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Dell Wyse ThinOS Version 8.6 Release Notes

Dell Wyse ThinOS software is designed to run on a broad array of Dell Wyse hardware platforms. New releases are created to support new hardware platforms, correct defects, make enhancements, or add new features. These releases are tested and supported on current, actively shipping hardware platforms, and those hardware platforms that are within their first year after their official End of Life date. Beyond the one year time period, new software releases are no longer certified for use with the older hardware, even though it is possible that they may still work. This allows us to advance our product with features and functions that might not have been supported by the previous hardware, with previous generation CPUs and supporting components.

Current Version: 8.6
Release Date: November 2018

Contents

Release type and definition

This release note contains information about the new features, supported platforms, and tested environment for ThinOS version 8.6.

Supported platform

The following table provides the list of supported platforms in this release:

Table 1. Platform and build information

Platform	ThinOS	ThinOS with PCoIP
Wyse 3040 thin client	A10Q_wnos	PA10Q_wnos
Wyse 5060 thin client	D10Q_wnos	PD10Q_wnos
Wyse 5010 thin client	ZD10_wnos	PD10_wnos
Wyse 7010 thin client	ZD10_wnos	Not available
Wyse 5040 AIO thin client	ZD10_wnos	PD10_wnos
Wyse 3030 LT thin client	U10_wnos	PU10_wnos
Wyse 3020 thin client	T10D_wnos	Not available
Wyse 3010 thin client	DOVE_boot	Not available
Wyse 5070 thin client	X10_wnos	PX10_wnos

BIOS information

The following table provides the list of latest BIOS available with this release:

Table 2. BIOS information

Platform	BIOS version
Wyse 3010 thin client	EC 3.02
Wyse 3020 thin client	wloader 7.1_216
Wyse 5010 thin client	3.0U
Wyse 5040 thin client	3.0U
Wyse 5060 thin client	1.0H
Wyse 3030 LT thin client	1.0G
Wyse 3040 thin client	1.2.5
Wyse 7010 thin client	3.0U
Wyse 5070 thin client	1.1.3

Packages

The following table provides the list of the packages that are included in ThinOS version 8.6 release:

NOTE: Dell recommends that you use these packages along with the released ThinOS firmware.

Table 3. Packages

Package name	Version
FR.i386.pkg	1.24.51190
JVDI.i386.pkg	12.1.51895
horizon.i386.pkg	4.8.51816
RTME.i386.pkg	2.5.49272
TCX.i386.pkg	7.1.41853

NOTE: JVDI package is introduced from ThinOS version 8.6 to support Cisco Jabber. When you download the JVDI.zip package, the README WITH EULA.txt and JVDI.i386.pkg files are unzipped. Ensure that you open the readme file and read the EULA agreement. For more information about installing the JVDI package on ThinOS, see the *Dell Wyse ThinOS Version 8.6 Administrator's Guide* at www.dell.com/support.

Feature support matrix

The following table provides the list of new features that are supported on each platform:

Table 4. Feature support matrix

Feature	Wyse 3010 thin client	Wyse 3020 thin client	Wyse 5010 thin client	Wyse 5040 thin client	Wyse 7010 thin client	Wyse 3030 LT thin client	Wyse 3040 thin client	Wyse 5060 thin client	Wyse 5070 thin client
Cisco Jabber Softphone for VDI	Not supported	Not supported	Not supported	Not supported	Not supported	Not supported	Limited support*	Limited support*	Limited support*
Update RTME Package to version 2.5	Not supported	Not supported	Limited support*	Limited support*	Limited support*	Limited support*	Limited support*	Limited support*	Limited support*
VMware Horizon Virtualization Pack for Skype for Business	Not supported	Not supported	Limited support*	Limited support*	Limited support*	Limited support*	Limited support*	Limited support*	Limited support*
Upgrade Horizon package to version 4.8	Not supported	Not supported	Limited support*	Limited support*	Limited support*	Limited support*	Limited support*	Limited support*	Limited support*
Multiple logins with Citrix and VMware Horizon	Supported	Supported	Supported	Supported	Supported	Supported	Supported	Supported	Supported
BIOS update	Not supported	Not supported	Supported	Supported	Supported	Supported	Supported	Supported	Supported
Export and restore BIOS settings	Not supported	Not supported	Supported	Supported	Supported	Supported	Supported	Supported	Supported
Package check	Not supported	Not supported	Supported	Supported	Supported	Supported	Supported	Supported	Supported

Feature	Wyse 3010 thin client	Wyse 3020 thin client	Wyse 5010 thin client	Wyse 5040 thin client	Wyse 7010 thin client	Wyse 3030 LT thin client	Wyse 3040 thin client	Wyse 5060 thin client	Wyse 5070 thin client
Telnet	Supported	Supported	Supported	Supported	Supported	Supported	Supported	Supported	Supported
Report locally attached devices to Wyse Device Manager	Supported	Supported	Supported	Supported	Supported	Supported	Supported	Supported	Supported
Vertical Synchronization	Not supported	Not supported	Supported	Supported	Supported	Not supported	Supported	Supported	Supported
PCoIP connections using Teradici Remote Workstation card	Not supported	Not supported	Limited support*	Limited support*	Limited support*	Limited support*	Limited support*	Limited support*	Limited support*
Okta integration through Citrix NetScaler	Supported	Supported	Supported	Supported	Supported	Supported	Supported	Supported	Supported
Display selection when launching RDP connection in full screen	Supported	Supported	Supported	Supported	Supported	Supported	Supported	Supported	Supported
Desktop scaling factor for RDP connection	Supported	Supported	Supported	Supported	Supported	Supported	Supported	Supported	Supported
Icon folders for StoreFront interface	Supported	Supported	Supported	Supported	Supported	Supported	Supported	Supported	Supported
Caradigm Way2Care enhancement	Supported	Supported	Supported	Supported	Supported	Supported	Supported	Supported	Supported
Wireless IP configuration	Supported	Supported	Supported	Supported	Supported	Supported	Supported	Supported	Supported
By default, DP audio is disabled (Factory default settings)	Not supported	Not supported	Not supported	Not supported	Not supported	Not supported	Supported	Not supported	Not supported
Changes to monitor priority on Wyse 5070 Extended thin client	Not supported	Not supported	Not supported	Not supported	Not supported	Not supported	Not supported	Not supported	Supported
Display GUI update	Supported	Supported	Not supported	Not supported	Not supported	Not supported	Not supported	Not supported	Supported

* Only certain features are supported.

Citrix Receiver feature matrix

Table 5. Citrix Receiver feature matrix

Features		Operating System—ThinOS
Content	XenApp Applications	Supported
	XenDesktop Desktops	Supported
	Follow Me Apps/Subscriptions	Supported
	Offline Apps (App V)	Not applicable
	File Open In Receiver	Not applicable
	Desktop Viewer/Toolbar	Not supported
	Multitasking	Supported
	Follow Me Sessions (Workspace Control)	Supported
	URL Redirection	Not supported
HDX	Audio Playback	Supported
	UDP Audio	Supported
	Bidirectional Audio (VoIP)	Supported
	Web Cam (Video Chat)	Supported
	Video Playback	Supported
	Flash Redirection	Supported (x86 only)
	Skype for business Optimization pack	Supported (x86 only)
	Cisco Jabber Unified Communications Optimization	Supported (x86 only)
	Windows Multimedia Redirection	Supported
	Local Printing	Supported
	H.264-enhanced SuperCodec	Supported
	Adaptive Transport	Limited support[1]
	Framehawk	Not supported
	Client hardware acceleration	Limited support
	Desktop Composition redirection	Not supported
	3DPro Graphics	Supported
	Remote FX	Not supported
	Location-Based Services	Not supported
	Client drive mapping/File Transfer*	Supported
	Generic USB redirection	Supported
	SDWAN Support	Verification needed
	Local App Access	Not applicable

Features		Operating System—ThinOS
	Multi-touch	Not supported
	Mobility Pack	Not applicable
	HDX Insight	Supported
	Experience Metrics	Supported
	External Monitor	Supported
	True Multi Monitor	Supported
	Session Sharing	Supported
	Session Reliability	Supported
	Auto Client reconnect	Supported
	Multi-port ICA	Supported
Security and communication	Receiver for Web Access	Not applicable
	Remote Access via NetScaler Gateway	Supported
	NetScaler Full VPN	Supported
	RSA Soft Token	Supported
	Challenge Response SMS	Supported
	User Cert Auth via NetScaler Gateway	Supported
	Smart Card (CAC, PIV and so on)	Supported
	Proximity/Contact less Card (Fast Connect)	Supported
	Pass Through Authentication	Supported
	SAN Cert	Verification needed
	SHA2 Certs	Supported
	TLS 1.1/1.2	Supported
	AES and 3DES Encryption	Supported
	Smart Access	Supported
	IPv6	Supported
Updates	Auto Discovery/Configuration	Not supported
	App Store Updates/Citrix updates	Not supported

*File transfer feature applies to HTML5/Chrome Receiver only.

