

W E L C O M E

TO *Fabulous*  
TECHORAMA

ANTWERP

Windows 11  
– How to get there...





## Jörgen Nilsson

- Principal Consultant
- Microsoft MVP: Enterprise Mobility
- MCSE/MCSA/MCITP/MCTS
- ITIL Foundation Certified
- Microsoft Certified Trainer (MCT)

## Contact Info

- Mail: [Jorgen.nilsson@onevinn.se](mailto:Jorgen.nilsson@onevinn.se)
- Twitter: [@ccmexec](https://twitter.com/ccmexec)





## Ronni Pedersen

- Cloud Architect, APENTO
- Microsoft MVP: Enterprise Mobility
- MCSE/MCSA/MCITP/MCTS
- ITIL Foundation Certified
- Microsoft Certified Trainer (MCT)

## Contact Info

- Mail: [rop@apento.com](mailto:rop@apento.com)
- Twitter: [@ronnipedersen](https://twitter.com/ronnipedersen)

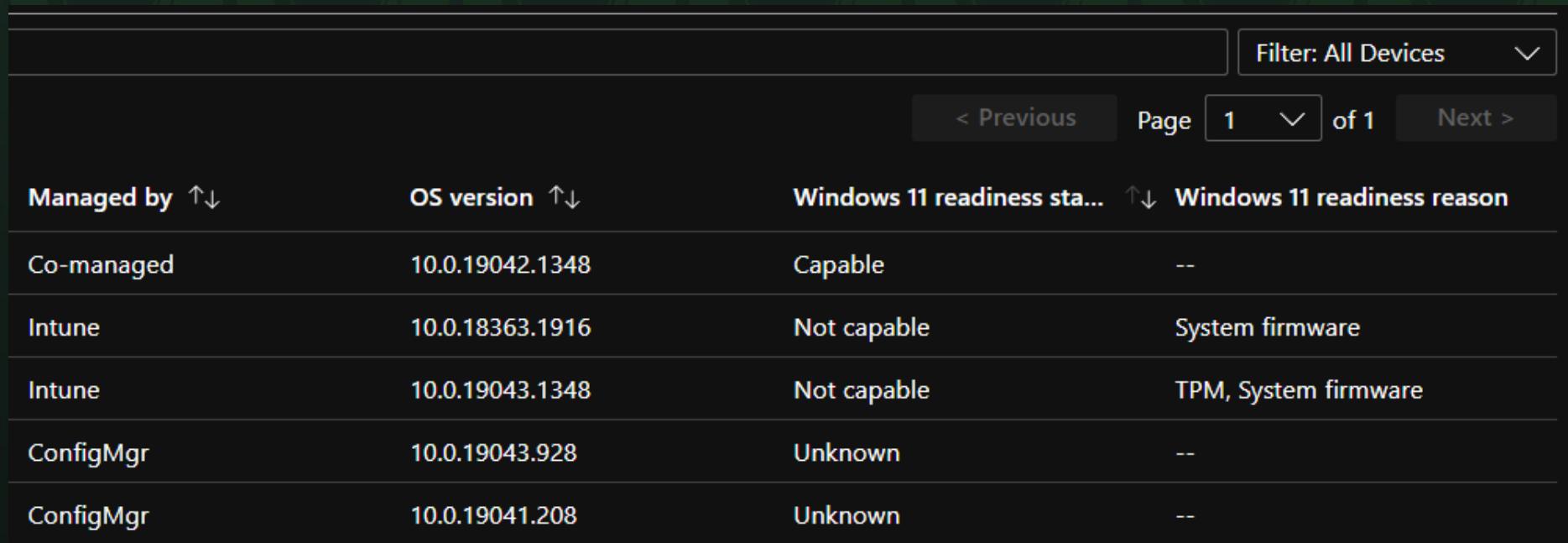


# Agenda

- Readiness
- Microsoft Intune (WUfB)
- Task Sequence
- Windows Servicing
- Customizations

# Windows 11 Readiness / Endpoint Analytics

- Easy to start using (Tenant attach, Intune, Co-Management)
  - Requires Windows Enterprise E3 (Microsoft 365 E3, EMS E3 or better).

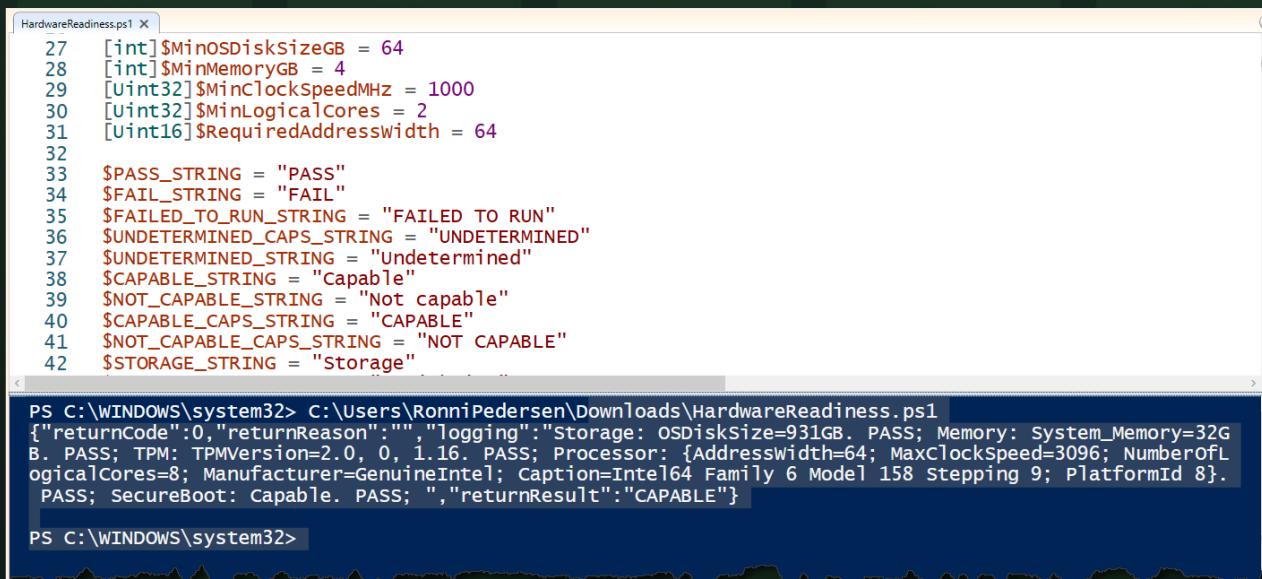


The screenshot shows a table from a Microsoft Intune or similar endpoint management tool. The table lists devices and their Windows 11 readiness status. The columns are: Managed by, OS version, Windows 11 readiness status, and Windows 11 readiness reason. The rows show five devices: one Co-managed device (Windows 10.0.19042.1348) is Capable; two Intune devices (Windows 10.0.18363.1916 and 10.0.19043.1348) are Not capable due to System firmware issues; and two ConfigMgr devices (Windows 10.0.19043.928 and 10.0.19041.208) have Unknown status.

