Windows 10 IoT Enterprise LTSC 2021 for OptiPlex 3000 Thin Client

Release Notes

Notes, cautions, and warnings

(i) **NOTE:** A NOTE indicates important information that helps you make better use of your product.

⚠ **CAUTION: A CAUTION indicates either potential damage to hardware or loss of data and tells you how to avoid the problem.**

⚠ **WARNING: A WARNING indicates a potential for property damage, personal injury, or death.**

Contents

Overview

The Windows 10 IoT Enterprise LTSC 2021 operating system is designed to run on OptiPlex 3000 Thin Clients. New releases are created to support new hardware platforms, correct defects, make enhancements, or add new features.

ⓘ **NOTE:** To determine which version of the operating system you need to select for your thin client, see Version matrix.

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Version matrix

The following version matrix lists the platforms supported in each Windows 10 IoT Enterprise LTSC 2021 for OptiPlex Thin Clients release, and helps you select which type of thin client is appropriate for your work environment:

Table 1. Version matrix

Release version	Release date	Supported platforms	Release Notes
10.05.XX.02.22.00	March 2022	OptiPlex 3000 Thin Client	Windows 10 IoT Enterprise LTSC 2021

Windows 10 IoT Enterprise LTSC 2021

Release summary

This release note contains information about the Windows 10 IoT Enterprise LTSC 2021 that runs on the OptiPlex 3000 Thin Client. Windows 10 IoT Enterprise LTSC 2021 is factory installed on the OptiPlex 3000 Thin Client. It provides the flexibility to be able to manage with Wyse Management Suite and System Center Configuration Manager. The Windows 10 Enterprise IoT LTSC 2021 supports English and MUI languages.

(i) **NOTE:** Windows 10 IoT Enterprise LTSC 2021 also supports 16 other languages which can be downloaded from **Settings**.

This build can be pushed on thin clients with 256 GB SSD and higher with 4 GB and 8 GB RAM.

(i) **NOTE:** Thin clients running Windows 10 IoT Enterprise LTSC 2021 Anniversary Update purchased before 3rd December, 2019 cannot be updated to October Update without purchasing additional license. This can be accomplished by reviewing your SA/CLA agreement with Microsoft or through distribution.

Version

10.05.XX.02.22.00

Release date

March 2022

Compatibility

Build details

Table 2. General build details

Platform(s)	OptiPlex 3000 Thin Client
Product	Windows10_IoT_Enterprise_LTSC_2021_OptiPlex_3000_Feb 22.exe
Build Version	10.0
Build Number	10.05.XX.02.22.00
Localization	English
BA version	4.1.0
Merlin USB Imaging Tool	3.5.0.210

Table 3. Platform specific build details of Wyse Management Suite

Platform(s)	OptiPlex 3000 Thin Client
Version	10.0
Build Number	10.05.XX.02.22.00

Table 3. Platform specific build details of Wyse Management Suite (continued)

Build WMS Package Name	Windows10_IoT_Enterprise_LTSC_2021_OptiPlex_3000_Feb 22.exe
Build Size (Bytes)	10,04,43,03,584
Localization	English
BIOS Details	
Platform	OptiPlex 3000 Thin Client
BIOS Version	1.0.3

Table 4. Build details of Dell Application Store

DAS installer version	1.1.0.5
Build Number	1.1.0.5
Build WMS Package Name	DellApplicationStore.exe
Build Size (Bytes)	972461848

BIOS is not part of this build. The above BIOS version is used during the build validation.

Third-party applications

Table 5. Third-party applications

Application name	Version
Citrix Workspace App	19.12.6000.9
HDX Real Media Engine	2.9.400.2702
VMWare Horizon Client	8.4.0.24146
TightVNC	2.8.63.0
Zoom Plugin	5.9.20742
Cisco WebEx VDI Plugin	41.12.0.20899
Cisco JVDI Client	14.0.1.55989
Cisco WebEx VDI Meetings Plug-in	41.4.7.10

Connection brokers

- VMware Horizon client version 8.4.0.24146 is supported.
- Citrix Workspace 1912 version 19.12.6000.9 is supported.
- HDX Real Time Media Engine version 2.9.400.2702 is supported.
- TightVNC version is 2.8.63.0 is supported.

Citrix workspace app

OptiPlex 3000 Thin Client redirection works for all the users of the client machine with all the published desktops, irrespective of the setting **Simplify device connections for me** in the XenDesktop connection preferences.

Vmare Horizon Client

VMware Horizon Client for Windows makes it easier to access your Windows virtual desktop with the best possible user experience on the Local Area Network (LAN) or across a Wide Area Network (WAN).

Hardware support information

- Intel and Pentium N6005 processor—2.00GHz, 16 GB RAM, 256 GB SSD.
- Intel and Celeron N5105 processor—2.00GHz, 8 GB RAM, 256 GB SSD.

Table 6. Supported displays

Hardware	Operating System	Single Display (in built)	Dual Display
OptiPlex 3000 Thin Client	Windows 10 IoT Enterprise LTSC 2021	Supported	Supported

Supported languages

- English (en-US)
- German (de-DE)
- French France (fr-FR)
- French Canada (fr-CA)
- Italian (it-IT)
- Spanish (es-ES)
- Japanese (ja-JP)
- Korean (ko-KR)
- Chinese Simplified (zh-CN)
- Chinese traditional (zh-TW)
- Brazilian Portuguese (pt-BR)
- Dutch Netherlands (nl-NL)
- Danish Denmark (da-DK)
- Finnish Finland (fi-FI)
- Norwegian Norway (nb-NO)
- Russian Russia (ru-RU)
- Swedish Sweden (sv-SE)