[1]Adaptive transport is a data transport mechanism for Citrix Virtual Apps and Desktops. This mechanism enables the underlying protocol to switch between the Citrix protocol called Enlightened Data Transport (EDT) and Transmission Control Protocol (TCP) for better performance. EDT is added on top of UDP and enhances the data throughput for all ICA virtual channels. ThinOS supports adaptive transport using Transmission Control Protocol (TCP), and does not support adaptive transport through User Datagram Protocol (UDP) except the audio channel. For more information about Adaptive transport, see docs.citrix.com/en-us/citrix-virtual-apps-desktops/technical-overview/hdx/adaptive-transport.html.

For more information about Citrix Receiver features, see the Citrix documentation at www.citrix.com.

VMware Horizon feature matrix

Table 6. VMware Horizon feature matrix

	Client type	Operating System—ThinOS
Client appearance and workflow	Customer branding	Not supported
	Kiosk mode	Supported*
	Localization (EN, FR, DE, JP, CH, KR, SP)	Supported*
Broker connectivity	XML - API Version	14
	SSL, SSL Certificate Verification	Supported*
	Disclaimer Dialog	Supported*
	Security Server compatibility	Supported*
	Multi Broker/Multi Site Redirection -DaaS	Not supported
	Client Information	Supported*
	Phonehome	Not applicable
	USB Phonehome	Not applicable
Broker authentication	Password authentication and password change	Supported*
	RSA authentication	Supported*
	Radius	Supported*
	Integrated RSA SecurID token generator	Supported*
	Log in as current user, Nested log in as current user	Not supported
	Biometric authentication	Not supported
	Unauthentication access	Supported*
Smart card	x.509 certificate authentication	Supported*
	CAC support and .Net support	Supported*
	PIV support	Supported*
	Derived credentials	Not supported
Desktop operations	Reset and Restart	Supported*
	Log out	Supported*
Session authentication	Smart card	Supported*
	Single Sign-On	Supported*
Session management (Blast Extreme and PCoIP)	Switch desktops	Supported*
	Auto-retry	Supported*
	Full screen mode, Full screen toolbar	Supported*
	Window mode	Supported*
	Time zone synchronization	Supported*

	Client type	Operating System—ThinOS
	Jumplist integration (Windows 7-Windows 10)	Not supported
Client customization	Command-Line options	Not supported
	URI schema	Not supported
	Preference file	Not supported
	Non Interactive Mode	Not supported
	GPO-based customization	Not supported
Protocols	Blast Extreme	Supported*
	Blast H.264 -HW decode	Supported*
	Blast JPEG / PNG	Supported*
	Blast Extreme adaptive transportation	Supported*
	RDP 6.x and RDP 7.x	Supported*
	RDP 8.x and 10.x	Supported*
	PCoIP	Teadici is supported
Protocol enhancements	RDP—VC Bridge	Supported*
	Session Enhancement SDK	Not supported
Monitors/displays	Dynamic display resizing	Supported*
	Multiple monitor support and multiple monitor selection	Supported*
	External monitor support	Not applicable
	Display pivot	Supported*
	Multiple aspect ratio support	Supported*
	Number of displays supported	4
	Maximum resolution	3840x2160
	Video out	Supported*
	High DPI scaling and DPI Sync	Supported*
	Exclusive mode	Not supported
Input device—keyboard/ mouse	Relative mouse	Not supported
	Local buffer text input box	Not supported
	Keyboard mapping	Supported*
	Unicode keyboard support	Not supported
	International keyboard support	Supported*
	Input method local/remote switching	Not supported
	IME Sync	Not supported
Clipboard services	Clipboard text	Supported*
	Clipboard graphics	Not supported
	Clipboard memory size configuration	Not supported

	Client type	Operating System—ThinOS
Client caching	View Agent to Client—side caching	Not supported
Connection management	Blast network recovery	Supported*
	IPv6 support	Supported in Blast session
	PCoIP IP roaming	Supported*
High-level device redirection	Serial (COM) port redirection	Not supported
	Client Drive redirection/File transfer	Supported*
	Scanner (TWAIN/WIA) Redirection	Not supported
	x.509 Certificate (Smart card)	Supported*
Real-time Audio-Video	Real-time Audio-Video	Supported*
USB Redirection	Generic USB/HID	Supported*
Unified communications	Cisco UC Jabber	Not supported
	Avaya UC One-X Desktop	Not supported
	Microsoft Lync 2013	Not supported
	Skype for business	Supported in Blast session
Multimedia	Multimedia Redirection (MMR)	Not supported
	Flash URL Redirection (Unicast/Multicast)	Not supported
	Flash Redirection	Not supported
Graphics	vDGA, vSGA, Intel vDGA, AMD vGPU	Supported in VDI session
	NVIDIA GRID VGPU	Supported*
Printing	Printer Redirection, Location Based Printing	Supported in Blast session
Security	FIPS-140-2 mode support	Not applicable
	Imprivata Integration	Supported*
	TLS 1.0, TLS 1.1, TLS 1.2	Supported*
	Client Device Authentication	Not supported

*Supported with VDI, RDS Hosted Desktops and applications.

For more information about VMware Horizon features, see the VMware Horizon documentation at www.vmware.com.

Important notes

This section contains information about firmware upgrade and system configuration that you need to know before using ThinOS version 8.6.

Firmware upgrade and downgrade

- On Wyse 5070 Extended thin client, the AMD firmware is upgraded to a newer version. If you want to downgrade ThinOS from 8.6 to 8.5.1, you must shut down and boot the thin client again. If you do not shut down and reboot, a black screen is displayed on the monitor that is connected to the AMD GPU port. Also, the AMD DP port sequence is updated.

- On Wyse 5070 thin clients, the Bluetooth firmware is upgraded to a newer version from ThinOS 8.5_108. If you want to update the thin client with the Bluetooth module from ThinOS version 8.5_107 to 8.5_108 or later, Dell recommends that you disconnect the power cable and connect the power cable again before you reboot.
- ThinOS 8.6 stores the installed packages (except base and pcoip) in the hidden partition. When you downgrade ThinOS firmware to previous versions, and upgrade the firmware to 8.6 again, the ThinOS device reinstalls the stored packages from the hidden partition. You can delete the package to clean the backup data from the device.
- When you use a file server to update BIOS for Wyse 5060 and 3030 LT thin clients, the BIOS update progress bar disappears after the BIOS update process is complete, and the system reboots after one minute. You must not manually reboot the thin client. During reboot, a black screen is displayed for one minute, and then the device resumes the BIOS update.
- From ThinOS version 8.6, the 16-bit desktop color option is removed from Wyse 3010 and 3020 thin clients.
- From ThinOS version 8.6, the Merlin images include both RTME and Horizon packages.
- From ThinOS version 8.6, the DP audio is disabled by default on Wyse 3040 thin client.
- You must install the JVDI package to use Cisco Jabber.
- If you push Merlin images on Wyse 5010, 5040, and 7010 thin clients with 4 GB or higher flash size, the RTME and Horizon packages are formatted.

System configuration and deployment

- USB redirection must be disabled for audio and video devices to use RTME/RTAV/SFB/JVDI. By default, the USB redirection is disabled on ThinOS. Dell recommends that you do not modify the default settings unless you need the USB redirection for audio and video devices.
- ThinOS BIOS policy can be configured using Wyse Management Suite Console, Wyse Management Suite group INI, Wyse Management Suite advanced settings and FTP INI. Dell recommends that you use any one of the methods to configure the BIOS policy. Setting the BIOS policy simultaneously using different methods may cause a policy mismatch, and the device reboots repeatedly. This reboot loop issue is observed when you select the **reboot immediately** option in the **BIOS policy** settings section on the Wyse Management Suite console.
- All the installed packages are deleted when you update the ThinOS image version between major releases—8.5 or 8.5.1 to 8.6—using FTP, WDM, or Wyse Management Suite.

  Solution for updating firmware using FTP and WDM—Ensure that you have set the PKG install parameters in the WNOS.ini, and the pkg files are uploaded in the directory. After the device reboot, the packages are re-installed automatically.