Managed by	OS version	Windows 11 readiness sta...	Windows 11 readiness reason
Co-managed	10.0.19042.1348	Capable	--
Intune	10.0.18363.1916	Not capable	System firmware
Intune	10.0.19043.1348	Not capable	TPM, System firmware
ConfigMgr	10.0.19043.928	Unknown	--
ConfigMgr	10.0.19041.208	Unknown	--

# Windows 11 Readiness

- Microsoft provides a PowerShell script



```
HardwareReadiness.ps1
27  [int]$MinOSdiskSizeGB = 64
28  [int]$MinMemoryGB = 4
29  [UInt32]$MinClockSpeedMHz = 1000
30  [UInt32]$MinLogicalCores = 2
31  [UInt16]$RequiredAddressWidth = 64
32
33 $PASS_STRING = "PASS"
34 $FAIL_STRING = "FAIL"
35 $FAILED_TO_RUN_STRING = "FAILED TO RUN"
36 $UNDETERMINED_CAPS_STRING = "UNDETERMINED"
37 $UNDETERMINED_STRING = "Undetermined"
38 $CAPABLE_STRING = "Capable"
39 $NOT_CAPABLE_STRING = "Not capable"
40 $CAPABLE_CAPS_STRING = "CAPABLE"
41 $NOT_CAPABLE_CAPS_STRING = "NOT CAPABLE"
42 $STORAGE_STRING = "Storage"

PS C:\WINDOWS\system32> C:\Users\RonniPedersen\Downloads\HardwareReadiness.ps1
>{"returnCode":0,"returnReason":"","logging":"Storage: OSDiskSize=931GB. PASS; Memory: System_Memory=32GB. PASS; TPM: TPMVersion=2.0, 0, 1.16. PASS; Processor: {Addresswidth=64; MaxClockspeed=3096; NumberOfLogicalCores=8; Manufacturer=GenuineIntel; Caption=Intel64 Family 6 Model 158 Stepping 9; PlatformId 8}. PASS; SecureBoot: Capable. PASS; ","returnResult":"CAPABLE"}
```

<https://techcommunity.microsoft.com/t5/microsoft-endpoint-manager-blog/understanding-readiness-for-windows-11-with-microsoft-endpoint/ba-p/2770866>

# Windows 11 Readiness

Great MEMCM/SCCM Community Readiness Report Available:

**Asset - Windows 11 Readiness**

Description : List all Windows 10 devices and their hardware inventory status in order to plan a Windows 11 migration. Boxes in red flag any potential migration issues. Use search or collection parameter to narrow your results. Use the "Show Only Non-Ready" parameter to show only devices that are not ready to receive Windows 11.

Collection : All Systems | Search : % | Ready Only : 0

Total : 1727 | Page : 1 of 32

**Windows 11 Minimum Requirements**

- Processor: 1 gigahertz (GHz) or faster with two or more cores on a [compatible 64-bit processor](#)
- RAM: 4 gigabytes (GB) or greater
- Storage: 64 GB or greater available storage
- System firmware: UEFI, Secure Boot capable
- TPM: Trusted Platform Module (TPM) version 2.0