Important notes

Test Environment

Table 7. Test Environment

Hardware Type	Hardware Rev	Model Name	CPU Name	Build Package Name	Product Version	RAM	SSD Size	BIOS Version
OptiPlex 3000 Thin Client	0502	OptiPlex 3000 Thin Client	Pentium	Windows 10 IoT Enterprise LTSC 2021	10.05.XX.02.22.00	16 GB	256 GB	1.0.3
OptiPlex 3000 Thin Client	0503	OptiPlex 3000 Thin Client	Celeron	Windows 10 IoT Enterprise LTSC 2021	10.05.XX.02.22.00	8 GB	256 GB	1.0.3

Additional details:

Component	Version
Remote Desktop Server/Desktops	2K16
Remote Desktop Server/Desktops	2K19
RD Gateway	2K16 server

Component	Version
Citrix Hypervisor	8.1
Citrix Virtual Apps and Desktops version	7.1912
VMware server setup version	8.4
Microsoft Hyper-V configured on Windows Server	2019
Wyse Management Suite server	3.6
Microsoft Endpoint Configuration Manager	2019
Cisco Jabber	14.0.1.55989
Radius Server	2K16
Citrix NetScaler	13.0
VMware Carbon Black	Not Applicable

4K monitors

The OptiPlex 3000 Thin Client supports Dell U3223QE, U2723QE, and U3219Q 4K monitors.

Non 4K monitors

Table 8. Non 4K monitors

Number of displays	Monitors
One display	U2422HE
	P2422HE
	P2722HE
	U2722D
	C2722DE
	P2722H
	P2222H
	P2421
	P2421D
	P2720D
	P2720DC
	U2520D
	U3421WE
	E1920H
	E2420H
	E2720H
	E2720HS
	P2319H
	P2418HT
	U3023E
Two displays	P2422H

Table 8. Non 4K monitors (continued)

Number of displays	Monitors
	U2422H
	C2422HE
	C2722DE
	E2020H
	U3821DW
	P3421W
	C3422WE

Used space and free space

Table 9. Used space and free space

Platform	SSD	Used space	Free space
OptiPlex 3000 Thin Client	256 GB SSD	11.7 GB	221.0 GB

QFEs list

Table 10. QFEs list

KB Number	Update Description
KB5004331	Update for Microsoft Windows 10 IoT Enterprise LTSC 2021
KB5003791	Update for Microsoft Windows 10 IoT Enterprise LTSC 2021
KB5007273	Update for Microsoft Windows 10 IoT Enterprise LTSC 2021
KB5009543	Security Update for Windows 10 IoT Enterprise LTSC 2021
KB5005699	Security Update for Windows 10 IoT Enterprise LTSC 2021

Operating system components

Table 11. Driver details

Drivers/ Files	OptiPlex 3000 Thin Client
Display Adapter	Intel UHD Graphics (27.20.100.9664) and Citrix Indirect Display Adapter (12.40.44.247)
Network Adapter	Realtek PCIE GBE Family Controller (10.32.1206.2018)
Audio	Realtek Audio (6.0.9228.1)
Wireless Adapter	Intel WiFi AX210 160MHZ (22.70.0.6)
Bluetooth	Intel wireless Bluetooth (22.70.2.1)
Wyseramdisk.sys (Wyse RAM Disk driver)	5.0.2183.5
CAD-MAP-VDI	3.0.6.0

Peripherals ecosystem

Table 12. Peripherals ecosystem

Product Description	Ecosystem Category
Dell Pro Wireless Keyboard and Mouse - Tasman (previous Windsor) - KM5221W	Hero
Dell Pro Stereo Headset - Cortez - WH3022	Hero
Dell 24 Monitor - P2422H	Hero
Dell Slim Soundbar - Ariana - SB521A	Hero
Dell UltraSharp 24 Monitor - U2422H	Hero
Logitech BRIO 4K Ultra HD Webcam - 960-001105	Extended
Dell Laser Wired Mouse - MS3220_Black - Morty	Extended
Dell UltraSharp 24 USB-C HUB Monitor - U2422HE	Extended
Logitech C525 HD Webcam - 960-000715	Extended
Dell Business Multimedia Keyboard - KB522Scarlet	Extended
Dell Mobile Wireless Mouse - MS3320W_Black - Dawson	Extended
Dell Premier Multi-Device Wireless Keyboard and Mouse - Acadia IO - KM7321W	Extended
Dell Collaboration 24 USB-C Hub Monitor - C2422HE	Extended
Logitech C930e HD Webcam - 960-000971	Extended
Dell 24 USB-C Hub Monitor - P2422HE	Extended
Dell UltraSharp 27 USB-C HUB Monitor - U2722DE	Extended
Dell 27 USB-C Hub Monitor - P2722HE	Extended
Dell UltraSharp 27 Monitor - U2722D	Extended
Dell Collaboration 27 USB-C Hub Monitor - C2722DE	Extended
Dell 27 Monitor - P2722H	Extended
Dell 22 Monitor - P2222H	Extended
Dell 24 Monitor - P2421	Extended
Dell 24 Monitor - P2421D	Extended
Dell 27 Monitor - P2720D	Extended
Dell 27 USB-C Monitor - P2720DC	Qualify Only
Dell UltraSharp 25 USB-C Monitor - U2520D	Extended
Dell USB Slim DVD +/û RW Drive - DW316 - Agate	Extended
Dell Pro Stereo Soundbar - AE515M - Nirvana M	Extended
Dell Stereo Soundbar - AC511M - Potential M	Extended
Jabra Engage 65 MS Wireless Headset - 9559-553-125 Dell part #: AA143343	Qualify Only
Jabra Evolve 65 MS Stereo - Headset - 6599-823-309	Qualify Only
Dell Mobile Adapter Speakerphone - MH3021P - Apollo	Qualify Only
Dell Multi-Device Wireless Keyboard and Mouse Combo - KM7120W - Felix	Qualify Only

Table 12. Peripherals ecosystem (continued)