  Solution for updating firmware using Wyse Management Suite—Wyse Management Suite App policy works only once after the policy is created. The deleted package cannot be reinstalled using the same policy. Dell recommends that you create a new App policy to install the package after the firmware update is complete.
- WDM vulnerability is fixed in this release. You must configure either the DHCP or the DNS option/record of the WDM server fingerprint to automatically fetch and validate the fingerprint before checking in to the WDM server. However, there is no impact to the ThinOS device functionality if you do not to configure the fingerprint validation environment. For more information about how to set up fingerprint using WDM, see the Frequently asked questions section in the *Dell Wyse ThinOS Version 8.6 Administrator's Guide* at www.dell.com/support.

New and enhanced features

Cisco Jabber Softphone for VDI

Cisco Jabber Softphone for VDI (JVDI) is the Unified Communications solution that is offered by Cisco for virtual deployments. It supports audio-video conferencing, and instant messaging on the hosted virtual desktops (HVD). The Cisco Jabber Softphone for VDI software offloads the audio or video processing from the virtual desktop servers to the thin client. All audio and video signals are routed directly between the endpoints without entering the HVD.

Cisco Jabber Softphone for VDI enables you to make and receive calls using the Cisco Unified Communications application. Cisco Jabber Softphone for VDI consists of the following two components:

- Cisco JVDI Agent

- Cisco JVDI Client

Cisco JVDI Agent is the JVDI connector that runs on the Citrix desktop or server. Cisco JVDI client is the JVDI package that runs on the thin client. The Jabber client that runs on the Citrix server handles the authentication and the media processing is achieved on the thin client.

Table 7. Supported matrix

Component	Supported platforms/supported versions
Thin client	• Wyse 5070 thin client • Wyse 5060 thin client • Wyse 3040 thin client
Connection broker for the hosted virtual desktops	• Citrix Virtual Apps and Desktops (formerly XenDesktop) 7.x and later • Citrix Virtual Apps (formerly XenApp) 7.x and later
Cisco Jabber application on the hosted virtual desktop	Cisco Jabber 12.1.0.16460
Cisco JVDI agent on the hosted virtual desktop	Cisco JVDI Agent 12.1.0.266460
Cisco JVDI client on the thin client	JVDI.i386.pkg

The following table provides the data statistics for the platforms that are running JVDI with 720p resolution:

Table 8. Performance data statistics

Platform	XenDesktop	VDI	Video call resolution	FPS	Client CPU average usage—default window mode video call	Client CPU average usage—fullscreen video call
Wyse 5070 thin client	7.15 LTSR	Windows 10 (64-bit)	1280 x 720p	30	34-46%	75-80%
Wyse 5060 thin client	7.15 LTSR	Windows 10 (64-bit)	1280 x 720p	30	65-70%	83-88%
Wyse 3040 thin client	7.15 LTSR	Windows 10 (64-bit)	1280 x 720p	30	84-90%	98-100%

The following table provides the data statistics for the platforms that are running JVDI with 360p resolution:

NOTE: Dell recommends that you reduce the video resolution to 640 x 360p with 30fps on the Wyse 3040 thin client.

Table 9. Performance data statistics

Platform	XenDesktop	VDI	Video call resolution	FPS	Client CPU average usage—default window mode video call	Client CPU average usage—fullscreen video call
Wyse 5070 thin client	7.15 LTSR	Windows 10 (64-bit)	640 x 360p	30	21-28%	64-76%
Wyse 5060 thin client	7.15 LTSR	Windows 10 (64-bit)	640 x 360p	30	38-50%	72-79%
Wyse 3040 thin client	7.15 LTSR	Windows 10 (64-bit)	640 x 360p	30	56-61%	89-95%

Limitations

- JVDI package cannot be installed on Dell Wyse 3030 LT, 5040, 5010, and 7010 thin clients.
- Dell Wyse 3040 thin client supports video call up to 360p. The video call with 720p is not supported due to high CPU cost with multimedia playback simultaneously. Dell recommends that you restrict the video up to 360p in the server settings.
- You cannot use the headset key to pick/end calls. This issue will be resolved in next release.
- Dell does not recommend video call in 4K display resolution on all platforms due to low performance.
- JVDI version in ThinOS 8.6 must be compatible with JVDI agent and Jabber version. For example, JVDI version 12.1 in ThinOS 8.6 supports JVDI agent and Jabber version 12.1.
- Audio output is poor when you enable the JVDI audio during the full screen video call on Wyse 5060 and 3040 thin clients. This is due to hardware performance limitation. Wyse 5070 thin client supports full screen video call with good audio output.

NOTE: JVDI package is introduced from ThinOS version 8.6 to support Cisco Jabber. You must download the JVDI package from the Driver and Downloads tab on your respective thin clients page at www.dell.com/support. When you download the JVDI.zip package, the README WITH EULA.txt and JVDI.i386.pkg files are unzipped. Ensure that you open the readme file and read the EULA agreement before you deploy the package to the ThinOS client.

For more information about Cisco Jabber Softphone for VDI installation procedure, see the *Dell Wyse ThinOS Version 8.6 Administrator's Guide* at www.dell.com/support.

NOTE:

- For more details about accessories for camera, headsets, speakers, see www.cisco.com/c/en/us/products/unified-communications/uc_endpoints_accessories.html.
- For more information about the Cisco Jabber issues, see the *Release notes for Cisco Jabber Softphone for VDI* at www.cisco.com.
- For information about troubleshooting your Cisco Jabber, see the *Deployment and Installation Guide for Cisco Jabber Softphone for VDI* at www.cisco.com.

Table 10. Known issues

Issue number	Description	Workaround
TIR97286	JVDI audio volume slider does not change the audio volume in Wyse 3040 thin client. This issue is due to Cisco Jabber limitation. For more information about the Cisco Jabber issues, see the *Release Notes for Cisco Jabber Softphone for VDI—Release 12.1* document at www.cisco.com.	Adjust audio volume by using either the ThinOS volume bar, session sound volume, or headset button.
TIR97605/TIR98498	Self-camera or remote video does not work, or a black screen is displayed when you play a video. For more information about the Cisco Jabber issues, see the *Release Notes for Cisco Jabber Softphone for VDI—Release 12.1* document at www.cisco.com.	Sign out of the session or reboot the ThinOS client and register the JVDI again.
TIR97653	ICA session cannot be launched and WdReceiv: trap 14 error occurs when you enable the ICA session reliability with multiport in JVDI environment.	Enable ICA session reliability without enabling multiport in JVDI environment.
TIR97523	Answer/End/Hold options in headset do not work during the JVDI call.	You can Answer/End/Hold the call by using the Jabber application in the VDI session.
TIR98792	DP audio does not work in JVDI. When you switch the DP audio in the JVDI device selector, the JVDI may re-register again and a redundant DP audio is listed in device selector. JVDI VXC process should not restart when you hotplug or turn off/on the monitor when using the DP audio in JVDI.	Sign out of the ICA session or reboot the ThinOS client. If you require DP audio, Dell recommends that you first set the DP audio in the ThinOS client and then launch the ICA session.

Update RTME package to 2.5

RTME package—RTME.i386.pkg—is updated to version 2.5.49272. For information about installation and compatibility, see the Citrix RTOP version 2.5 documentation at www.citrix.com/support.

Limitation—ThinOS RTME package update does not support hardware acceleration. For more information, see docs.citrix.com/en-us/hdx-optimization/current-release.

Upgrade Horizon package to version 4.8

In ThinOS version 8.6, you can upgrade the thin client from Horizon version 4.6 to 4.8. VMware Horizon Virtualization Pack for Skype for Business is supported from this release onwards.

Horizon Client version 4.8 and Agent version 7.5 Virtualization Pack for Skype for Business are not compatible with older Horizon Client and Agent releases. If you use Horizon Client 4.8 or later and Horizon Agent 7.5 and later with older Client and Agent releases, then the fallback mode will be enabled on Skype for Business calls. For more information about the Compatibility of Horizon Virtualization Pack for SFB Components, see kb.vmware.com/s/article/54773.

NOTE:

- If you are upgrading your previous ThinOS client version to 8.6, you must ensure that the Horizon server or agent version is updated to support the Horizon client version 4.8. For information about interoperability matrices for client and server/agent version compatibility, see https://www.vmware.com/resources/compatibility/sim/interop_matrix.
- ThinOS supports the hardware cursor in the VMware Blast session. By default, the hardware cursor is disabled. You must use the INI parameter to enable the hardware cursor. For more information about enabling the hardware cursor using the INI parameter, see the *Dell Wyse ThinOS Version 8.6 INI Reference Guide* at www.dell.com/support.