Device Name	User Name	Client	Client Version	Type	OS Edition	OS Version	OS Build	OS Branch	CPU Name	CPU Speed	RAM	Free Space (GB)	Device Manufacturer	Device Model	SecureBoot Enabled	UEFI Enabled
Yes	5.00.9049.1010	x64-based PC	Microsoft Windows 10	21H1	10.0.19043	Semi-Annual (Targeted)	Intel(R) Core(TM) i7-3630QM CPU @ 2.40GHz	2400	8	23	Lenovo	2428AY0	No	Yes		
Yes	5.00.9049.1010	x64-based PC	Microsoft Windows 10	21H1	10.0.19043	Semi-Annual (Targeted)	Intel(R) Core(TM) i5-6500 CPU @ 3.20GHz	3200	8	43	Dell Inc.	OptiPlex 3040	Yes	Yes		
No	5.00.9049.1010	x64-based PC	Microsoft Windows 10	21H1	10.0.19043	Semi-Annual (Targeted)	Intel(R) Celeron(R) CPU N3350 @ 1.10GHz	1100	4	17	Dell Inc.	Latitude 3180	Yes	Yes		
Yes	5.00.9049.1010	x64-based PC	Microsoft Windows 10	21H1	10.0.19043	Semi-Annual (Targeted)	Intel(R) Core(TM) i5-6500 CPU @ 3.20GHz	3200	8	43	HP	HP ProDesk 600 G2 SFF	No	No		
Yes	5.00.9049.1010	x64-based PC	Microsoft Windows 10	21H1	10.0.19043	Semi-Annual (Targeted)	Intel(R) Core(TM) i5-6500 CPU @ 3.20GHz	3200	8	162	HP	HP ProDesk 600 G2 SFF	Yes	Yes		
Yes	5.00.9049.1010	x64-based PC	Microsoft Windows 10	21H1	10.0.19043	Semi-Annual (Targeted)	Intel(R) Core(TM) i5-10310U CPU @ 1.70GHz	1700	16	137	Dell Inc.	Latitude 7410	Yes	Yes		
Yes	5.00.9049.1010	x64-based PC	Microsoft Windows 10	21H1	10.0.19043	Semi-Annual (Targeted)	Intel(R) Core(TM) i5-6500 CPU @ 3.20GHz	3200	8	462	HP	HP ProDesk 600 G2 SFF	Yes	Yes		
Yes	5.00.9049.1010	x64-based PC	Microsoft Windows 10	21H1	10.0.19043	Semi-Annual (Targeted)	Intel(R) Core(TM) i5-6500 CPU @ 3.20GHz	3200	8	86	HP	HP ProDesk 600 G2 SFF	No	No		
Yes	5.00.9049.1010	x64-based PC	Microsoft Windows 10	21H1	10.0.19043	Semi-Annual (Targeted)	Intel(R) Core(TM) i5-7500 CPU @ 3.40GHz	3400	8	84	HP	HP ProDesk 600 G2 SFF	No	No		
Yes	5.00.9049.1010	x64-based PC	Microsoft Windows 10	21H1	10.0.19043	Semi-Annual (Targeted)	Intel(R) Core(TM) i5-8500 CPU @ 3.00GHz	3000	8	178	Dell Inc.	OptiPlex 3050	Yes	Yes		
No	5.00.9049.1010	x64-based PC	Microsoft Windows 10	21H1	10.0.19043	Semi-Annual (Targeted)	Intel(R) Core(TM) i5-8400 CPU @ 2.80GHz	2800	8	131	Dell Inc.	OptiPlex 3060	Yes	Yes		
Yes	5.00.9049.1010	x64-based PC	Microsoft Windows 10	21H1	10.0.19043	Semi-Annual (Targeted)	Intel(R) Core(TM)2 Quad CPU Q8300 @ 2.50GHz	2500	6	100	Dell Inc.	OptiPlex 755	No	No		
Yes	5.00.9049.1010	x64-based PC	Microsoft Windows 10	21H1	10.0.19043	Semi-Annual (Targeted)	Intel(R) Core(TM) i5-4590 CPU @ 3.20GHz	3300	8	123	Dell Inc.	OptiPlex 9020	No	No		
Yes	5.00.9049.1010	x64-based PC	Microsoft Windows 10	21H1	10.0.19043	Semi-Annual (Targeted)	Intel(R) Core(TM) i5-6500 CPU @ 3.20GHz	3200	8	130	HP	HP ProDesk 600 G2 SFF	Yes	Yes		
No	5.00.9049.1010	x64-based PC	Microsoft Windows 10	21H1	10.0.19043	Semi-Annual (Targeted)	Intel(R) Core(TM) i5-9500 CPU @ 3.00GHz	3000	8	169	Dell Inc.	OptiPlex 3070	Yes	Yes		
Yes	5.00.9049.1010	x64-based PC	Microsoft Windows 10	21H1	10.0.19043	Semi-Annual (Targeted)	Intel(R) Core(TM) i5 CPU 650 @ 3.20GHz	3200	4	69	Hewlett-Packard	HP Compaq 8100 Elite SFF PC	No	No		
Yes	5.00.9049.1010	x64-based PC	Microsoft Windows 10	21H1	10.0.19043	Semi-Annual (Targeted)	Intel(R) Celeron(R) N4120 CPU @ 1.10GHz	1100	4	87	Dell Inc.	Latitude 3190	Yes	Yes		
No	5.00.9049.1010	x64-based PC	Microsoft Windows 10	21H1	10.0.19043	Semi-Annual (Targeted)	Intel(R) Core(TM) i5-7500 CPU @ 3.40GHz	3400	8	65	Dell Inc.	OptiPlex 5250 AIO	No	No		
Yes	5.00.9049.1010	x64-based PC	Microsoft Windows 10	21H1	10.0.19043	Semi-Annual (Targeted)	Intel(R) Core(TM) i5-6500 CPU @ 3.20GHz	3200	8	133	HP	HP ProDesk 600 G2 SFF	Yes	Yes		
Yes	5.00.9049.1010	x64-based PC	Microsoft Windows 10	21H1	10.0.19043	Semi-Annual (Targeted)	Intel(R) Core(TM) i5-6500 CPU @ 3.20GHz	3200	8	135	Dell Inc.	OptiPlex 3040	No	No		
Yes	5.00.9049.1010	x64-based PC	Microsoft Windows 10	21H1	10.0.19043	Semi-Annual (Targeted)	Intel(R) Core(TM) i5 CPU 650 @ 3.20GHz	3200	4	69	Hewlett-Packard	HP Compaq 8100 Elite SFF PC	No	No		
Yes	5.00.9049.1010	x64-based PC	Microsoft Windows 10	21H1	10.0.19043	Semi-Annual (Targeted)	Intel(R) Core(TM) i5-6500 CPU @ 3.20GHz	3200	8	150	HP	HP ProDesk 600 G2 SFF	Yes	Yes		
Yes	5.00.8968.1021	x64-based PC	Microsoft Windows 10	21H1	10.0.19043	Semi-Annual (Targeted)	Intel(R) Core(TM) i5-6400T CPU @ 2.20GHz	2200	8	163	HP	HP EliteDesk 800 G2 SFF	Yes	Yes		
Yes	5.00.9049.1010	x64-based PC	Microsoft Windows 10	21H1	10.0.19043	Semi-Annual (Targeted)	Intel(R) Core(TM) i5-6500 CPU @ 3.20GHz	3200	8	108	HP	HP ProDesk 600 G2 SFF	Yes	Yes		

<https://systemcenterdudes.com/free-readiness-memcm-sccm-windows-11-report/>



# Challenges with Work from Home

- Network Considerations
  - VPN (Forced/Split Tunneling)
- Content Location
  - On-Prem Servers
  - Azure Shares
  - Cloud Management Gateway (DP)
  - Cloud Attached or not
- End User Support
  - What if upgrade fails?
  - Recovery/Re-provision/re-deploy?

# Network Considerations

- Optimizing network traffic for remote workers

## Optimizing Office 365 traffic for remote workers with the native Windows 10 VPN client

04/07/2020 • 14 minutes to read • 

This article describes how to configure the recommendations in the article [Optimize Office 365 connectivity for remote users using VPN split tunneling](#) for the *native Windows 10 VPN client*. This guidance enables VPN administrators to optimize Office 365 usage while still ensuring that all other traffic goes over the VPN connection and through existing security gateways and tooling.

This can be achieved for the native/built-in Windows 10 VPN client using a *Force Tunneling with Exclusions* approach. This allows you to define IP-based exclusions even when using force tunneling in order to "split" certain traffic to use the physical interface while still forcing all other traffic via the VPN interface. Traffic addressed to specifically defined destinations (like those listed in the Office 365 optimize categories) will therefore follow a much more direct and efficient path, without the need to traverse or "hairpin" via the VPN tunnel and back out of the corporate network. For cloud-services like Office 365, this makes a huge difference in performance and usability for remote users.

### Note

The term *force tunneling with exclusions* is sometimes confusingly called "split tunnels" by other vendors and in some online documentation. For Windows 10 VPN, the term *split tunneling* is defined differently as described in the article [VPN routing decisions](#).

<https://docs.microsoft.com/en-us/windows/security/identity-protection/vpn/vpn-office-365-optimization>

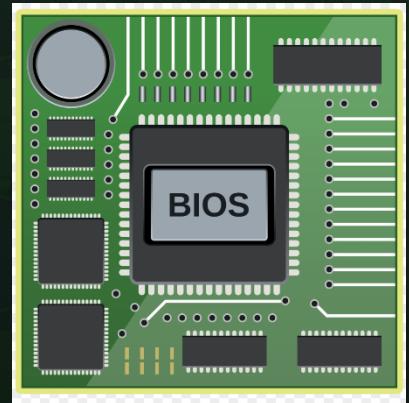
# Challenges with Feature Updates

- BIOS and Drivers Updates needed
- Outdated/unsupported Applications
- Pending Reboots
- Missing Updates (CU and Security)
- Language Packs

