



The science behind the report:

Deliver pre-configured systems to end users faster with Dell Provisioning for VMware Workspace ONE

This document describes what we tested, how we tested, and what we found. To learn how these facts translate into real-world benefits, read the report [Deliver pre-configured systems to end users faster with Dell Provisioning for VMware Workspace ONE](#).

On December 18, 2018, we finalized the hardware and software configurations we tested. Updates for current and recently released hardware and software appear often, so unavoidably these configurations may not represent the latest versions available when this report appears. For older systems, we chose configurations representative of typical purchases of those systems. We concluded hands-on testing on January 3, 2019.

Detailed results

One-time configuration for Dell Provisioning with Workspace ONE®

The Dell service required a one-time configuration to set up your deployment order. Below is a table showing the time it took to complete each step.

Workspace ONE configuration task	Time (h:mm:ss)
Completing the contact form	0:00:51
Call with the project manager	0:24:15
Starting the provisioning package creation	0:00:23
Creating the provisioning package	0:10:16
Starting the provisioning package download	0:00:05
Downloading the provisioning package	0:14:55
Call with the engagement manager, and completing required forms	0:13:30
Starting the FTP file upload of provisioning package	0:00:27
Uploading the provisioning package	0:03:30
Total	1:08:12

Dell Provisioning for Workspace ONE small-scale deployment

After the initial configuration, deployment with Dell Provisioning for Workspace ONE did not require any time from our administrator.

Workspace ONE Deployment Task	Time (h:mm:ss)
On-site admin time required after initial configuration	0:00:00

Traditional small-scale deployment

Below are tables detailing the time we spent provisioning the laptops we ordered from Dell. Note that total admin time does not include the time spent deploying or rebooting the systems.

Deployment tasks for one system	Time (h:mm:ss)
Unboxing the target laptop	0:00:27
Connecting power and networking cables	0:00:21
Configuring BIOS and booting to NIC	0:00:48
Deploying OS and Applications via SCCM	0:15:49
Rebooting the system and applying updates	0:09:22
Shutting down the systems	0:00:11
Repackaging the system	0:01:41
Preparing the package for shipping	0:02:48
Total	0:31:27
Total admin time (does not include deployment or reboot)	0:06:16

Deployment tasks for two systems	Time (h:mm:ss)
Unboxing the target laptops	0:00:47
Connecting power and networking cables	0:00:39
Configuring BIOS and booting to NIC	0:01:33
Deploying OS and Applications via SCCM	0:16:17
Rebooting the systems and applying updates	0:08:17
Shutting down the systems	0:00:15
Repackaging the systems	0:02:58
Preparing the packages for shipping	0:02:55
Total	0:33:41
Total admin time (does not include deployment or reboot)	0:09:07

Deployment tasks for five systems	Time (h:mm:ss)
Unboxing the target laptops	0:02:27
Connecting power and networking cables	0:01:29
Configuring BIOS and booting to NIC	0:03:41
Deploying OS and Applications via SCCM	0:18:20
Rebooting the systems and applying updates	0:08:18
Shutting down the systems	0:00:50
Repackaging the systems	0:07:53
Preparing the packages for shipping	0:03:12
Total	0:46:10
Total admin time (does not include deployment or reboot)	0:19:33

Extrapolated large-scale administrative deployment time

In order to calculate the extrapolated admin time for large deployments we used the method of least squares to find the line of best fit for the data from our hands-on testing. For the traditional deployment, we determined the equation for the line of best fit is $y = 201.15x + 161.92$, where y is the amount of time required to deploy x number of systems. The equation has a correlation coefficient of 0.99.

Using this equation, we estimate the time to deploy systems on a larger scale:

On-site admin time to deploy systems (hh:mm:ss)		
Number of systems	Admin time (traditional method)	Admin time (Workspace ONE)
1	0:06:16	0:00:00
2	0:09:07	0:00:00
5	0:19:32	0:00:00
Extrapolated values		
24	1:23:10	0:00:00
100	5:37:57	0:00:00
500	27:58:59	0:00:00
1000	55:55:16	0:00:00

System configuration information

The table below presents detailed information on the systems we tested.