Product Description	Ecosystem Category
Dell Multi-Device Wireless Mouse - MS5320W - Comet	Extended
Dell Optical Mouse - MS116_BLACK - MS116 - Sapphire	Base
Dell Optical Mouse - MS116_GREY - MS116 - Sapphire	Qualify Only
Dell Optical Mouse - MS116_WHITE - MS116 - Sapphire	Qualify Only
Dell Collaboration 34 USB-C Hub Monitor - C3422WE	Extended
Dell UltraSharp 34 Curved USB-C HUB Monitor - U3421WE	Extended
Dell KB813 Smartcard Keyboard - KB813 - Cardinal	Extended
Dell Mobile Pro Wireless Mice - MS5120W_Black - Splinter	Extended
Dell 20 Monitor E2020H	Extended
Dell 19 Monitor E1920H	Qualify Only
Dell 24 Monitor E2420H	Extended
Dell 24 Monitor E2420HS	Extended
Dell 24" Monitor - E2420HS	Extended
Dell 27 Monitor E2720H	Extended
Dell 27 Monitor E2720HS	Extended
Dell 23 Monitor - P2319H	Extended
Dell UltraSharp 32 4K USB-C Monitor - U3219Q	Extended
Dell 24 Touch Monitor - P2418HT	Extended
Dell Multimedia Keyboard - KB216_BLACK - Rusty	Base
Dell Multimedia Keyboard - KB216_Grey - Rusty	Qualify Only
Dell Multimedia Keyboard - KB216_WHITE - Rusty	Qualify Only
Dell USB-C Mobile Adapter - DA310 - Slayer 3 MLK	Extended
Dell Wired Mouse with Fingerprint Reader - MS819 - Ultramarine - MS819	Extended
Dell Slim Conferencing Soundbar - Lizzo - SB522A	Extended
Dell Speakerphone - Mozart - SP3022	Extended
Dell 27 4K USB-C Monitor - P2721Q	Extended
Dell 34 Curved USB-C Monitor - P3421W	Extended
Dell Collaboration 32 Monitor - U3223QE	Extended
Dell UltraSharp 27 4K USB-C HUB Monitor - U2723QE	Extended
Dell UltraSharp 30 USB-C HUB Monitor - U3023E	Extended
Dell UltraSharp 38 Curved USB-C HUB Monitor - U3821DW	Extended
Dell 19 Monitor - P1917S	Qualify Only
Dell UltraSharp 27 4K USB-C Monitor - U2720Q	Qualify Only

Boot sequence

- The first boot is Windows Boot Manager.

- The second boot is Merlin Non-Pxe.
- The third boot is UEFI HTTPs Boot.
- The fourth boot is UEFI CL1-3D256-Q11 NVMe SSTC 256 GB TWOTN2CC9DH000BB09161.
- The firth boot is ONBOARD NIC (IPV4).
- The fifth boot is ONBOARD NIC (IPV6).

Common application, features, and files

Table 13. Common application, features, and files

Application	Version
WDA	14.6.3.1
PlatVsys	1.0.0.5
VMWare Horizon Client	8.4.0.24146
Merlin	4.1.0
Quick Config (Wyse Easy Setup)	2.0.0.217
ALM	1.1.0.3
xDCM	1.0.0.3
DCM	10.6.0.150
Citrix Workspace 1912	19.12.6000.9
Citrix RTME	2.9.400.2702
CAD Map	3.0.6.0
Microsoft Endpoint Configuration Manager	5.00.8790.1001(2019)
Build Content	1.0.0.8
Language Config	1.0.0.9
Dell Thin Client App	10.0.0.27
Custom Sysprep (Master.exe)	1.0.0.17
Quick Start	No Version

Supported and non supported features

Table 14. Supported and non supported features

Feature	Description
Credential Guard	This feature of Windows 10 IoT Enterprise LTSC 2021 is not supported in this release due to hardware/BIOS limitation.
Device Guard	This feature of Windows 10 IoT Enterprise LTSC 2021 is not supported in this release due to hardware/BIOS limitation.
License Activation	To activate the license, after reimaging the thin client, you require an internet connection.
PXE Imaging	PXE Imaging is not supported through WDM. Only non-PXE imaging is supported as this build is based on UEFI boot mode.
Built in Administrator account	The Built in Administrator account is disabled by default.

New and enhanced features

The following are all the new features delivered in this release.

Wyse Easy Setup

Wyse Easy Setup enables administrators to quickly and easily deploy configurations on thin clients.

Wyse Easy Setup enables you to:

● Create a dedicated browser-focused client by configuring the Internet Explorer settings.
● Configure multiple broker connections such as Citrix, VMware, and Remote Desktop Protocol (RDP).
● Configure a device to create a dedicated application for a particular line of business.

You can create a kiosk mode to lock down a Windows device to prevent users from accessing any features or functions on the device outside of the kiosk mode. You can also customize the kiosk interface to enable or disable user access to specific settings.

For more information, see *Wyse Easy Setup Administrator's Guide* and *Release notes* at downloads.dell.com/wyse.

Components of Wyse Easy Setup

1. Admin Mode (WyseEasySetupAdmin.exe)
   ● Separate application can be launched directly from OOBE, from shortcut on desktop or from User Mode UI.
     (i) **NOTE:** All cases require Admin credentials unless Admin is logged in.
   ● Localization support is provided for UI components.
   ● UI will enable Admin to add/edit/delete applications or VDI connections, user Control Panel options, kiosk/shell mode and user interface settings.
   ● All the settings will be applied only when Write Filter is ON and all settings persists across Reboot.
   ● All the settings will be applied instantly, and it does not require a logoff/reboot.
2. User Mode (WyseEasySetupShell.exe)
   ● This is the main screen or custom shell the user will see upon login.
   ● If Kiosk mode is ON, this shell replaces the standard Windows Explorer.exe shell.
   ● If Kiosk mode is OFF, this shell runs along with standard shell in "windowed mode" and it will function as a normal full screen application.