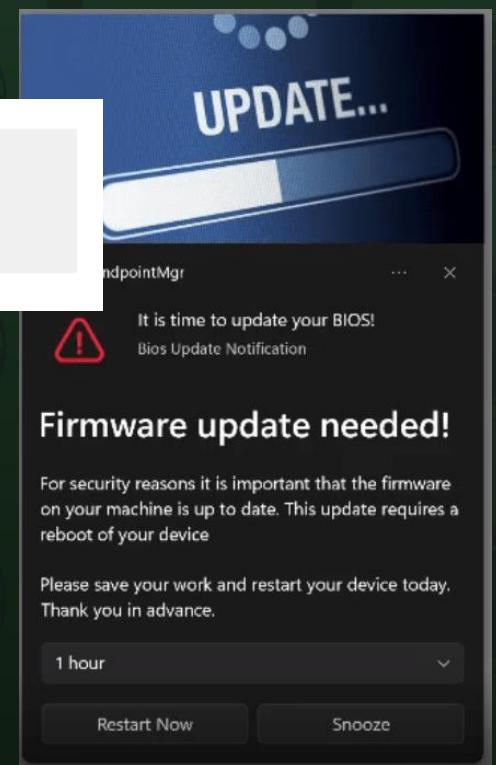
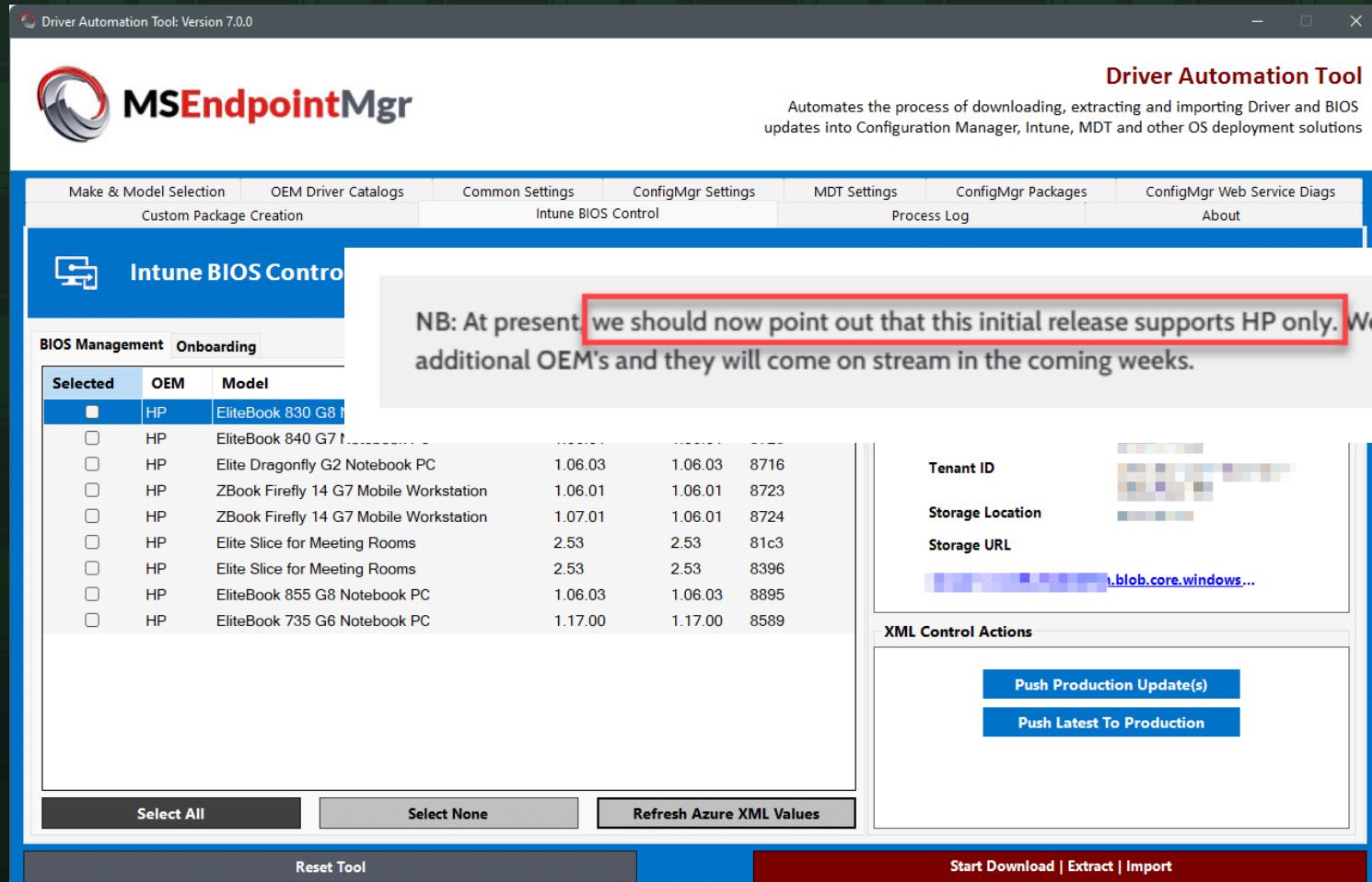


# Driver/BIOS Management

- Community Tool: MSEndpointMgr Modern Driver Management
  - <https://msendpointmgr.com/modern-driver-management/>
- HP has started updating BIOS/Firmware using MU:  
<http://h10032.www1.hp.com/ctg/Manual/c06696094>
- Updates Drivers from Microsoft Update
  - Most major vendors has now started to update drivers using MU

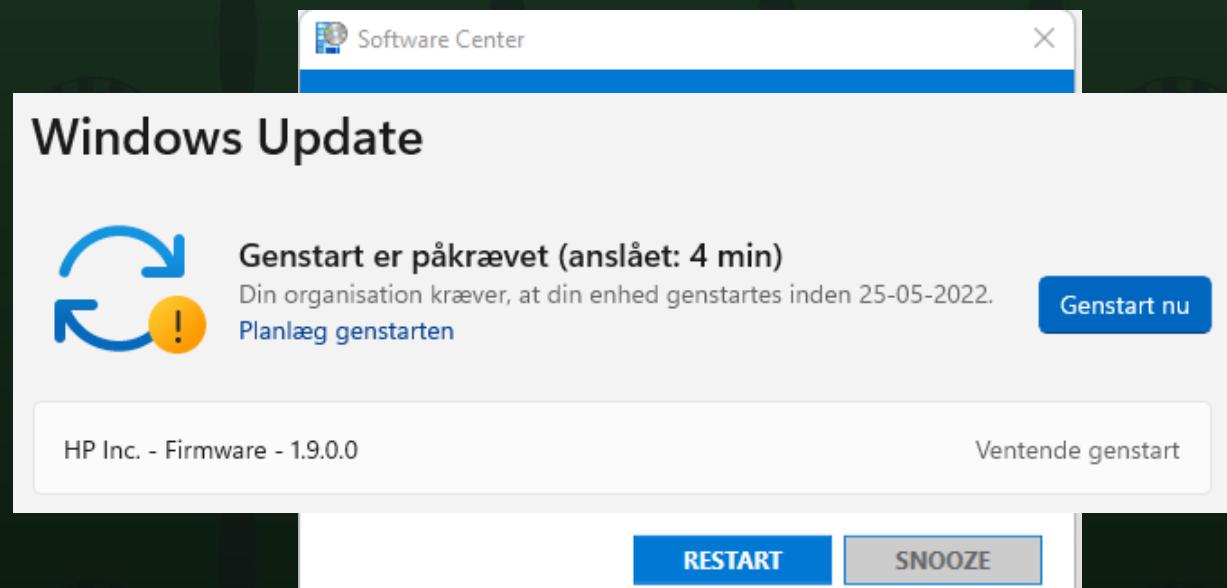


# MSEndpointMgr Intune BIOS Control



# Driver Updates using WUfB

- Drivers updates comes from the vendor
- Can cause many annoying reboots



Driveropdateringer (50)	
Intel - net - 22.110.1.1	Installationen blev fuldført d. 25-05-2022
HP Inc. - Firmware - 1.9.0.0	Installationen blev fuldført d. 24-05-2022
Intel Corporation - Display - 30.0.101.1404	Installationen blev fuldført d. 23-05-2022
Intel - SoftwareComponent - 2130.1.16.40	Installationen blev fuldført d. 23-05-2022
Intel - SoftwareComponent - 2143.64.70.0	Installationen blev fuldført d. 18-05-2022