Limitations

- ThinOS supports up to four 4K displays with limited performance in the Horizon Blast session. Due to low performance, Dell does not recommend using four displays with 4K resolution when H264 is enabled.
- Vertical Synchronization does not work in Blast session with four 4K resolution.
- Video performance is low whe you play a video in Blast session with 4K resolution.
- ThinOS supports audio device USB redirection. However, Dell does not recommend using audio device USB direction due to low audio quality.

VMware Horizon Virtualization Pack for Skype for Business

The VMware Horizon Virtualization Pack for Skype for Business enables you to use Skype for Business in a VMware Horizon desktop. Microsoft Skype for Business is a unified communications platform that delivers an optimized user experience for online messaging, audio, and video calling and so on.

ThinOS supports VMware Horizon Virtualization Pack for Skype for Business in a Blast session. PCoIP and RDP protocols do not support this feature.

NOTE:

- For information about configuring Skype for Business, and Optimized and fallback modes in Skype for Business, see the *Dell Wyse ThinOS Version 8.6 Administrator's Guide* at www.dell.com/support.
- For information about the Horizon Agent installation, see the *Setting Up Virtual Desktops in Horizon 7* document at docs.vmware.com.

NOTE: Horizon Client 4.8 or later and Horizon Agent 7.5 and later are not compatible with older Client and Agent releases. Due to this limitation, when you use the Horizon Client 4.8 and Horizon Agent 7.5 with older client and agent releases, Skype for Business calls run in fallback mode and calls are not optimized. Ensure that you review the compatibility matrix of Horizon Virtualization Pack for SFB components at kb.vmware.com/s/article/54773.

Table 11. Functionality matrix

Features	Support
P2P audio and video calls	Yes
Conference call	Yes
VDI desktop	Yes
Presence/IM	Yes
RDSH desktop/application	Yes
Call park and pickup	Yes
Call delegation	Yes
Voicemail on Outlook	Yes
PSTN	No
Mute/unmute	Yes
SFB call fallback mode	Yes
Call-transfer and call forward	Yes
Integration with Outlook, PowerPoint, Word, Yammer, and SharePoint	Yes—only PowerPoint is validated.
Multiple monitors	Yes
Do not disturb	Yes

The following table provides the data statistics for Skype for Business performance that is based on 1920 x 1080 display resolution with Logitech 930 Webcam:

NOTE: Performance results may vary with different monitor resolutions and webcams.

Table 12. Performance data statistics

Platform	VDI	Video call resolution	FPS	Client CPU average usage —default window mode video call	Client CPU average usage —full screen video call
Wyse 5070 thin client	Windows 10 (64-bit)	1280 x 720p	30	10-14%	24-30%
Wyse 5060 thin client	Windows 10 (64-bit)	1280 x 720p	30	28-37%	63-68%
Wyse 3040 thin client	Windows 10 (64-bit)	1280 x 720p	30	30-40%	38-55%
Wyse 3030 LT thin client	Windows 10 (64-bit)	1280 x 720p	30	31-40%	64-75%
Wyse 5010 thin client	Windows 10 (64-bit)	1280 x 720p	30	55-65%	94-98%
Wyse 5040 thin client	Windows 10 (64-bit)	480 x 268p	15	45-63%	96-100%
Wyse 7010 thin client	Windows 10 (64-bit)	1280 x 720p	20-23	40-50%	68-80%

ThinOS uses VMware binary. For information about the Skype for Business limitations, see docs.vmware.com/en/VMware-Horizon-7/7.5/horizon-remote-desktop-features.

Table 13. Known issues

Issue number	Description	Workaround
TIR97683	If the Blast session resolution is higher than 1920 x 1080 during SFB calls with full screen, the mouse stops responding.	Do not use full screen during SFB calls in the blast session with resolution greater than or equal to 2560 x 1440.
TIR97223	On Wyse 5010, 5040, and 7010 thin clients, the performance is low during the Horizon SFB video call.	Do not use Horizon SFB video call on Wyse 5010, 5040, and 7010 thin clients.
TIR98356	You cannot use the headset key to pick/end calls in Blast SFB and JVDI.	There is no workaround in this release. This issue will be fixed in next release.
TIR98796	After you install the JVDI package, the Trap 14 error occurs if you switch the playback device from HD audio to DP audio during the Horizon SFB call.	There is no workaround in this release.

Multiple logins with Citrix and VMware Horizon

ThinOS supports PNA multiple login feature. You can log in to multiple Citrix StoreFront or PNAgent using different credentials. From this release onwards, you can simultaneously log in to Citrix StoreFront/PNAgent and the VDM server.

To configure the multiple login feature, do the following:

1 Configure the Pnlite server and VDI broker in the INI file as follows:

```
SelectServerList=vdm; \
description="description" host=<fqdn of Horizon Server>
SelectServerList=pna; \
description="description" host=<fqdn of StoreFront Server>
```

Or

```
multilogon=yes
pnliteserver=<fqdn of StoreFront Server>
VDIBroker=<fqdn of Horizon Server>
```

Or

```
multilogon=yes
SelectServerList=vdm; \
description="description" host=<fqdn of Horizon Server>
SelectServerList=pna; \
description="description" host=<fqdn of StoreFront Server>
```

2 In the login window, select either the Citrix or VMware broker to log in, or log in to both Citrix and VMware brokers with different credentials.

Limitation

ThinOS supports a single VDM login even if the `MultiLogon` parameter is set to yes. When you log in to the first VDI broker successfully, the succeeding VDI brokers are ignored.

For example:

```
multilogon=yes
VDIBroker=<fqdn of Horizon Server 1>;
VDIBroker=<fqdn of Horizon Server 2>
```

If the first VDI broker login is successful, the second VDI broker is ignored. If the first VDI broker login fails, the second VDI broker is considered.

BIOS update

In this release, ThinOS enables you to update BIOS firmware for Wyse 5060 and 3030 LT thin client by using Wyse Management Suite version 1.3.

For information about the upgrading procedure using Wyse Management Suite, see the *Dell Wyse ThinOS Version 8.6 Administrator's Guide* at www.dell.com/support.

Table 14. Support matrix

Platform	BIOS type	Update using Wyse Management Suite	Update using File server
Wyse 5070 thin client	Dell	Supported	Supported
Wyse 3040 thin client	Dell	Supported	Supported
Wyse 5010 or 5040 thin client	Legacy Wyse	Not supported	Supported
Wyse 5060 thin client	Legacy Wyse	Supported	Supported
Wyse 3030 LT thin client	Legacy Wyse	Supported	Supported
Wyse 3020 thin client	Not applicable	Not applicable	Not applicable
Wyse 3010 thin client	Not applicable	Not applicable	Not applicable

Export and restore BIOS settings

This feature enables you to manually save certain CMOS settings to a specified storage and restore it when required. You can save certain BIOS settings from a USB storage or file server and also restore to a USB storage or file server.

The **Extract CMOS** button is used to save BIOS setting and the **Restore CMOS** button is used to restore the BIOS setting.

Table 15. Support matrix

Platform	BIOS type	Export and restore BIOS setting
Wyse 5070 thin client	Dell	Supported
Wyse 3040 thin client	Dell	Supported
Wyse 5010 or 5040 thin client	Legacy Wyse	Supported
Wyse 5060 thin client	Legacy Wyse	Supported
Wyse 3030 LT thin client	Legacy Wyse	Supported
Wyse 3020 thin client	Not applicable	Not supported
Wyse 3010 thin client	Not applicable	Not supported

For instructions on extracting CMOS and restoring CMOS, see the *Dell Wyse ThinOS Version 8.6 Administrator's Guide* at www.dell.com/support.

Limitation—You can only extract the BIOS settings that are supported by the INI parameter `Device=CMOS` and `Device=DellCMOS`.

Package version check

After you install packages, the ThinOS client restarts and verifies the version of the installed packages. If you have not installed the latest package version, an event log is generated. You can view the logs on the **Event Log** tab in the **System Information** window.

Telnet

Telnet is a terminal emulation client that allows you to connect to a remote host or device.

In ThinOS version 8.6, the **Telnet** tab is added in the **Troubleshooting** window. When you enter the hostname and click **Connect**, the **Telnet** window is displayed and the **Troubleshooting** window is closed automatically.

Disable DisplayPort audio

By default, the DisplayPort audio is disabled on Wyse 3040 thin client from this release onwards. This is the factory default setting. You can enable the audio by using the GUI option or the INI parameter.