Operating System Architecture

● All Windows 10 IoT Enterprise LTSC 2021 (64bit) builds will be delivered in Merlin format.
● Builds have five partitions. The key partitions are 100 MB Merlin, 450 MB Windows Recovery, and 200MB EFI.
● Builds will have DEW partition for 4 GB and 8 GB RAM, 2GB and 4 GB for 32 GB and higher storage respectively.
● 128MB is reserved in the system and the rest is for operating system partition. 128MB which is reserved for partition will not be visible in the Disk Manager. Partition structure is done based on the GPT partition table.
● 200 MB EFI system partition will be the FAT32 that shows without the Drive Letter and file system property in Disk Management. 100 MB EFI system partition will contain the Merlin BA (Boot Agent).
● Image (Build package) files will be in compressed format.

Dell Application Store

Dell Application Store is a bundle of Edge Device Software consisting of Third-party Apps and Dell Apps.

1. Third-party Apps includes Citrix Workspace App/HDX RTME, VMWare Horizon Client, Zoom plugin, Cisco plugins (for Citrix and VMWare), and TightVNC.
2. Dell Apps contains Del lSecure Client, Wyse Easy Setup and Dell Application control center (DACC).

Install Dell Application Store manually

You can install Dell Application Store manually using any of the following methods:

- Using the `DellApplicationStore.exe` installer file .
  1. Double-click the .exe file and click **Install**.
  2. Select the required application and accept EULA to proceed with the installation.
- Exporting `DellApplicationStore.exe` installer file.
  1. Export the configuration.
  2. Save PowerShell file in thin client.

     (i) **NOTE:** Do not save the file to `C:\Wyse\WAPPS\DASrepository folder`.
  3. Close the Dell Application Store installer. Exported PowerShell run the application using administrator privileges.
  4. Open cmd prompt using administrator privileges and run `DellApplicationstore.exe –silent.`.

Install Dell Application Store using Wyse Management Suite

Steps

1. Register the device to Wyse Management Suite server and add the device to respective add-on group.
2. Download the `Exportconfig.ps1 /.exe` file.
3. Copy `Exportconfig.ps1 /.exe` file to the Wyse Management Suite server repository.
4. Log in to the Wyse Management Suite server.
5. Go to **Portal Administration** > **File Repository**.
6. Check the **File Repository** and click **Sync Files**.
7. Go to **Apps & Data** > **App Inventory** > **Thin Client** and verify the files that are listed in the thin client.
8. Go to **Apps & Data** > **App Inventory** > **Thin Client** > **Add Policy**.
9. Configure the options, enter the silent parameter as **`--silent`**, and click **Save**.
10. Click **Yes** to schedule the job immediately.
11. In the **Apply Policy** window, add the description of the policy and select the type of execution as per user preference.
12. Click **Preview** and then click **Schedule**.

    (i) **NOTE:**

    For `DellApplicationStore.exe` provide silent install parameter as **silent**.

    For deploying Export configuration, parameters are not required

Install Dell Application Store using Microsoft Endpoint Configuration Manager

Prerequisites

On the client, do the following:

1. Log in to Administrator account and disable the Write Filter.
2. Join the thin client to the required SCCM Domain (set DNS if client is on other domain).
3. Log in as Domain User and change the Domain Administrator Time zone to SCCM Server Time zone.
4. Go to **Control Panel** > **Configuration Manager** > **Site** > **Configure Settings** and click the SCCM Site code.
5. Click **Apply**.
6. Click **Actions** Tab and run action item.
7. Enable the Write filter.

Steps

1. Create a folder in SCCM share path and copy the created .ps1 file and DAS application
2. Launch SCCM Server.
3. Click **Asset and Compliance**, right-click **Device Collection**, and select **Create Device collection**.
4. Add registered Thin Clients to the group.
5. Go to **Software Library** > **Application Management** and right-click **Packages**.
6. Create a package for DellApplicationStore.exe with --silent as parameter in command line.
7. Right-click the created package for DAS application and distribute the package by selecting distribute point.
8. Go to **Software Library** > **Operating System** and right-click**Task Sequence**.
9. Create a custom task sequence.
10. Right-click Custom task sequence that is created and click **Edit**.
11. Click **Add** > **General** > **Power Shell Script** and provide the valid name.
12. Select the **Enter a PowerShell script** radio button.
13. Click **Add Script** > **Open** and select the .ps1 file.
14. Select **Bypass in Power Shell Execution** drop-down button and click **Apply**.
15. Go to **Add** > **Software** > **Install Package** and provide the valid name.
16. Browse the DAS distributed Package, click **Apply**, and then click **OK** button.
17. Right-click the edited task sequence and deploy immediately on created device collection.

Next steps

Client Side

1. On client, run the action items until you get the install notification from SCCM server.
2. The installation fails during the first time, and it retries after 10 minutes. The installation is successful during the second time.

Dell Application Control Center within the current scope

Dell Manifest Utility, Golden Image Creator, Dell Thin Client Application, RAM Disk Configurator, Auto Logon Configurator, Write Filter Utility, ALM & xDCM, and Custom Fields are Dell applications that are bundled in the Dell Application Store.

Quick Start

The Quick Start application launches when you boot into a thin client for the first time. This tool displays the software and hardware features of the thin client. It also provides information about the VDI applications, management software, and supported peripherals. Quick Start significantly improves the first time user experience for Windows based Thin Clients. It provides an overview of different features of Thin Clients and displays license agreements, documents and help/support links. Quick Start supports 17 multi user interface language, that is, English, Spanish, French, Brazilian Portuguese, German, Italian, Simplified Chinese, Traditional Chinese, Korean, Japanese, Canadian French, Finnish, Norwegian, Russian, Swedish, Danish and Dutch

You can also configure Wyse Easy Setup application using the Quick Start application.

After you exit the Quick Start application, the user desktop is displayed by default. You can also launch the tool later from the **Start** menu.

MUI build behavior

This build release will provide a unified image with MUI support. The default language is English—en-us but is convertible to other MUI Languages.