System configuration information	Dell Latitude 5491
Processor	
Vendor	Intel®
Model number	Core™ i5-8400H
Core frequency	2.5GHz
Number of cores	4
Cache	8MB smartcache
Memory	
Amount	8GB (built-in onboard)
Type	DDR4
Speed	2666MHz
Integrated graphics	
Vendor	Intel
Model number	UHD Graphics 630
Discrete graphics	
Vendor	N/A
Model number	N/A
VRAM	N/A
Storage	
Amount	256GB
Type	PCIe NVMe
Connectivity/expansion	
Wired internet	Ethernet
Wireless internet	802.11ac Dual Band
Bluetooth	4.2
USB	3 x USB 3.1 1 x USB Type-C
Thunderbolt	N/A
Video	1 x HDMI
Battery	
Type	Lithium-polymer
Size	Integrated
Rated capacity	68Wh

System configuration information		Dell Latitude 5491
Display		
Size	14 inches	
Type	LED-backlit	
Resolution	1920 x 1080	
Touchscreen	No	
Operating system		
Vendor	Microsoft	
Name	Windows 10 Pro	
Build number or version	Version: 1709 Build: 16299.125	
BIOS		
BIOS name and version	Dell Inc. 1.1.6	
Dimensions		
Height	0.8"	
Width	13.1"	
Depth	9.0"	
Weight	3.63 pounds	

Setup methodology

Our testing used Workspace ONE to deploy devices with Dell Provisioning, and Microsoft System Center Configuration Manager (SCCM) for the traditional deployment process. We used existing environments for both Workspace ONE and System Center Configuration Manager. As part of setup, we added applications to both system management solutions. For the Workspace ONE deployment, we used a Workspace ONE cloud instance. Our SCCM environment used 2016 version 1806 of the program, and a 24-port switch to connect laptops for deployment. We pre-captured a Windows 10 Professional image using an SCCM build-and-capture sequence to deploy in our traditional deployment.

Product downloads

Here is a list of the programs we installed within Workspace ONE and SCCM. To install these in either environment, you'll need to navigate to each URL, download the files, and add each application with their install command within Workspace ONE and SCCM. The sections after this table describe our installation processes in greater detail.

Product	Filename	File type	Install command	URL
Adobe® Reader® DC	AcroRdrDC1900820081_en-US.zip	.zip	msiexec /qb /i "AcroRead.msi" /norestart	https://get.adobe.com/reader/enterprise/
Google Chrome™	GoogleChromeStandaloneEnterprise64.msi	.msi	msiexec /i "GoogleChromeStandaloneEnterprise64.msi" /qn	https://cloud.google.com/chrome-enterprise/browser/download/
Mozilla Firefox	FirefoxESR-60.3.0-en-US.msi	.msi	msiexec /i "FirefoxESR-60.3.0-ach.msi" /qn	https://www.frontmotion.com/news/firefoxesr/releases/firefoxesr-60-3-0/
Java	JavaSetup8u191.exe	.exe	JavaSetup8u191.exe /s	https://javadl.oracle.com/webapps/download/AutoDL?BundleId=236886_42970487e3af4f5aa5bca3f542482c60
Notepad ++	npp.7.5.5.installer.x64.msi	.msi	msiexec /i "npp.7.5.5.installer.x64.msi" /qn	https://www.hass.de/files/nodes/story/45/npp.7.5.5.installer.x64.msi
Microsoft Office 2016 Professional Plus	en_office_professional_plus_2016_x86_x64_dvd_6962141.zip	.zip	setup.exe /configure configuration.xml	https://products.office.com/en-us/get-office-oem-download-page
Slack	SlackSetup.msi	.msi	msiexec /i "SlackSetup.msi" /qn	http://slack.com/ssb/download-win64-msi-legacy
VLC Media Player	vlc-3.0.4-win64.msi	.msi	msiexec /i "vlc-3.0.4-win64.msi" /qn	https://download.videolan.org/pub/videolan/vlc/3.0.4/win64/vlc-3.0.4-win64.msi
Zoom	ZoomInstallerFull.msi	.msi	msiexec /i "ZoomInstallerFull.msi" /qn	https://zoom.us/client/latest/ZoomRoomsInstaller.msi