# Updates Drivers from Microsoft Update

```
#search and List all missing Drivers
(New-Object -ComObject Microsoft.Update.ServiceManager).Services
$updateSvc = New-Object -ComObject Microsoft.Update.ServiceManager
$updateSvc.AddService2("7971f918-a847-4430-9279-4a52d1efef18d",7,"")
$Session = New-Object -ComObject Microsoft.Update.Session
$searcher = $Session.CreateUpdateSearcher()

$searcher.ServiceID = '7971f918-a847-4430-9279-4a52d1efef18d'
$searcher.SearchScope = 1 # Machineonly
$searcher.ServerSelection = 3 # Third Party

$criteria = "IsInstalled=0 and Type='Driver' and ISHidden=0"
Write-Host('Searching Driver-Updates...') -Fore Green
$searchResult = $searcher.Search($criteria)
$updates = $searchResult.Updates

#Show available Drivers
$updates | select Title, DriverModel, DriverVerDate, DriverClass, DriverManufacturer

#Download the Drivers from Microsoft

$updatesToDownload = New-Object -Com Microsoft.Update.UpdateColl
$updates | % { $updatesToDownload.Add($_) | out-null }
Write-Host('Downloading Drivers...') -Fore Green
$updateSession = New-Object -Com Microsoft.Update.Session
$downloader = $updateSession.CreateUpdateDownloader()
$downloader.Updates = $updatesToDownload
$downloader.Download()

#Check if the Drivers are all downloaded and trigger the Installation

$updatesToInstall = New-Object -Com Microsoft.Update.UpdateColl
$updates | % { if($_.IsDownloaded) { $updatesToInstall.Add($_) | out-null } }

Write-Host('Installing Drivers...') -Fore Green
$installer = $updateSession.CreateUpdateInstaller()
$installer.Updates = $updatesToInstall
$installationResult = $installer.Install()
if($installationResult.RebootRequired) {
    Write-Host('Reboot required! please reboot now..') -Fore Red
} else { Write-Host('Done..') -Fore Green }
```

```
PS C:\WINDOWS\system32> $updates | select Title, DriverModel, DriverVerDate, DriverClass, DriverManufacturer | fl

Title : INTEL - System - 7/18/1968 12:00:00 AM - 10.1.14.4
DriverModel : Intel(R) Host Bridge/DRAM Registers - 3ED0
DriverVerDate : 18/07/1968 00.00.00
DriverClass : OtherHardware
DriverManufacturer : INTEL

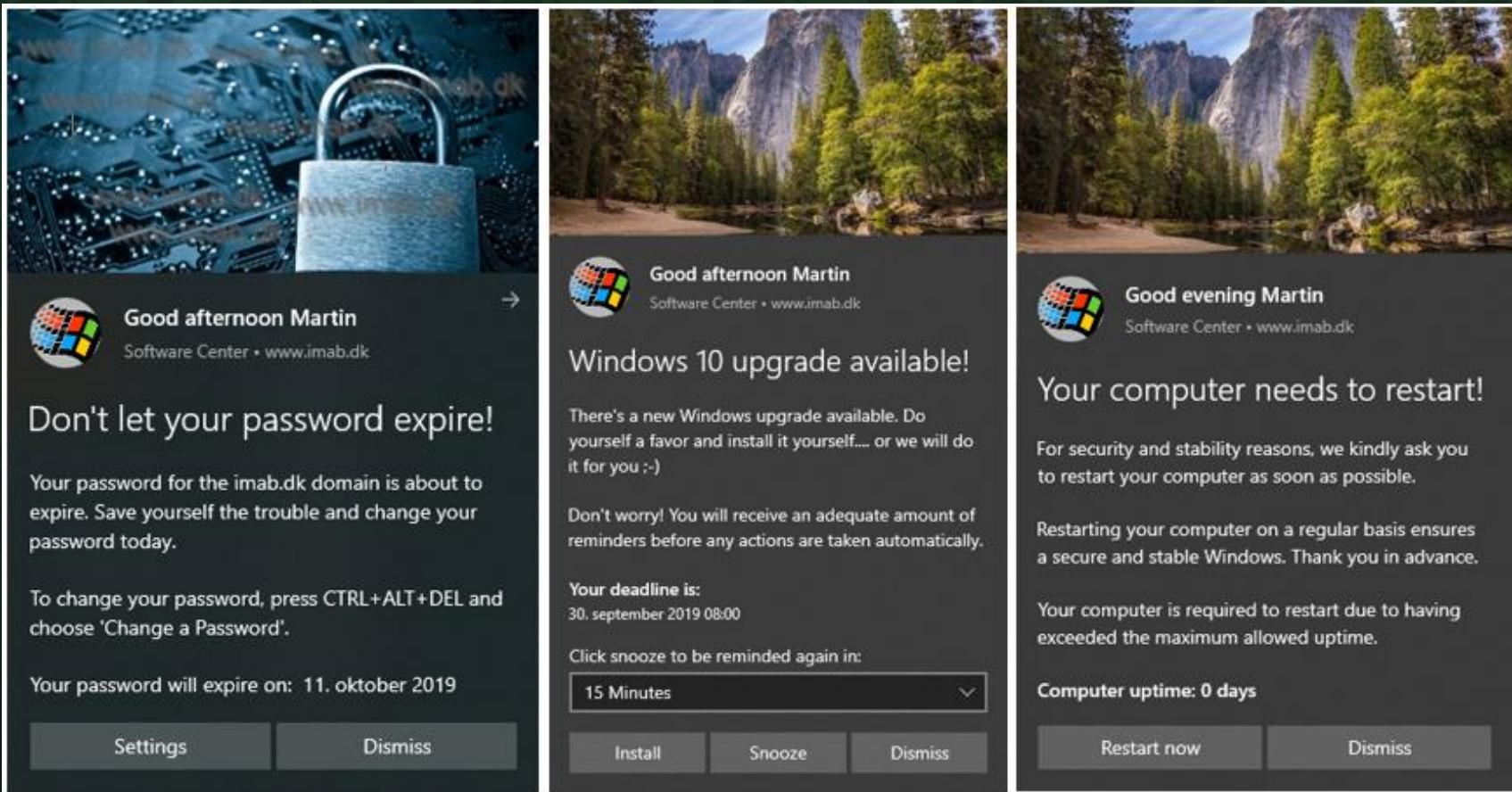
Title : Intel - net - 22.20.0.6
DriverModel : Intel(R) Wireless-AC 9560 160MHz
DriverVerDate : 30/11/2020 00.00.00
DriverClass : Networking
DriverManufacturer : Intel Corporation

Title : Intel Corporation - Bluetooth - 22.20.0.3
DriverModel : Intel(R) Wireless Bluetooth(R)
DriverVerDate : 27/11/2020 00.00.00
DriverClass : OtherHardware
DriverManufacturer : Intel Corporation
```

```
$updatesToDownload = New-Object -Com Microsoft.Update.UpdateColl
$updates | % { $updatesToDownload.Add($_) | out-null }
Write-Host('Downloading Drivers...') -Fore Green
$updateSession = New-Object -Com Microsoft.Update.Session
$downloader = $updateSession.CreateUpdateDownloader()
$downloader.Updates = $updatesToDownload
$downloader.Download()
Downloading Drivers...
```