To change the language of the build, do the following:

1. Go to `C:\Windows\Setup\Tools`.
2. Right-click `LanguageConfig.exe` and click **Run as Administrator**.
3. Select the language.
4. Push the image using Wyse Management Suite server or USB Imaging Tool.

5. Run Custom Sysprep to pull the image, and push it to the target thin client.

(i) **NOTE:**
- To configure Bit locker with TPM, use the **Configure TPM platform validation profile for native UEFI firmware configurations** group policy.
- To view the event logs, run the `Event Viewer Errors.docx` file.
- To update Windows defender definition, you must increase the write filter threshold value.

Overlay Optimizer

Overlay Optimizer is a software component that works with Unified Write Filter (UWF). Overlay Optimizer provides write protection and extends the uptime of devices. Overlay optimizer works on Windows 10 IoT Enterprise LTSC 2021 operating system.

Microsoft's Unified Write Filter (UWF) uses static RAM overlay. When the overlay fills up, the system goes for reboot. Overlay Optimizer will work alongside UWF to extend the up time of the devices.

The UWF protects the disk by storing the changes in the RAM overlay. When an application tries to write data to the disk, write filter redirects the write operations to the RAM overlay. The overlay size is preconfigured and cannot increase dynamically. When the overlay runs out of space over a period, the device restarts.

When the RAM overlay fills up, Overlay Optimizer will move the contents to the local storage (Flash/SSD). The local storage contents are secured and will not be retained after reboot.

Currently Overlay Optimizer is supported for Windows 10 Enterprise Thin Clients only.

For instance, In a Thin Client with 1 GB UWF RAM overlay, the VDI apps like Citrix with media optimization (say Flash Redirection) enabled, it can consume the UWF RAM overlay in 60 minutes or less; and it goes for reboot. With Overlay Optimizer, the contents will be moved to local storage (Overlay Optimizer partition) and so the Thin Client uptime is increased.

The Overlay Optimizer monitors the UWFs' overlay space and the content. Overlay Optimizer identifies higher overlay space consumption in write filter and moves the unused content to the Overlay Optimizer's disk overlay. Clearing the UWF overlay extends the device uptime.

(i) **NOTE:** Overlay Optimizer is not a Virtual-Memory optimizer. It does not do any optimization to allow user to run more applications.

For more information, see Overlay Optimizer Release notes at downloads.dell.com/wyse.

Application Launch Manager

The Application Launch Manager (ALM) version 1.1.0.2 enables you to start an application that is based on predefined events such as service startup, user login/logoff, or system shutdown in system account. You can also configure multilevel logs which are essential for troubleshooting using the `DebugLog.xml` file. `Debugconfigediter.exe` is designed to configure Debug logs.

You can add or remove application configuration nodes from the ALM configuration file using the command-line interface.

(i) **NOTE:** By default, logs are disabled to void the unnecessary writes

Features of Application Launch Manager

- Application launch within sessions zero.
- Event based Application launch like `SYS_SHUTDOWN,` `USER_LOGOFF` and `SVC_STARUP`.
- Multilevel logging based on user choice.
  (i) **NOTE:** By default, logs are disabled to void the unnecessary writes
- API Support to enable and disable the ALM.
- CLI Support to **add/remove** configuration nodes form Application launch manager config.xml (answer file).
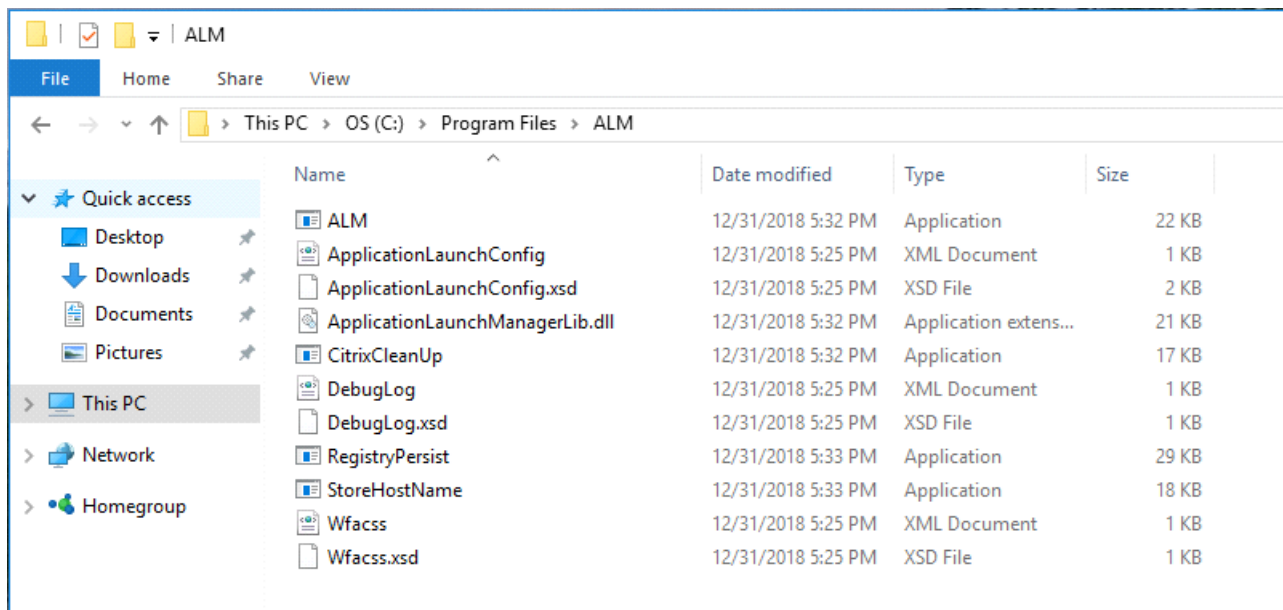- Debugconfigediter.exe designed to configure Debug logs.