Workspace ONE deployment setup

Adding an application to Workspace ONE

1. In your browser, browse to your Workspace ONE URL.
2. In the Workspace ONE UEM console, click Apps & Books.
3. Click Add Application.
4. On the Add screen, click Upload.
5. On the Add screen, click Choose File.
6. Select the application file, and click OK.
7. Click Continue.
8. On the Deployment options screen, under Install Command, enter the install command for the application you wish to add.
9. On the Application screen, click Save & Assign.
10. Repeat steps 3 through 9 for each application.

Traditional deployment setup in System Center Configuration Manager

Adding applications to SCCM

1. On the SCCM server, open the Configuration Manager Console.
2. In the SCCM console, in the Software Library under Application Management, select Applications.
3. Click Create Application.
4. In the Create Package and Program Wizard, on the Package screen, enter the network location and type for the target file. Click Next.
5. Click Next.
6. For General information, enter the Install command for the target application. Click Next.
7. On the Summary screen, click Next.
8. On the Completion screen, click Close.
9. Repeat steps 3 through 8 for each application.

Creating the SCCM Deployment Task Sequence for deployment

We created a task sequence to in order to deploy our captured Windows 10 Professional Image to our target laptops.

1. In the SCCM console, under Task sequences, right-click Create task sequence, and select Install an existing image.
2. Click Next.
3. Enter a task sequence name, and select the x64 Boot image.
4. Click Next.
5. To install Windows, select Windows 10 Pro en-US. Deselect Configure task sequence for use with BitLocker.
6. Select Enable the account and specify the local administrator password. Enter an administrator password, and click Next.
7. Select Join a domain, and enter the domain credentials for your domain. Click Next.
8. Click Next.
9. Deselect all options on the Configure state migration screen. Click Next.
10. On the Include Updates screen, select Available for installation – All software updates, and click Next.
11. On the Install application screen, click the star, and add all the target applications. Click Next.
12. Click Next, then click Close.
13. Right-click the newly created task sequence, and select Distribute Content Wizard.
14. Click Next.
15. Click Next.
16. On the Content Distribution screen, click Add, and select Distribution Point.
17. Select the target distribution point, and click OK.
18. Click Next.
19. Click Next.

Creating the SCCM Deployment Task Sequence

SCCM must finish distributing all content before deploying the task sequence.

1. Right-click the newly created task sequence, and click Deploy.
2. For Collection, select All Unknown Computers. Click Next.
3. For Purpose, select Required.
4. For Make available to the following, select Configuration Manager clients, media, and PXE.
5. Click Next.
6. For Assignment schedule, click New.
7. Select Assign immediately after this event. Click Summary.
8. Click Next.

How we tested

After configuring our environment and ordering both sets of laptops, we completed the following steps.

Traditional deployment

After receiving our laptops, we completed the following steps for the traditional deployment. We timed the following tasks as they were completed. We completed each task with one, two, and five systems. For each system, we repeated all steps.

Unboxing the target laptop

1. Remove the laptop and power adapters from the packaging. Set the packaging aside.

Connecting the power and networking cables

1. Move the laptop to the deployment workspace.
2. Unravel the power adapter, and plug it into the corresponding device.
3. Plug an Ethernet cable into the device.

Configuring the BIOS and booting to NIC

1. Open the lid and power on the target laptop.
2. To enter the boot menu, Press F12.
3. Select BIOS Setup.
4. In the Dell Latitude 5491 BIOS, under integrated NIC select Enable UEFI Network Stack.
5. Under Secure Boot, deselect Secure Boot Enable.
6. Click Apply, and click Exit.
7. Press F12 to enter the boot menu.
8. Under UEFI Boot, select Onboard NIC IPv4.

Allow the system to complete the installation, followed by an initial boot and update. Once the system is at the login screen, continue with the instructions below.