HResult	ResultCode
0	2

# Pending Reboots / Notifications



<https://www.imab.dk/windows-10-toast-notification-script/>

# Windows 11 Feature Updates

Windows Update for Business in Microsoft Intune

# Windows Update for Business

- Pros

- Devices access Windows Update directly for the updates
  - Simple infrastructure and Less work
- Simple Management
- Microsoft hold back updates for “bad” devices
- Included driver updates

- Cons

- Limited Control
- Maximum 1 year postpone
- Limited Reporting



# Optional: Custom Power BI Reports



# Windows 11 Feature Updates (Intune)

**This feature is still in public preview**

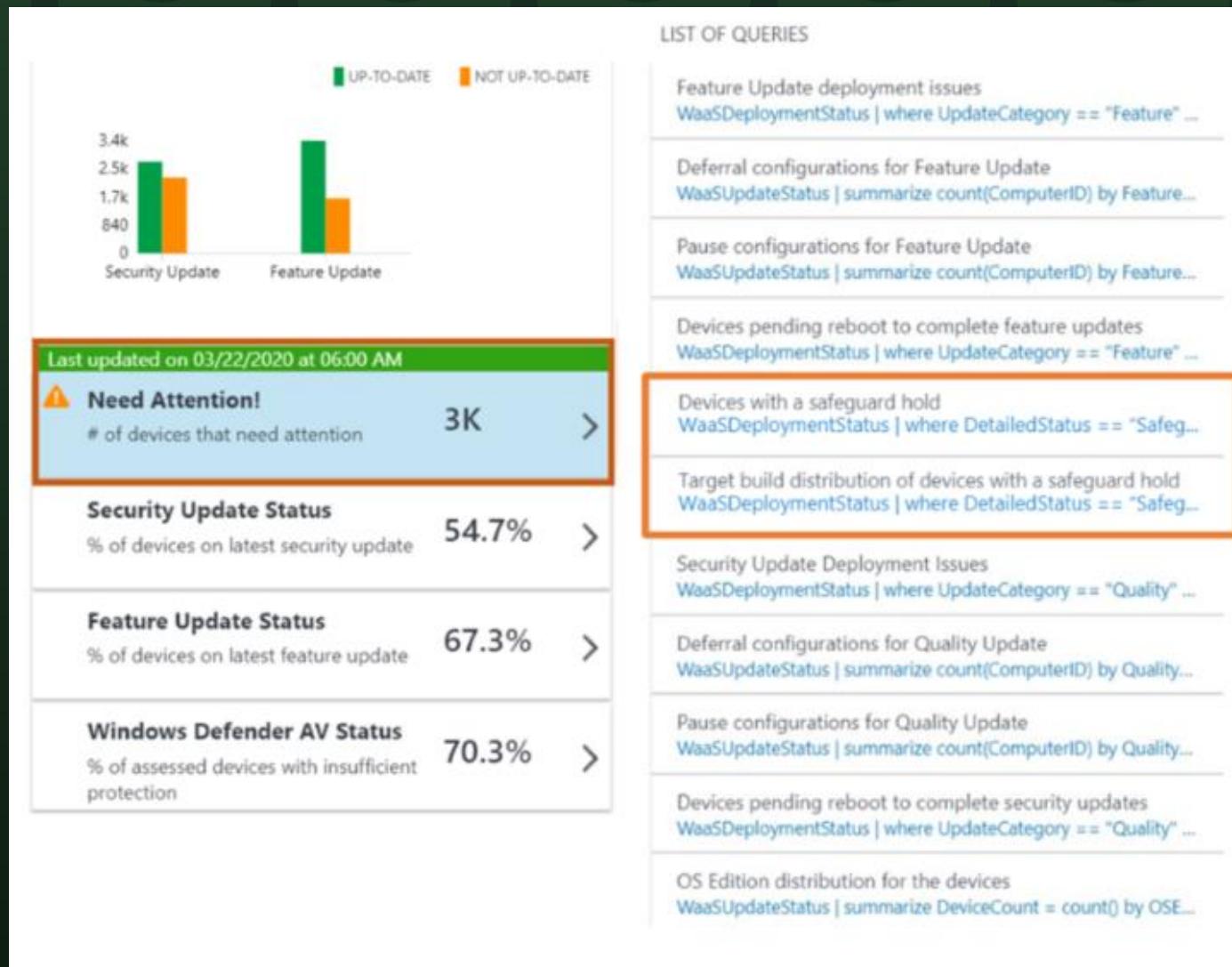
- Telemetry must be turned on
  - Minimum setting of **Basic**.

## Important

- The **Feature update deferral period (days)** must be set to 0.
- **Windows Autopilot**: The feature updates policy cannot be applied during the out of box experience (OOBE). (Can take up to 1 day).

# Safeguard Holds

- Diagnostic Data is used to determine whether a devices are ready for a feature update...
- Goal: To ensure a smooth experience!