Figure 1. Application Launch Manager

xData Cleanup Manager

xData Cleanup Manager (xDCM) version 1.1.0.2 prevents extraneous information from being stored on the local disk. xDCM can be used to automatically clean up directories that are used to temporarily cache the information. A clean-up is triggered on either service startup, user logoff, or system shutdown.

It also enables you to configure multilevel logs which are essential for troubleshooting. You can clean up files, folders, and enable or disable xDCM using Application Programming Interface (API). You can also add or remove configuration nodes from the xDCM configuration file using command-line interface.

ⓘ **NOTE:**
- Existing `NetXclean.ini` configurations are ported to new `xDataCleanupConfig.xml`.
- Contents in the xData Cleanup Manager are cleaned by default.

Features of xData Cleanup Manager

- Cleanup process will launch with in sessions zero.
- Cleanup Events based system events like `SYS_SHUTDOWN,` `USER_LOGOFF` and `SVC_STARUP`.
- Multilevel logging based on user choice.
  ⓘ **NOTE:** By default, logs are disabled to void the unnecessary writes
- API Support to enable and disable the XDCM configurations, File Cleanup, Folder, Cleanup and registry based on user needs.
- CLI Support to add/remove configuration nodes form xData Cleanup Manager config.xml (answer file).
- Existing in NetXclean.ini configuration is ported to new xDataCleanupConfig.xml.
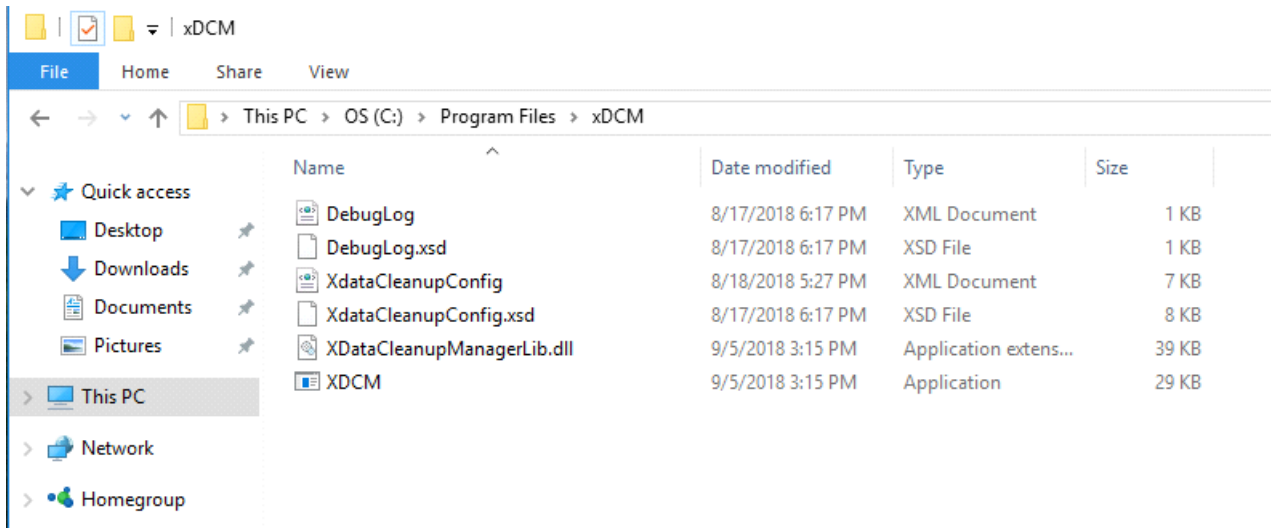- Debugconfigediter.exe designed to configure Debug logs

Figure 2. xData Cleanup Manager

BIOS details

OptiPlex 3000 Thin Client supports Dell BIOS and Wyse BIOS entries. The BIOS image is included in the latest Wyse Management Suite release.

Platform	OptiPlex 3000 Thin Client
BIOS Version	1.0.3

C-A-D tool

The C-A-D tool allows administrators to map the Ctrl+Alt+Del key combination of VDI applications to display the Ctrl+Alt+Del screen of the VDI application. If the C-A-D tool is enabled, you can use Ctrl+Alt+Del key combination for all VDI applications.

ⓘ **NOTE:** By default, the C-A-D tool is enabled.

Optiplex 3000 Thin Client

Dell Apps versions

● The Dell Secure Client version is 1.0.0.206.
● The Wyse Easy Setup version is 2.0.0.219.
● The Dell Application Control Center (DACC)version is 1.1.0.4.

ⓘ **NOTE:** Mandatory Apps which gets installed are Wyse Easy Setup, TightVNC and Dell Application control center (DACC).

Dell wallpapers

Older wallpapers and themes are replaced with the new Dell wallpapers and themes.

Energy Star specification

Windows 10 IoT Enterprise LTSC 2021 on OptiPlex 3000 Thin Client is Energy Star version 8.0 compliant.

The following are the details in the Control Panel applet for power options:

- Supports Wake on LAN (WoL) during power off.
- Supports Idle state wake up from the sleep mode.
- Screen off timer is 10 minutes.
- Sleep timer is 15 minutes.

Logging support

Logging support is added for customization scripts.

Event Viewer log preservation

Event Viewer log preservation feature allows you to enable or disable Event Viewer log saving when the File Based Write Filter (FBWF) or Unified Write Filter (UWF) is enabled. This feature enables you to collect event logs if they are required for debugging or analysis purposes.

Dell Thin Client application

You can view and configure thin client device, system shortcuts, custom fields, RAM disk, autologon, and CAD map using the Dell Thin Client application.

(i) **NOTE:** By default, RAM disk size is 512 MB for thin clients with 8 GB RAM, and 100 MB when the write filter is enabled for thin clients with 4 GB RAM.

Internet Explorer 11

- **Performance enhancements**—Microsoft has included support for web standards such as CSS animations, HTML5 spell checking, and improved JavaScript performance.
- **Security enhancements**—The main security addition to Internet Explorer 11 is **Enhanced Protected Mode**, which locks down parts of the Windows operating system, preventing the browser from accessing the operating system.