Shutting down the system

1. At the Windows login screen, press Enter.
2. At the bottom right-hand corner of the screen, click the power button, and select Shutdown.

Repackaging the systems

1. Once the system has shut down, close the lid, unplug the system from both cables, and unplug the power adapter.
2. Wrap up the power adapter, and put it in the box.
3. Repackage the laptop in its original packaging.

Preparing the package for shipping

1. Create shipping labels for the package. We used fedex.com.
2. Print the shipping label for the package.
3. Apply the shipping labels to the package, and place it in the outbound shipping area.

Dell Provisioning for Workspace ONE deployment

After placing our order, we received a link from Dell to complete the following contact form. We timed these tasks as we completed them.

Completing the contact form

1. Browse to <https://marketing.dell.com/en/services> and enter your information.

Calling the project manager

1. A project manager will set up a meeting to review the details of your order. We attended the meeting, then prepared our provisioning package as detailed below.

Starting the provisioning package creation

We used a preconfigured Workspace ONE UEM environment with our apps ready to export. Prior to exporting the applications, administrators should validate their applications.

1. Log into the Workspace ONE UEM portal.
2. From the Workspace ONE UEM portal, select Apps.
3. Click Export, then select Export ppkg.
4. Click New.
5. Enter a provisioning package name, and click Next.
6. On the Configurations page, for Active Directory Type, select Azure Active Directory – Premium.
7. For Administrator Password, enter a password, then click Next. We used Password1.
8. Select all target applications, then click Next.
9. Click Save and Export.

You will receive an email when the package is ready. We recorded the time for the package creation to complete.

Starting the provisioning package download

1. For your target provisioning package, click Download ppkg and unattend .XML.

A download will start in your browser. We recorded the time for the provisioning package download to complete.

Calling the engagement manager and completing required forms

We completed the following steps with guidance from a Dell technician.

1. Follow the link from your email from Dell to log into Dell tech direct.
2. Click ProDeploy client suite
3. Click You have an order ready to be assigned to a project.
4. Type a name for the current project.
5. Select I want to use Build services for this Project and I will provide the necessary details. Click Next.
6. Select I do not want to use onsite services, and click Next.
7. Select No I do not need guided help, then click Next.
8. Under Set up Build Profile(s) for action, select Create New Form.
9. For the provisioning solution, select VMware Workspace ONE.
10. Under Create Provisioning files, check I have created my files based on VMware's instructions and am ready to continue.
11. For OS version, select 1803.
12. For language, select English-US.
13. For the internal quality audit, select No.
14. Under Transferring your files to Dell, for region, select United States.
15. Click Mark as Complete.
16. Click Download Dell File Transfer.

We combined the time and steps for this section and the continued section below.

Upload files via FTP

1. Click dell_downloader.exe.
2. In the File Transfer Downloader window, click Download.
3. Once complete, in the Dell File Transfer window, accept the EULA.
4. Log in using your Dell My Account credentials.
5. For Project Selection, select the relevant order, and click Next.
6. On the Image Source screen, click Add, then select both the .xml and .ppkg files. Check the box to note that these are not image files. Click Next.
7. Click scan to begin the file upload.
8. Once the upload completes, click Close.

We recorded the time to upload the provisioning package.

Calling the engagement manager and completing required forms (part two)

1. In the Project Profile screen, for System Image, select I want to use Dell's default image.
2. For Export Compliance, select Create a New Form.
3. Scroll to the bottom of the Standard Export Terms, and select I agree to the Standard Export Terms.
4. Click Mark as Complete.
5. For BIOS/UEFI, select I want to use Dell's default settings.
6. For Ship Box Label, select I do not need this service.
7. For Standard Asset Report, select I do not need this service.
8. For OFA, select I do not need to view a test system.
9. For Connected Configuration, select I do not need this service.
10. Click Submit this Project.
11. On the Review Project Summary page, click Confirm and Submit.
12. Click Agree and Submit.

Read the report at <http://facts.pt/pnu3kh1> ►

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