# Requirements for Feature Updates in Intune

- License: Intune + Windows Enterprise E3, VDA or Business Premium
  - Windows 10/11 that remains in support
  - Hybrid AD joined or Azure AD joined (enrolled in Intune MDM)
  - Have Telemetry turned on
- Windows 10/11 Enterprise LTSC is not supported*

<https://docs.microsoft.com/en-us/mem/intune/protect/windows-10-feature-updates>

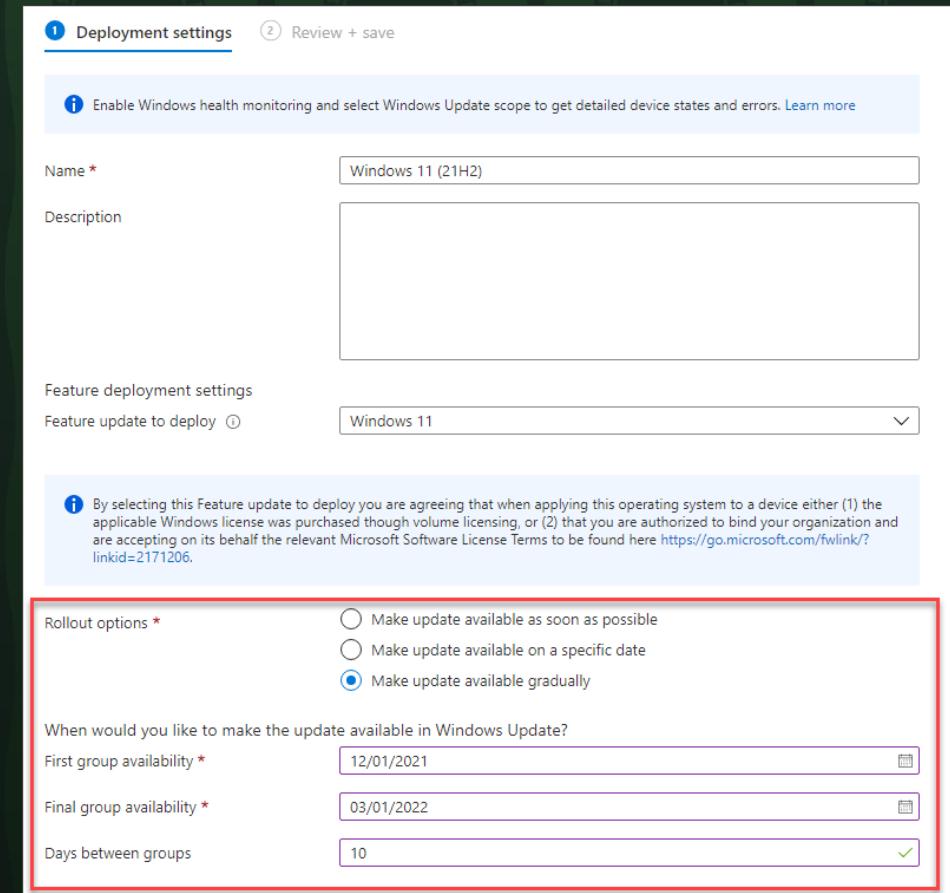
# Make updates available gradually

## New Rollout Options

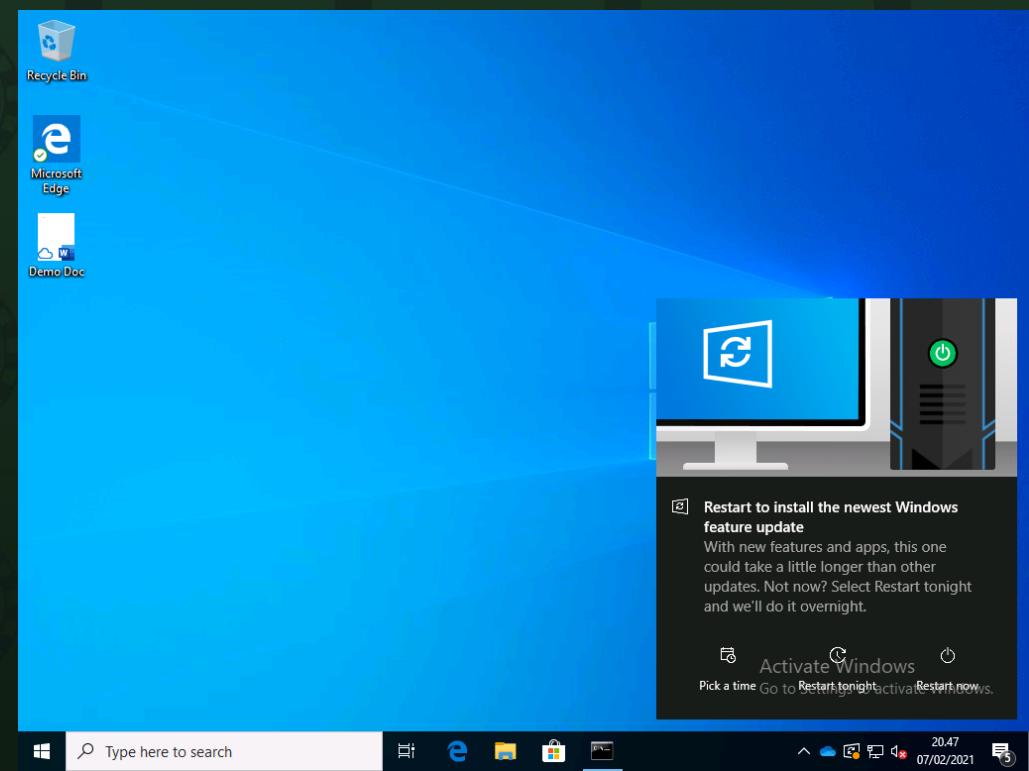
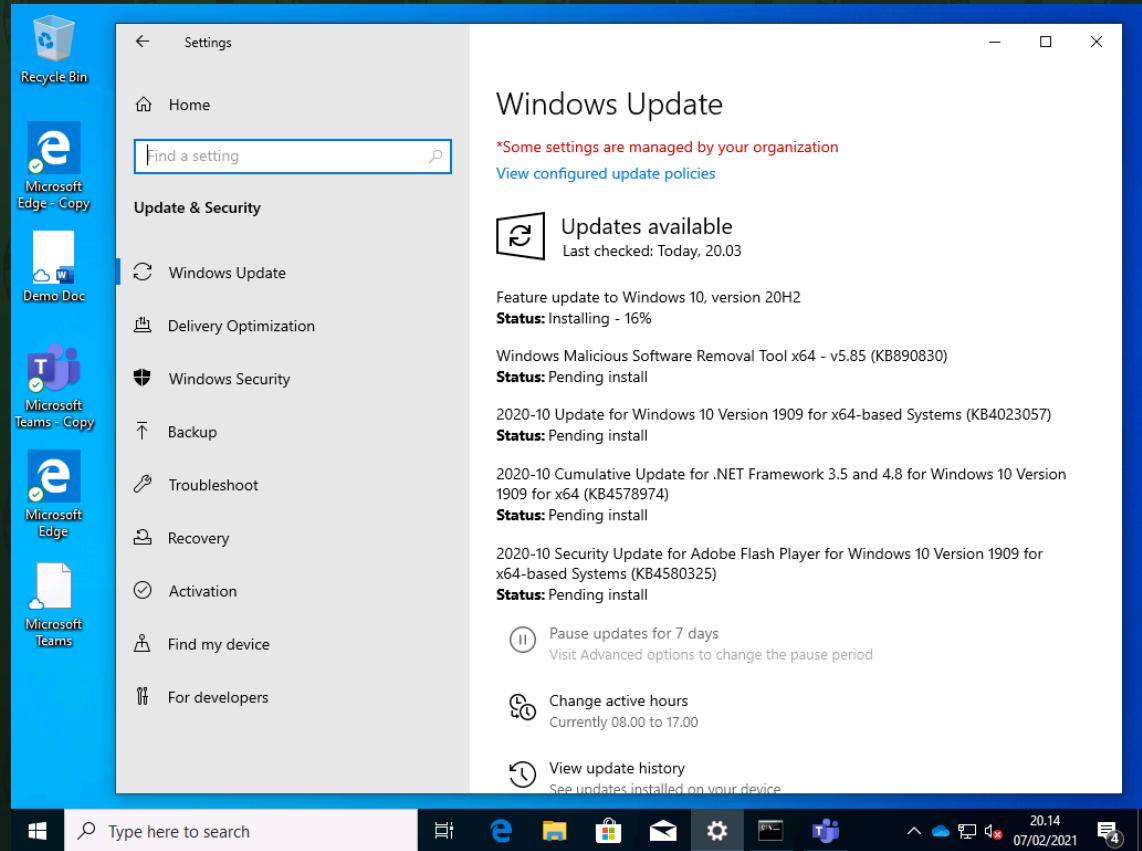
- First group availability
- Final group availability
- Days between groups