The following Internet Explorer 11 features are customized by default:

- First run customizations are disabled.
- Internet Explorer 11 enhanced protection mode is enabled.
- Start page & default page set to www.dell.com/wyse.
- Internet Explorer cookies and cache are redirected to `C:\`:
- Cache content is limited to 250 MB.
- Browsing history is cleared when you exit Internet Explorer.
- Edge Browser auto update is disabled.
- Edge Browser configuration support from WMS.

Keyboard filters

You can use keyboard filters to disable undesirable key presses or combinations. For example, you can disable common Windows key combinations such as Ctrl+Alt+Delete and Alt+Tab. You can disable any key or key combination. This feature was not available in Windows 10 Enterprise Threshold but added in Windows 10 Enterprise Redstone.

Out-of-Box driver install

All the respective device drivers are preinstalled in the operating system.

Microsoft Endpoint Configuration Manager 2019 server information

Microsoft Endpoint Configuration Manager (MECM) is supported for standard deployment of images. See the *Managing Windows-based Dell Wyse and OptiPlex Thin Clients using Microsoft Endpoint Configuration Manager Administrator's Guide* at dell.com/support for more details.

Unified Write Filter

About this task

Unified Write Filter (UWF) is a sector-based write filter that protects your storage media. UWF redirects the write attempts to a virtual overlay, and intercepts the write attempts to the protected volume. This improves the stability, reliability of the device thereby reducing the wear on write media, such as solid-state drives. In UWF, overlay is a virtual storage space that saves changes made on the protected volume. If the file system attempts to modify a protected sector, UWF will copy the sector from the protected volume to the overlay, and the overlay is updated. If an application tries to read from that sector, UWF returns the data from the overlay, so that the system appears to have written to the volume, while the volume remains unchanged.For more information, see the Unified Write Filter documentation at www.microsoft.com.

⚠ **CAUTION: Failure to keep the Write Filter turned on (except for regular maintenance or Application/Driver installs or upgrades) will prematurely wear out your Flash/SSD storage and invalidate your warranty.**

Next steps

The following are the default file folders excluded from being filtered by UWF:
- `C:\Users\Admin\AppData\LocalLow`
- `C:\Users\User\AppData\LocalLow`
- `C:\Program Files\Windows Defender`
- `C:\Program Files (x86)\Windows Defender`
- `C:\Windows\WindowsUpdate.log`
- `C:\Windows\Temp\MpCmdRun.log`
- `C:\ProgramData\Microsoft\Windows Defender`
- `C:\program files\Wyse\WDA\Config`
- `C:\Users\Public\Documents\Wyse`
- `C:\Program Files\Dell\Command Monitor\omsa\ini\dccidy64.ini`
- `C:\Program Files\Dell\Command Monitor\omsa\log\dcpm64.xml`
- `C:\Program Files\Dell\Command Monitor\omsa\log\dcsys64.xml`
- `C:\windows\system32\spp`
- `C:\Wyse\WCM\ConfigMgmt`
- `C:\Program Files\Dell\Command Monitor\omsa`
- `C:\Wyse\WCM`
- `C:\Wyse\WDA`
- `C:\ProgramData\Microsoft\dot3svc\Profiles\Interfaces`

- `C:\ProgramData\Microsoft\wlansvc\Profiles\Interfaces`
- `C:\ProgramData\Microsoft\Wlansvc`
- `C:\Windows\dot2svc\Policies`
- `C:\Windows\wlansvc\Policies`

The following are the default registries excluded from being filtered by UWF:

- `HKLM\Software\Wyse\ConfigMgmt`
- `HKLM\SYSTEM\CurrentControlSet\Control\WNT\UWFSvc`
- `HKLM\SOFTWARE\Microsoft\Windows Defender`
- `HKLM\SOFTWARE\Microsoft\Windows\CurrentVersion\HomeGroup`
- `HKLM\SOFTWARE\Microsoft\Windows NT\CurrentVersion\NetworkList`
- `HKLM\SYSTEM\WPA`
- `HKLM\SYSTEM\CurrentControlSet\Control\WNT\DWCADTool`
- `HKLM\SOFTWARE\Microsoft\Wlansvc`
- `HKLM\SOFTWARE\Policies\Microsoft\Windows\WiredL2\GP_Policy`
- `HKLM\SOFTWARE\Policies\Microsoft\Windows\Wireless\GPTWirelessPolicy`
- `HKLM\SYSTEM\CurrentControlSet\services\dot3svc`
- `HKLM\SYSTEM\CurrentControlSet\services\WwanSvc`

⚠️ **CAUTION: Please follow proper write filter and Windows Page File usage instructions at all times. Such instructions include making sure that the write filter is enabled during regular use and is disabled only temporarily by an administrator when required for image upgrades, applying security patches, registry changes and application installation. The write filter should be re-enabled as soon as such tasks are completed. Such instructions further include never enabling the Windows Page File feature during regular use of the thin client. Any operation of a Dell Wyse Windows Embedded Thin Client with the write filter turned off during regular use and/or with the Windows Page file enabled will prematurely wear out your Flash/SSD storage, decrease performance and decrease the lifespan of the product. Dell is not responsible for, and will not, warrant, support, repair or replace any thin client device or component that fails to operate properly due to a failure to follow these instructions.**

Steps to convert to one of the languages

Steps

1. Login as Admin with Write filter disabled and ensure that the client is connected to the Internet. Select to install desired language specified above and Click on region and language.
2. After Language is installed, reboot the client to take effect
3. Go to `C:\Windows\Setup\Tools folder` and run LanguageConfig.exe as administrator
4. Please select the language you wish to convert to.

   ⓘ **NOTE:** Although, you would see multiple languages, you should be selecting one of the supported languages only.
5. Now run Build_Master.cmd from `C:\Windows\Setup` and select CustomSysprep
6. Once, CustomSysprep is over, the client will shut down and now you can pull the image and push(deploy) it on multiple clients.