If you upgrade ThinOS version from 8.5 to 8.6, the DP audio is not disabled by default. This is because the DP audio is enabled by default on thin client running ThinOS version 8.5. You must reset the thin client running ThinOS version 8.6 to factory default settings to load the default setting.

However, thin clients shipped with the latest version of ThinOS are already configured with the default settings.

Table 16. Known issue

Issue number	Description	Workaround
TIR94278	On Wyse 3040 thin client, if you set the display resolution higher than 1920 X 1080, and enable the DisplayPort audio, a black screen is displayed for 10 seconds after the system reboot.	Do not enable the DisplayPort audio.

Report locally attached devices to Wyse Device Manager

This feature reports locally attached devices such as monitor and USB device to the Wyse Device Manager (WDM) server. This information is displayed in the device detail section on the WDM console.

Limitation—ThinOS supports more than 20 USB devices through the USB hub. However, WDM server shows only 10 devices.

Vertical Synchronization

Vertical Synchronization or V-Sync enables the ThinOS client to synchronize the frame rate of a video with the monitor refresh rate to avoid screen tearing. Screen tearing occurs when the graphic processor delivers display frames more than your monitor can process. As a result, the image appears to be cut in half. Enabling VSync synchronizes the output video of the graphics card to the refresh rate of the monitor. In ThinOS version 8.6, V-Sync is enabled by default.

Table 17. Support matrix

Platform	V-Sync in ThinOS	V-Sync in ThinOS with PCoIP
Wyse 5070 thin client	Supported	Supported
Wyse 3040 thin client	Supported	Supported
Wyse 5060 thin client	Supported	Supported
Wyse 5010 thin client	Supported	Supported
Wyse 5040 AIO thin client	Supported	Supported
Wyse 7010 thin client	Supported	Not applicable
Wyse 3020 thin client	Not supported	Not applicable
Wyse 3010 thin client	Not supported	Not applicable
Wyse 3030 LT thin client	Not supported	Not supported

Limitation—The ThinOS local client desktop background flashes for a second when RDP session desktop is connected with H.264-AVC444 enabled.

PCoIP connections using Teradici Remote Workstation card

In ThinOS version 8.6, you can directly configure the PCoIP connection after you connect either the TERA2240 Remote Workstation card or TERA2220 Remote Workstation card. This feature only works with the direct PCoIP connection, and does not work when you connect using the Horizon View broker.

NOTE: The host card version must match the Teradici PCoIP SDK version 2.9. The SDK in ThinOS does not function similar to Teradici zero client firmware. For example, the SDK in ThinOS does not support USB redirection with the host card connection. This feature is mainly for workstation users working on the server remotely.

The following table lists the supported platforms and the corresponding maximum displays that are tested for TERA2220 and TERA2240 host cards:

Table 18. Support matrix—For reference only

Platform	ThinOS	ThinOS with PCoIP	Maximum displays for TERA2220 host card	Maximum displays for TERA2240 host card
Wyse 5070 thin client—Celeron	Not supported	Supported	2—with 2560 x 1440 resolution	2—with 2560 x 1440 resolution
Wyse 5070 thin client—Pentium	Not supported	Supported	2—with 2560 x 1440 resolution	2—with 2560 x 1440 resolution
Wyse 5070 Extended thin client	Not supported	Supported	2—with 2560 x 1440 resolution	4—with 1920 x 1200 resolution
Wyse 3040 thin client	Not supported	Supported	2—with 2560 x 1440 resolution	2—the resolution depends on your display setup
Wyse 5060 thin client	Not supported	Supported	2—with 2560 x 1440 resolution	2—with 2560 x 1440 resolution
Wyse 5010 thin client	Not supported	Supported	2—with 1920 x 1200 resolution	2—with 1920 x 1200 resolution
Wyse 5040 AIO thin client	Not supported	Supported	2—with 1920 x 1200 resolution	2—with 1920 x 1200 resolution

Platform	ThinOS	ThinOS with PCoIP	Maximum displays for TERA2220 host card	Maximum displays for TERA2240 host card
Wyse 3030 LT thin client	Not supported	Supported	2—with 2560 x 1440 resolution	2—the resolution depends on your display setup
Wyse 7010 thin client	Not supported	Not supported	Not supported	Not supported
Wyse 3020 thin client	Not supported	Not supported	Not supported	Not supported
Wyse 3010 thin client	Not supported	Not supported	Not supported	Not supported

Table 19. Teradici support matrix

Display type	Maximum number of displays	Teradici PCoIP processor	Maximum resolution
Dual display	2	TERA2220	Single display with 2560 x 1600 resolution or two displays with 1920 x 1200 resolution
Quad display	4	TERA2240	2 displays with 2560 x 1600 resolution or four displays with 1920 x 1200 resolution

The following table provides performance data statistics for host card TERA2240 on Wyse 5070 thin client with Celeron processor:

Table 20. Performance data statistics

Number of display	Maximum rate defined by user (Mbps)	Input change rate (Mbps)	Output process rate	Maximum Tx bandwidth (Mbps)
1	30	30	22	50
	30	30	21	50
	60	59	22	101
	60	59	30	105
2	30	30	11	83
	30	30	10	50
	60	57	11	135
	60	57	9	185

For information about configuring PCoIP Direct Connect, see the *Dell Wyse ThinOS Version 8.6 Administrator's Guide* at www.dell.com/support.

NOTE: The TERA2220 host card is tested on the workstation Dell Precision 5820 Tower with graphics card NVIDIA Quadro P2000.

Host card reference documents on Teradici official website:

- Quick Start Guide— www.teradici.com/web-help/pcoip_remote_workstation_card.
- Administrators' guide— www.teradici.com/web-help/pcoip_remote_workstation_card/5.0.1.
- Release Notes— www.teradici.com/web-help/pcoip_remote_workstation_card/5.0.1/release_notes.

Okta integration through Citrix NetScaler

ThinOS supports Okta through the Citrix NetScaler Gateway 11.0 or later. The Okta RADIUS Agent is used for user authentication.

For more information about configuring Citrix NetScaler Gateway to use the Okta RADIUS Agent, see the Citrix NetScaler Gateway Radius Configuration Guide at help.okta.com.

Support matrix

- Citrix environment—All XenDesktop and XenApp
- NetScaler—version 11.0 or later
- Dell Wyse 3040, 5060, 5010, 7010, 5040 AIO, 3030 LT, 3020, 3010, and 5070 thin clients

NOTE: Phone authentication by using Okta is supported only in US and Canada.

Limitation: ThinOS version 8.6 supports only Okta and NetScaler Radius mode.

Display selection when launching RDP connection in full screen

In the previous ThinOS version, if you connect an RDP session in window mode with the default resolution, the first session is displayed on the main screen. If a secondary RDP connection is launched, the second session is displayed on the second screen.

When you connect an RDP session in full screen mode, the connection is displayed on all the screens and there is no option to display full screen on a specific display.

In ThinOS version 8.6, you can select your preferred display on which you want to launch the RDP session in full screen mode. In a multi-display setup, the **Default on Screen X** option is added in the **Display Resolution** drop-down list in the **Connection Properties** window of the RDP connection. For information about selecting the display to launch the RDP connection, and to know how the feature works in different scenarios, see the *Dell Wyse ThinOS Version 8.6 Administrator's Guide* at www.dell.com/support.

You can also enable this option using the INI parameter onscreen=x, where the onscreen value is the number of displays. For more information about configuring the INI parameter, see the *Dell Wyse ThinOS Version 8.6 INI Reference Guide* at www.dell.com/support.

NOTE: If you switch the display mode between span and mirror modes, you must restart your thin client to apply the settings specified in the `onscreen` INI parameter.

Table 21. Support matrix

Platform	Display selection	Maximum display support
Wyse 3010 thin client	Supported	DVI-I
Wyse 3020 thin client	Supported	DVI-D and DVI-I
Wyse 3030 LT thin client	Supported	Two DisplayPorts
Wyse 3040 thin client	Supported	Two DisplayPorts
Wyse 5010 thin client	Supported	DVI-I and DisplayPort
Wyse 5040 thin client	Supported	Built-in port and DisplayPort
Wyse 5060 thin client	Supported	Two DisplayPorts
Wyse 5070 thin client—Celeron	Supported	Two DisplayPorts
Wyse 5070 thin client—Pentium	Supported	Three DisplayPorts
Wyse 5070 extended thin client	Supported	Four DisplayPorts and two mini DisplayPorts
Wyse 7010 thin client	Supported	DVI-I and DisplayPort

Desktop scaling factor for RDP connection

The **Desktop Scale Factor** option enables you to define the desktop scale in the client locally. This option is supported in RDP version 8/RDP version 10 or later on the Dell Wyse 3010, 3020, 3030 LT, 3040, 5010, 5040, 5060, 5070, and 7010 thin clients. This feature is not supported in RDP 7.

