method:

[HKLM\SYSTEM\CurrentControlSet\Control\Multiuser\VDM\LVAudio\AudioL300](#)

Change the “\_Protocol Id” from “1” (new protocol) to “0” (legacy protocol)

2. To revert M-series thin client audio protocol to the previous vSpace Pro 10.x or 11.x method:

[HKLM\SYSTEM\CurrentControlSet\Control\Multiuser\VDM\LVAudio\AudioM300](#)

Change the “\_Protocol Id” from “1” (new protocol) to “0” (legacy protocol)

3. To revert MX-series thin client audio protocol to the previous vSpace Pro 10.x or 11.x method:

[HKLM\SYSTEM\CurrentControlSet\Control\Multiuser\VDM\LVAudio\AudioMX100](#)

Change the “\_Protocol Id” from “1” (new protocol) to “0” (legacy protocol)

- **Support for USB signature pad models:**

Following are USB signature pad models which have been pre-configured in vSpace Pro 11.3 server (and later versions) with proper server isolation (i.e. user A will not see the signature pad connected to user B).

On RX-series thin client, generic USB redirection policy must be applied to the connected signature pad for the peripheral to be recognized by vSpace. This can be done in RX-series device Setup > Peripherals > Custom VID:PID. Enter the VID and PID of the connected signature pad so this peripheral will redirect to the vSpace Server.

- VID:PID: 056A:00A1 Model: WACOM STU-500
- VID:PID: 056A:00A2 Model: WACOM STU-300
- VID:PID: 056A:00A3 Model: WACOM STU-520A
- VID:PID: 056A:00A4 Model: WACOM STU-430
- VID:PID: 056A:00A5 Model: WACOM LCD Signature Pad STU-530
- VID:PID: 056A:00A6 Model: WACOM STU-430V
- VID:PID: 056A:00A7 Model: WACOM LCD Signature Pad STU-530V
- VID:PID: 056A:00A8 Model: WACOM LCD Signature Pad STU-540

- VID:PID: 056A:00A9 Model: WACOM LCD Signature Pad STU-541
  - VID:PID: 0403:6001 Model: Topaz Signature Gem T-LBK462-BSB-R
  - VID:PID: 06A8:0043 Model: Topaz Signature Gem T-L462-HSB-R
- **Native (functional) redirection of smart card readers**  
Functional redirection of smart card readers leverages the PC/SC daemon and smart card reader drives embedded in the device firmware. Please refer to RX-series device firmware Release Notes for list of smart card reader drivers that are supported with native redirection.

- **vCAST Media Streaming**

vCAST Media Streaming supports up to and including VLC Player version 3.0.6.

- **The ‘USB Audio Redirection’ option on L-series firmware**

By default the “USB Audio Redirection” option in the L-series firmware is not enabled, **this is the recommended configuration**. vSpace Server sessions will default to use the ‘NComputing virtual audio device’ for playback and recording of locally connected USB headset (or other USB audio device) to an L-series client. This is the simplest and recommended setup. In this case when both USB and analog headset are simultaneously connected to an L-series client, the client device will default to use the connected USB headset for all audio playback and recording.

With “USB Audio Redirection” enabled vSpace provides redirection of the USB audio device to the host Windows server and uses the host servers appropriate Windows audio device driver for playback and recording to and from USB audio devices that are connected to an L-series device. In this case the users Windows session will report the USB audio device name in the Windows device manager alongside the ‘NComputing virtual audio device’.

With the ‘USB Audio Redirection’ option enabled the user in his/her vSpace Server session can access two audio devices:

- 1) the ‘NComputing virtual audio device’ (with input/output assigned to the L-series’ integrated audio jacks),
- 2) the locally connected USB audio device with its original name.

Using a USB headset (or other USB audio device) with the ‘USB Audio Redirection’ option turned on usually allows a higher audio sampling rate (which should result in improved sound quality), but also consumes increased network bandwidth as larger amounts of audio data are required to be transferred between the vSpace Server and the client device. As USB audio devices tend to be timing sensitive, the sound may occasionally get choppy or stutter if the network is not able to sustain the audio data traffic data rates in a busy network environment. In some circumstances, where L350 devices are used with HD monitors, in rare occasions it is possible for audio playback to be disabled when playing web videos, if you experience this problem you will need to re-boot your L350 access device. For this reason, we do not recommend using USB Audio redirection with L350 access devices.

- **Truncation of the last few seconds of sound recording**

Under certain system and network conditions, when recording sound without enabling the 'USB Audio Redirection' option, the recording start time may be delayed and the last few seconds of the recording might be truncated. This happens because the client device buffers voice data prior to it being sent to vSpace Server. The keyboard and mouse events however will be sent immediately, without buffering. This results in the sound recording application to receive the "stop recording" event before receiving all the recorded data. To avoid the possibility of truncated recordings users should wait a second or two after finishing the recording before stopping a recording. To minimize this effect, the UseAdvancedMicThread REG\_DWORD value can also be set to 0 in the HKLM\SYSTEM\CurrentControlSet\Control\Multiuser registry key on the vSpace Server.

- **HTML5 video playback with Internet Explorer 11**

To ensure successful playback of HTML5 videos on Windows Server 2008 R2 the Desktop Experience feature and an update for the Desktop Experience Decoder must be installed.

See: <https://support.microsoft.com/en-us/kb/2483177> for more details.

- **Power Plan settings of vSpace Server**

When using vSpace Server, especially on desktop versions of Windows OS, the Power Plan settings should be configured in a way, which will never allow the hard disks to be turned off or the computer to enter the sleep or hibernation state after a period of inactivity.

- **Using a physical host with AMD/ATI GPU**

When using a physical host with AMD/ATI GPU it's advisable to install the video driver only, without the Catalyst Control Center (CCC.exe) utility. This would prevent potential memory leak in AMD's Catalyst Control Center which may affect system instability.

## CONTACTING TECHNICAL SUPPORT AND ADDITIONAL RESOURCES

- Visit the NComputing [vSpace Pro website](#) to learn about the benefits and common FAQs for vSpace Pro Enterprise Edition
- Learn more about NComputing's Annual Maintenance Program (AMP) and its benefits: <https://www.ncomputing.com/products/vSpace/vSpace%20Pro%20Annual%20Maintenance%20Plan>
- Please use the following link to review the updated terms in the NComputing end user license agreement for vSpace Pro: <https://support.ncomputing.com/portal/kb/articles/ncomputing-software-eula>
- Visit the NComputing Knowledge Base at <https://support.ncomputing.com/portal/kb> for more information, guides, and walkthroughs.
- To request Technical Support, please visit the NComputing Support page at <https://www.ncomputing.com/support/support-options>

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