   ⓘ **NOTE:** Refer **Event Viewer Errors.docx** for Event viewer errors/warnings
7. To update Windows defender definition, you may have to increase the Write Filter threshold value.

Windows ATP

Windows Defender ATP is a new service in Redstone build that will help enterprises to detect, investigate, and respond to advanced attacks on their networks.

XML driven PowerShell scripts

Customization scripts are ported to the PowerShell scripts, and are based on the XML file input.

Running Custom Sysprep tool

Prerequisites

- Disable Write Filter Status.
- Logging framework must be available on your thin client.
- PowerShell script execution environment, Custom Sysprep, Configuration Sysprep (SCCM) scripts, and Hostname calculation feature must be available.

About this task

To run the Custom Sysprep tool, do the following:

Steps

1. Go to `<drive C>\Windows\Setup`.
2. Right-click **Build_Master.cmd**, and select **Run as administrator**.
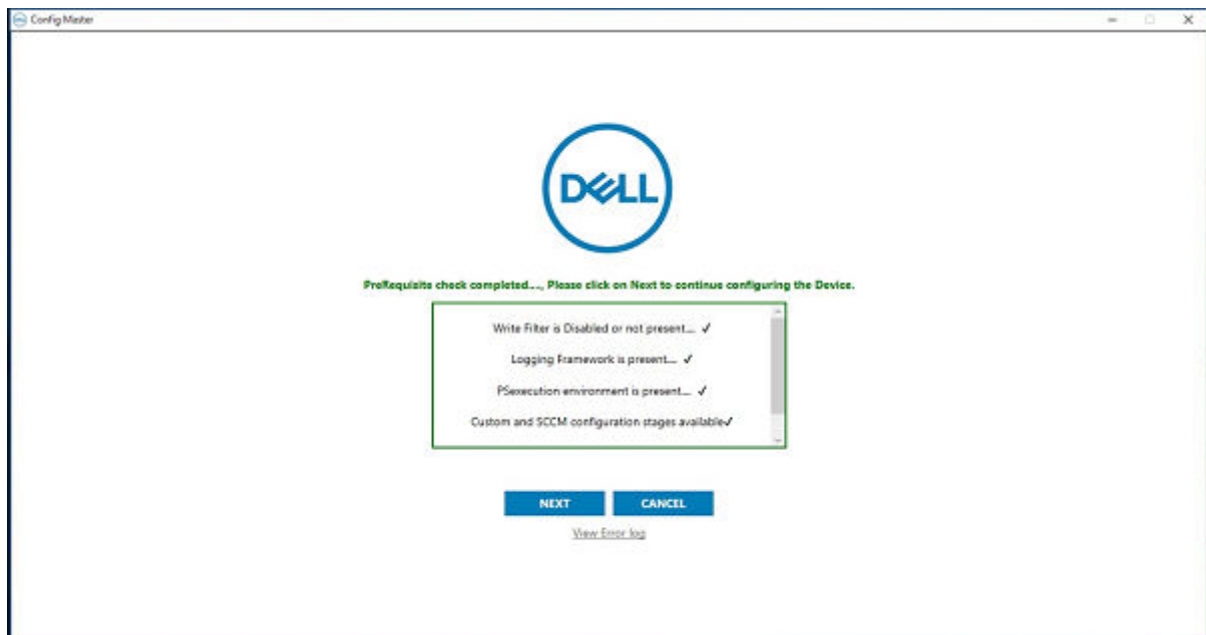
Figure 3. Config Master

The **Config Master** window is displayed.
3. Click **Next**.

Figure 4. Configuration

The **Configuration** screen is displayed.

4. Select **Custom configuration** in the **Configurations** section.
5. Enable or disable hostname calculation in the **Host Name calculation** section.
6. Enter the appropriate values in the **Configure Domain options** section, and click **Save Credentials**—optional.
7. Click **OK** when prompted—optional.
8. Select **Enable local account credentials changes**—optional.
   The changes that are made to the credentials are applied.
9. Click **Next**.
   The **Credential Manager** page is displayed.
10. Select the user account, and type the login credentials.
11. Click **Save**.
12. Click **Apply** to save the changes.
    This process takes 5–10 minutes to complete. The device turns off after the Sysprep process is complete.

    (i) **NOTE:** You cannot access the thin client if you terminate the Sysprep process. Make sure that the device is ready before you use the Sysprep tool.

Changing admin password in Sysprep.xml

Scripts to support changing Admin password is part of this latest release. These scripts are invoked as part of Custom Sysprep.

Domain join support in Sysprep.xml

Scripts to support domain join the client as part of Sysprep is part of this release. This is done by getting domain join credentials as part of the Custom Sysprep script execution while creating the golden image.

Resources and support

Accessing documents using the product search

1. Go to www.dell.com/support.
2. In the **Enter a Service Tag, Serial Number, Service Request, Model, or Keyword** search box, type the product name. For example, `Wyse 3040 thin client` or `Wyse ThinOS`. A list of matching products is displayed.
3. Select your product.
4. Click **Documentation**.

Accessing documents using product selector

You can also access documents by selecting your product.

1. Go to www.dell.com/support.
2. Click **Browse all products**.
3. Click **Thin Clients**.
4. Click the desired category, either **Wyse Hardware** or **Wyse Software**.
5. Click the desired product.
6. Click **Documentation**.

Contacting Dell

About this task

ⓘ **NOTE:** If you do not have an active Internet connection, you can find contact information from your purchase invoice, packing slip, bill, or Dell product catalog.

Dell provides several online and telephone-based support and service options. Availability varies by country/region or region and product, and some services may not be available in your area. To contact Dell for sales, technical support, or customer service issues:

Steps

1. Go to www.www.dell.com/support.
2. Select your support category.
3. Verify your country/region or region in the **Choose a Country/Region** drop-down list at the bottom of the page.
4. Select the appropriate service or support link that is based on your need.