NOTE: The Desktop Scale Factor is only applicable for RDP connection. Setting this option does not impact the local display scale on the thin client.

You can configure the desktop scaling factor by using `SessionConfig=RDP DesktopScaleFactor=xx` parameters. The value for DesktopScaleFactor is 100~500.

For more information about setting the desktop scaling factor, see the *Dell Wyse ThinOS Version 8.6 Administrator's Guide* at www.dell.com/support.

Icon folders for StoreFront interface

ThinOS version 8.6 supports icon folders for StoreFront interface mode. The icon is added on the desktop, where you can manage the folders. For example, you can add applications into the folder and delete folders including internal applications.

You can configure this option using the INI parameter SignOn=yes IconGroupStyle=Folder. For more information, see the Dell Wyse ThinOS Version 8.6 INI Reference Guide at Dell.com/support.

Caradigm Way2Care enhancement

Way2Care is part of Caradigm Identity and Access Management (IAM) portfolio, and is designed to securely access patient information from multiple clinical applications.

A new INI parameter CaradigmServer=xxx UseWay2Care=yes is added in this release. you can also set DisableManualLogon=yes EGPGroup=xxx along with the CaradigmServer parameter.

This feature uses Way2Care API that is different from the TapServer API. Way2Care uses decimal UID format.

For more information about the CaradigmServer parameter, see Dell Wyse ThinOS Version 8.6 INI Reference Guide at Dell.com/support.

Wireless IP configuration

When wired and wireless network share the same IP configuration, the wireless network is disabled and the wired network is enabled. From ThinOS version 8.6, there is a separate wireless IP configuration.

For information about configuring Wireless IP, see the Dell Wyse ThinOS Version 8.6 Administrator's Guide at Dell.com/support.

Display priority on Wyse 5070 Extended thin client

The display priority on Wyse 5070 Extended thin client is updated to support the latest AMD vBIOS firmware. This is applicable from ThinOS 8.5.1 release.

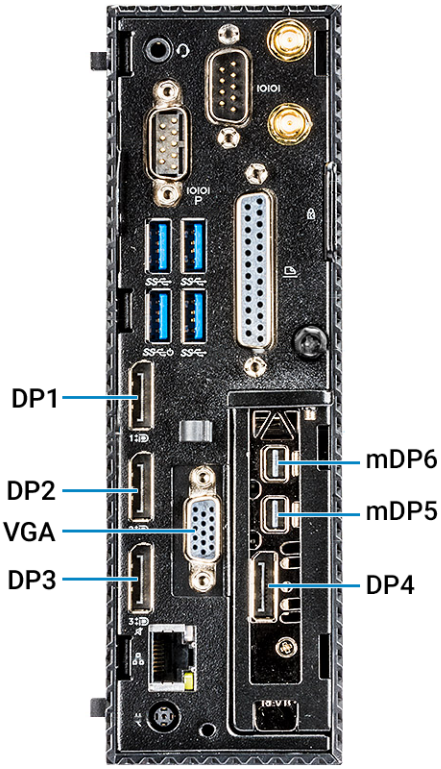

Figure 1. Display priority

The display priority is as follows:

- DP1 > DP2 > DP3 > DP4 > mDP5 > mDP6
- DP1 > USB Type-C > DP3 > DP4 > mDP5 > mDP6
- DP1 > DP2 > VGA > DP4 > mDP5 > mDP6
- DP1 > USB Type-C > VGA > DP4 > mDP5 > mDP6

Display GUI update

Only 32-bit desktop color is supported on Wyse 3010 (T10) and 3020 (T10D) thin clients. The display GUI is changed for Wyse 5070 thin client. However, the display GUI remains same for other ThinOS-based platforms.

For more information about configuring your display settings, see the *Dell Wyse ThinOS Version 8.6 Administrator's Guide* at www.dell.com/support.

Bluetooth pairing update

The Bluetooth Pairing Vulnerability—CVE-2018-5383—is resolved in ThinOS version 8.6 release. For more information about the issue. see www.intel.com/content/www/us/en/security-center/advisory/intel-sa-00128.html.

Affected platforms:

- Wyse 3030 LT thin client with ThinOS
- Wyse 3040 thin client with ThinOS
- Wyse 5010 thin client with ThinOS
- Wyse 5010 thin client with PCoIP
- Wyse 5040 AIO thin client with ThinOS
- Wyse 5040 AIO thin client with PCoIP
- Wyse 5070 thin client
- Wyse 7010 thin client

INI parameters

The following table provides the list of newly added INI parameter in this release:

NOTE: Every INI parameter is associated with a parent INI parameter. Use these INI parameters along with the corresponding parent INI parameters.

Table 22. INI parameters

INI parameters	Description*
[Week={Current, Other, 0, 1, 2, 3, 4}]	Enables you to specify the minimum weeks required to reboot the client after configuring an INI parameter.
[disabledKeys={PrtScn;SysRq}]	Enables you to disable keys on the keyboard.
[UpgradeOrder={bios, wtos}]	Enables you to specify the upgrade order between BIOS and firmware.
[Default={camera device name}]	Enables you to set the default camera device settings.
[CAGUserAsUPN={yes, no}]	Enables you to send user details to server in the format similar to an email address (username@fqdn).
[CAGExternal={yes, no}]	Enables you to log in to csg with an external network directly without verifying beacons.
[enableReminder={yes, no}]	Enables you to postpone the reboot triggered by the Wyse Management Suite agent.
SysinfoOntop=[yes, no]	Enables the **System Information** window to be displayed at the top in the Z-Order and overlaps on the nonmode switched full screen session window.
[DisableSFInit={yes, no}]	Enables you to disable the StoreFront initialize process after the device reboot.
[Host={broker_url}] [AutoConnectList={*|host1;host2;host3...}]	The **Host** option enables you to specify the broker server IP address or FQDN. The **AutoConnectList** option specifies the VDI desktops or applications launched automatically when you use VDI to sign in to the session.
MultiHead=[yes, no] [ManualOverride={yes, no}] [Mainscreen={1,2,3,4,5,6}] [Resolution={ddc, width X height}] [Rotate={left, right}]	The **MultiHead** option enables you to set the span mode or mirror mode for multiple monitors on Wyse 5070 thin client. The **ManualOverride** option enables you to manually set the monitor layout. The **Mainscreen** option enables you to set the required display as a main screen. The **Resolution** and **Rotate** options works when the display is set to mirror mode and MultiHead=no.
Screen=[1,2,3,4,5,6] [align={screen id, top|center|bottom|left|right, top|center|bottom|left|right}]	The **Screen** option enables you to select the screen which you want to set as default. The **align** option enables you to set the screen alignment on Wyse 5070 thin client.

INI parameters	Description*
Connect=[ICA, RDP, PCoIP] [OnScreen={1-6}]	The PCoIP value is added to the **Connect** parameter. The **OnScreen** option enables you to specify which display must be in full screen in an RDP session.
[EnableHardwareCursor={yes, no}]	Enables you to control the hardware cursor in the Blast session.
ManualOverride=[no, yes] [Components={None, display, keyboard, mouse, timezone, network, audio, printer, All}]	The **ManualOverride** option enables you to retain your personalized settings. The **Components** option enables you to specify the component for which personalized settings are required.
[DesktopScaleFactor={100–500}]	Enables you to set the percentage of desktop scaling factor for RDP connection.
[MaxConnect=max]	Enables you to set the maximum number of session connections that you can specify in both wnos.ini and username.ini.

*For detailed description and default values, see the *Dell Wyse ThinOS Version 8.6 INI Reference Guide* at www.dell.com/support.

Tested environment

The following tables display the testing environment for the respective attributes:

Table 23. Tested environment - General components

Component	Version
Wyse Management Suite	1.3
Wyse Device Manager	5.7.2
Imprivata OneSign	5.5.001.22
NetScaler	10.1/11.0/11.1/12.0/12.1
StoreFront	3.6/3.15
Web Interface	5.4
SecureMatrix	4.1.0

Table 24. Tested environment - VDI components

	Windows 7	Windows 8.1	Windows 10	Linux	Windows Server 2012 R2	Windows Server 2016	Apps
VMware Horizon 7.5	√	√	√	√	√	√	√
XenDesktop 5.6	√	Not applicable					
XenApp 6.5	Not applicable						√
XenDesktop/ XenApp 7.18	Not applicable		√	Not applicable	√	√	√
XenDesktop/ XenApp 7.15 LTSR	√	√	Not applicable		√	Not applicable	√

	Windows 7	Windows 8.1	Windows 10	Linux	Windows Server 2012 R2	Windows Server 2016	Apps
XenDesktop/ XenApp 7.15 LTSR	√	√	√	Not applicable	√	√	√
Tera PCM for AWS 1.03	√ *	Not applicable					
RDS 2012 R2/ 2016	√	√	√	Not applicable	√	√	√

*AWS Workspace VM OS Windows 7 style is actually based on 2008 R2 RDSH.

Table 25. Tested environment - Citrix Virtual Apps and Desktops

XenDesktop/ XenApp	Operating System	RTME	Lync client	Skype for Business (SFB) server
7.15	Windows 7	2.5	Skype For Business 2016	Skype For Business 2015
	Windows 8.1	2.5	Skype For Business2016	Skype For Business 2015
	Windows 10	2.5	Skype For Business 2016	Skype For Business 2015
	Windows 2016	2.5	Skype For Business 2016	Skype For Business 2015

Tested peripherals

This section lists the tested peripheral devices.

- **Keyboard/ Mouse**
  - Dell USB wired keyboard - KB216
  - Dell USB wired laser mouse - Naruto
  - Dell USB wired optical mouse - MS116
  - Dell KM636 wireless keyboard and mouse
  - Dell wireless keyboard/mouse KM632
  - Dell wireless keyboard/mouse WK636
  - Dell Keyboard KB113p
  - Dell Keyboard KB216
  - Dell Keyboard KB212-B
  - Dell Keyboard KB216p/ mouse MS-116p
  - Dell keyboard KB813—Smart card reader
  - Dell Mouse MS111-P
  - Dell Mouse MS116-P
  - Dell Keyboard SK-3205—Smart card reader
  - Dell Optical Wireless Mouse - WM123
  - Dell Optical Wireless Mouse - WM122
  - Dell wireless mouse - WM324
  - Dell wireless bluetooth travel mouse - WM524
  - Dell premier wireless keyboard and mouse
  - Dell wireless tablet keyboard/bluetooth
  - Logitech Ultrathin touch mouse T630/bluetooth
  - Logitech M310 wireless mouse
  - Logitech K380 keyboard/bluetooth

  - Logitech K480 Keyboard/bluetooth
  - Logitech K400 Plus
  - Logitech T400 zone touch mouse
  - Logitech M557 mouse/bluetooth
  - Microsoft wireless mouse 1453
  - Microsoft Arc Touch Mouse 1428
  - Microsoft ARC mouse 1350
  - Microsoft ARC touch mouse 1592/bluetooth
  - Microsoft designer bluetooth keyboard/mouse
  - Thinkpad compact bluetooth keyboard—bluetooth
  - Rapoo E6100, bluetooth
  - SpaceNavigator 3D space mouse
- **USB Webcam**
  - Logitech C525 HD Webcam
  - Logitech C920 HD Pro Webcam
  - Logitech C930e HD Webcam
  - Logitech BCC950 ConferenceCam
  - Logitech USB Webcam 9000
  - Logitech C922 Pro Stream Webcam
  - Logitech C925e Webcam
  - Microsoft LifeCam HD-3000
  - Microsoft LifeCam Studio
- **Printer**
  - Dell B1163 Mono Multifunction printer—no support for Generic/Text only
  - Dell B1165nfw Mono Multifunction printer—no support for Generic/Text only
  - Dell B1260dn laser printer
  - Dell B1265dnf Multifunction laser printer
  - Dell B2360d laser printer
  - Dell B2360dn laser printer
  - HP LaserJet P2055d
  - HP LaserJet P2035
  - HP LaserJet 1022n
  - HP Color LaserJet CM1312MFP
  - EPSON PLQ-20K
- **Mobile device**
  - Samsung Galaxy S7
  - iPhone XR
  - iPhone 7
  - iPhone 8 plus
  - HTC one-XL—Android 4.2.2
- **USB headset**
  - Dell Pro Stereo Headset - Skype for Business - UC350
  - Dell 2.0 speaker system - AE215
  - Dell Pro Stereo Headset - Skype for Business - UC150
  - Microsoft Corporation LifeChat LX-6000 headset
  - Dell Pro Stereo Headset UC350
  - Jabra PRO 935 MS
  - Jabra PRO 9450
  - Jabra Speak 510 MS, Bluetooth—Bluetooth

- Jabra Evolve 75
- Jabra Evolve 40 MS Mono
- Jabra UC SUPREME MS /LINK 360, Bluetooth
- Jabra GN2000
- Jabra UC VOICE 750 MS
- Jabra Evolve ENC010 MS Link USB headset
- Jabra EVOLVE HSC040W
- Plantronics SAVI W740/Savi W745—this bluetooth is not supported on ThinOS
- Plantronics Calisto P240 D1K3 USB handset
- Plantronics Blackwire C5210
- Plantronics BLACKWIRE C710, Bluetooth
- Plantronics SAVI W740/Savi W745

  NOTE: Bluetooth is not supported on ThinOS.
- Plantronics Calisto P240 D1K3 USB handset
- Plantronics Calisto 620 M, Bluetooth
- Plantronics USB DSP DA40(B)
- SENNHEISER USB SC230

  NOTE: Volume button does not work correctly with RTME.
- SENNHEISER SC 260 USB MS II

  NOTE: Volume button does not work correctly with RTME.
- SENNHEISER SP 10 ML Speakerphone for Lync
- SENNHEISER SP 20 ML Speakerphone for Lync and mobile devices
- SENNHEISER SC 75 USB MS

  NOTE: Volume button does not work correctly with RTME.
- SENNHEISER SC 40 USB MS

  NOTE: Volume button does not work correctly with RTME.
- SENNHESIER SDW 5016-EU

  NOTE: Volume button does not work correctly with RTME.
- Plantronics Blackwire 3220 USB-A

- **Analog headset**
  - Logitech h150
  - Philips
  - Dell USB SoundBar AC511
- **Monitor**
  - Dell 24 Monitor - E2417H
  - Dell 24 Monitor - P2417H
  - Dell 20 Monitor - E2216H
  - Dell 22 Monitor - E2218HN
  - Dell 22 Monitor - P2219H
  - Dell 22 Monitor - P2219HC
  - Dell 23 Monitor - P2319H
  - Dell 24 Monitor - P2415Q 4K2K (UHD) monitor
  - Dell P2418D—2560x1440
  - Dell UltraSharp 34 Monitor - P3418HW
  - Dell UltraSharp 27 Monitor - U2518D
  - Dell UltraSharp 27 Monitor - U2718Q—4K

- Dell UltraSharp 24 Monitor - U2419H/HC
- Dell UltraSharp 24 Monitor - U2719D/DC
- Dell UltraSharp 24 Monitor - U2719D/DC—310-7225-AO
- Dell E2416Hb—1920x1080
- Dell E2715Hf—1920 x 1080
- Dell E2318H—1920 x 1080
- Dell UP2715K—3840 x 2160/2560 x 1440
- Dell UP3216Qt—3480 x 2160
- Dell P2415Q 4K2K (UHD) monitor
- Dell P2418HZ—1920 x 1080
- Dell P2714Hc—1920 x 1080
- Dell P2715Q—3840 x 2160
- Dell P2815Qf—3840 x 2160
- Dell 43 Monitor - P4317Q
- Dell P4317Qc—3480 x 2160
- Dell U2414HB—1920 x 1080
- Dell U2415—1920 x 1200
- Dell U2713HM—2560 x 1440
- Dell U2518D—2560 x 1440
- Dell U2713HMt—2560 x 1440
- Dell U3415W—3440 x 1440
- Dell U3419W—3440 x1440
- Dell U2718Qb—3840 x 2160
- Dell U2718Q—3480 x 2160
- Dell U2913 WM—2560 x 1080
- Dell S2718D—2560 x 1440
- Dell 23 Monitor - P2419H
- Dell 24 Monitor - P2419HC
- Dell P2418HZ—1920 x 1080
- Dell P2719H—1920 x 1080
- Dell P2719HC—1920 x 1080
- Dell S2817Q—3840 x 2160
- Add On 1000 Base-T SFP transceiver (RJ-45)—310-7225-AO

- **DVD ROM**
  - BENQ DVD Drive
  - Samsung portable DVD Writer SE-208
  - Dell external DVDRW Drive
  - Dell DW316
- **Cable/Converter**
  - Dell miniDP-VGA convertor
  - Dell TYPE-C-VGA convertor
  - Dell DP-VGA convertor
  - Dell DP-DVI convertor
  - Dell TYPE-C-DP convertor
  - Dell TYPE-C-HDMI convertor
  - USB to Serial converter
  - DisplayPort to HDMI adapter
  - DisplayPort to VGA adapter
  - USB Type-C to DisplayPort adapter

- USB Type-C to HDMI
- USB Type-C to VGA adapter
- USB to Serial adapter—Trendnet
- USB to Serial adapter—Cables-2-Go

- **Smart card reader**
  - OMNIKEY 3021—Vendor ID 076b, Product ID 3021
  - OMNIKEY 3121—Vendor ID 076b, Product ID 3121
  - OMNIKEY 5022 CL—Vendor ID 076b, Product ID 5022
  - OMNIKEY 5025 CL—Vendor ID 076b, Product ID 502a
  - OMNIKEY 5125—Vendor ID 076b, Product ID 5125
  - OMNIKEY 5321 V2 CL SAM—Vendor ID 076b, Product ID 5341
  - OMNIKEY 5321 V2 Cli—Vendor ID 076b, Product ID 532a
  - OMNIKEY 5321 CR—Vendor ID 076b, Product ID 5320
  - OMNIKEY 5325 CL—Vendor ID 076b, Product ID 5125
  - OMNIKEY 5326 DFR—Vendor ID 076b, Product ID 5326
  - OMNIKEY 5421—Vendor ID 076b, Product ID 5421
  - OMNIKEY 5422—Vendor ID 076b, Product ID 5422
  - OMNIKEY 5427 CK—Vendor ID 076b, Product ID 5427
  - SmartOS powered SCR335
  - Cherry keyboard RS 6600 with smart card
  - Cherry keyboard KC 1000 SC with smart card
  - Dell keyboard KB813—smart card reader
  - Dell Keyboard SK-3205—smart card reader
  - Gemalto IDBridge CT710
  - Gemalto PC Twin
  - RDR-80581AKU—Proximity/Smart card reader
  - RDR-6082AKU—Proximity/Smart card reader
- **Finger Print Reader**
  - HDW-IMP-1C
  - Keyboard KSI 1700
- **Touch screen**
  - Elo Touch Screen USB
  - Elo Touch Screen Serial
  - Dell P2418HT—1920x1080
- **USB drive**
  - SanDisk USB 3.0 16 GB
  - Sandisk cruzer 8 GB
  - SanDisk USB3.1 and Type-C 16 GB
  - Kingston USB3.1 and Type-C 32 GB

    NOTE: Do not restart your thin client when Kingston USB3.1 and Type-C 32 GB is connected.
  - Kingston DataTraveler G3 8 GB
  - Kingston DataTraveler Elite 3.0 16 GB
  - ADATA S107/16 GB
  - PNY USB3.0 16 GB
  - Sony N50 16 GB
  - Tripp Lite USB2.0 Hub
- **Networking**
  - Cisco GLC-T=30-1301-03

- **SpeechMike Premium**
  - LFH3610/00 SpeechMike Premium—only redirect
  - LFH3200/00 SpeechMike Premium—only redirect

Table 26. Smart card information from ThinOS event log

Smart Card information from ThinOS event log	Driver	Provider (CSP)	Card type
ActivIdentity V1 (IDClassic 230)	ActivClient 6.2	ActivClient Cryptographic Service Provider	Gemalto Cyberflex Access 64 K V2c
ActivIdentity V2	ActivClient 6.2	ActivClient Cryptographic Service Provider	Oberthur CosmopolC 64k V5.2
Gemalto/IDPrime.NET (Gemalto .net 510)	Gemalto Mini driver 1.21	Microsoft Base Smart Card Crypto Provider	Axalto Cryptoflex.NET (V7.2.1.0)
ID Prime MD v 4.0.2 (Gemalto 840)	Gemalto Mini driver 1.21	Microsoft Base Smart Card Crypto Provider	IDPrime MD T = 0 (V 7.3.2.11)
ID Prime MD v 4.1.0 (Gemalto 3810)	Gemalto Mini driver 1.21	Microsoft Base Smart Card Crypto Provider	IDPrime MD T = 0 (V 7.4.0.7)
ID Prime MD v 4.1.1 (Gemalto 830)	Gemalto Mini driver 1.21	Microsoft Base Smart Card Crypto Provider	IDPrime MD T = 0 (V 7.4.1.7)
Etoken CardOS	SafeNet Authentication Client 8.2.133	eToken Base Cryptographic Provider	Siemens CardOS V4.2B
Etoken CardOS (white USB key)	SafeNet Authentication Client 8.2.133	eToken Base Cryptographic Provider	Siemens CardOS V4.2
Etoken Java(aladdin) (blue USB key)	SafeNet Authentication Client 8.2.133	eToken Base Cryptographic Provider	eToken PRO Java 72 K OS755
Etoken Java(aladdin) (black USB key)	SafeNet Authentication Client 8.2.133	eToken Base Cryptographic Provider	SafeNet eToken 510x
Etoken Java(aladdin) (black USB key)	SafeNet Authentication Client 8.2.133	eToken Base Cryptographic Provider	SafeNet eToken 5110
A.E.T. Europe B.V.	SafeSign-Identity-Client-3.0.76	SafeSign Standard Cryptographic Service Provider	G&D STAb dRCOS 3.0 T =0/1 0V300
A.E.T. Europe B.V.	SafeSign-Identity-Client-3.0.76	SafeSign Standard Cryptographic Service Provider	Giesecke and Devrient StarCos 3.2
PIV (Yubico) (black USB key)	YubiKey PIV Manager	Microsoft Base Smart Card Crypto Provider	YubiKey 4.3.3
cv cryptovision gmbh (c) v1.0ns	cv_act_scinterface_6.1.6	cv act sc/interface CSP	G&D STARCOS 3.2

Known issues

This section describes the known issues in this release.

Table 27. Known issues

Issue number	Description	Workaround
TIR98812	You cannot click OK to change the resolution when you set the **Left turn 90 degrees** screen as a main display.	There is no workaround in this release.
TIR98790	Background is filled with color when you start an application and move the application while previewing the image with two cameras.	There is no workaround in this release.
TIR98788	The USB drive cannot be redirected into the Blast session when you disconnect the USB drive from the device and then connect with the same USB port again.	Use the USB port that is not used. If all ports were used before, reboot the device to remove the USB device information from the device.
TIR98781	Audio output is poor when you enable the JVDI audio during the full screen video call on Wyse 5060 and 3040 thin clients. This is due to hardware performance limitation. Wyse 5070 thin client supports full screen video call with good audio output.	Do not use the JVDI video call with window mode on Wyse 5060 and 3040 thin clients.
TIR98780	Blast Windows 7 session stops working for about 4-5 seconds.	There is no workaround in this release.
TIR98768	Image upgrade using Wyse Management Suite deletes the existing packages while the existing Wyse Management Suite App policy does not install the packages again.	Create a Wyse Management Suite App policy to install the package after upgrading.
TIR98755	Wyse Management Suite BIOS policy settings, and ini BIOS settings may be incompatible that results in a device reboot loop.	Disable either the DellCmos INI or the BIOS setting from Wyse Management Suite.
TIR98727	JVDI troubleshooting logs show incorrect information.	There is no workaround in this release.
TIR98714	Pulse audio is missing and you cannot open any device file.	Reboot the thin client.
TIR98605	If the text copy and paste functionality between the local and Blast sessions requires a session switch, then the last copied content is placed in the session application successfully.	Switch the session between local and Blast session.
TIR98580	You must create a new INI parameter to disable the Vertical Synchronization.	There is no workaround in this release.
TIR98561	Trap (winmgr) error occurs when you wake up the monitor from screen saver.	Reboot the thin client.
TIR98550	You cannot log in to the VDI desktop with Geamalto MD830B L3 smart card through Microsoft Windows Server 2012 Remote Desktop Service.	There is no workaround in this release.
TIR98514	On Wyse 3040 thin client, the cursor performance is low when you use the ELO USB touch screen.	There is no workaround in this release.
TIR98486	On Wyse 5070 thin client, cursor is displayed as double image when you switch between mirror mode and span mode, or when you wake up the monitor from screen saver (turn off screen).	Reboot the thin client.
TIR98143	CAC is not found on the login page of XenApp 7.18 Desktop Server 2016 R2.	There is no workaround in this release.

Issue number	Description	Workaround
TIR97287	When you start an ICA session with 4K resolution on Wyse 5010 thin client, a green background is observed.	There is no workaround in this release.