## Example:

- Clients: 400
- First day: 1/1-2022
- Last day: 10/1-2022
- Days between: 3
- Result: **4 Rings** (1/1, 4/1, 7/1, 10/1)



# End User Experience (1909 → XXXX)



# End User Experience (21H2 → Windows 11)



# Reports: Windows updates (preview)

Home > Reports

## Reports | Windows updates (preview)

Search (Ctrl+ /) < Summary Reports

Overview Refresh Last refreshed on: 2/8/2021, 2:08:18 PM

Device management

- Device compliance
- Group policy analytics (preview)
- Windows updates (preview)
- Cloud attached devices (preview)

Endpoint security

- Microsoft defender antivirus
- Firewall

Analytics

- Endpoint analytics

Intune data warehouse

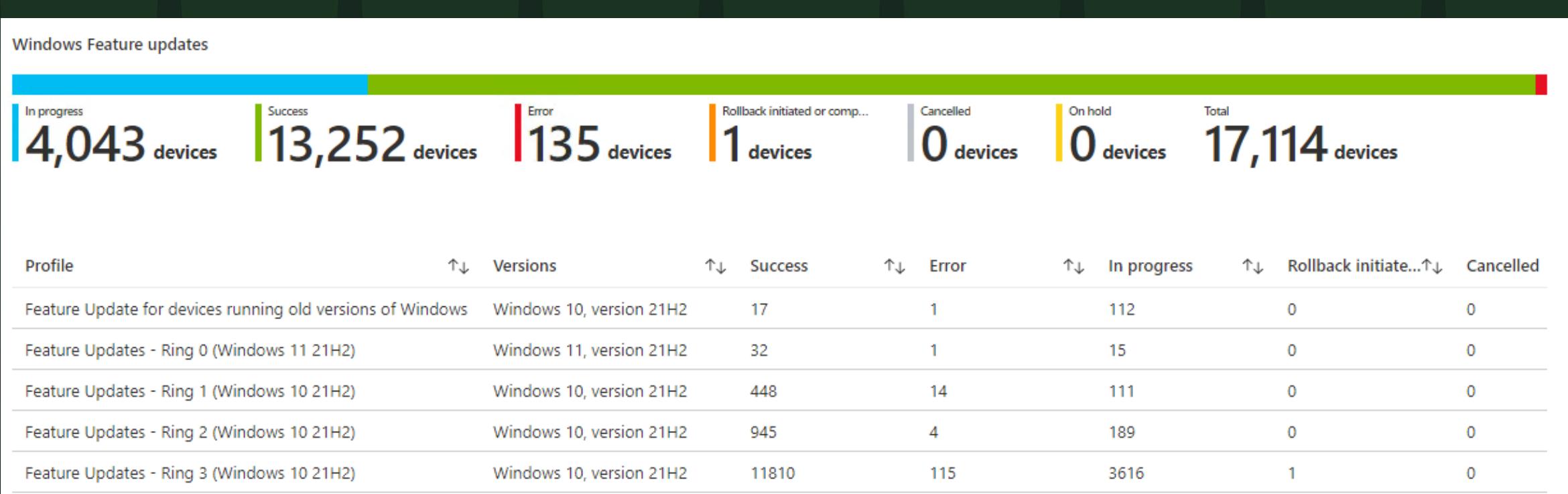
- Data warehouse

Windows update

In progress Success Error Rollback initiated or comp... Cancelled On hold Total

Devices	UPN	Intune Device ID	AAD Device ID	Last Event Time	Update State	Update Substate	Update Aggregated S...
4 devices	rop@techpreview.dk	4e1d242a-de6a-4f95-b9...	233486f3-1ceb-4b5a-a2...	2/9/2021, 10:00:00 AM	Installed	Update installed	Success
1 devices	rop@techpreview.dk	b80efc22-e7d9-420b-9f...	03fb09da-8960-4e24-90...	2/7/2021, 2:45:06 PM	Pending	Scheduled	In progress
0 devices	rop@techpreview.dk	c3c91379-f4d0-4d44-89...	b668834e-3a0f-49a7-90...	2/9/2021, 4:00:00 AM	Installed	Update installed	Success
0 devices	rop@techpreview.dk	a8f7da64-241c-4948-92...	7cc7944c-88b6-49d9-94...	2/7/2021, 2:45:06 PM	Pending	Scheduled	In progress
0 devices	rop@techpreview.dk	bda1191d-2388-47cd-a...	692baff1-f6fb-4ff9-af5d...	2/8/2021, 10:45:21 PM	Offering	Offer ready	In progress
0 devices	rop@techpreview.dk	ffab687d-1795-4565-ac8...	68d0fa2b-39ef-44c3-9b...	2/7/2021, 2:45:06 PM	Pending	Scheduled	In progress

# Customer after 60 days (gradually roll-out)



# Migrating from other solutions

- Using Proactive Remediation
- Ensure Windows Update Settings are Compliant.

## Service Breaking Settings

Registry Key
Software\Policies\Microsoft\Windows\WindowsUpdate
Software\Policies\Microsoft\Windows\WindowsUpdate
Software\Policies\Microsoft\Windows\WindowsUpdate\AU

Edit - WU Device Settings Inventory ...

1

2

Settings   Review + save

This script will run in detect-only mode because there is no remediation script.

Create a custom script package from scripts you've written. By default, scripts will run on assigned devices.

Detection script file Select a file

Detection script

```
<#
SYNOPSIS
Inventory Windows Update device settings
DESCRIPTION
This script is designed to be run as a Proactive Remediation script. It inventories Windows Update settings on the device and up to 100 assigned devices. Admins are able to visualize the Windows Update settings across their organization.
```

Remediation script file Select a file

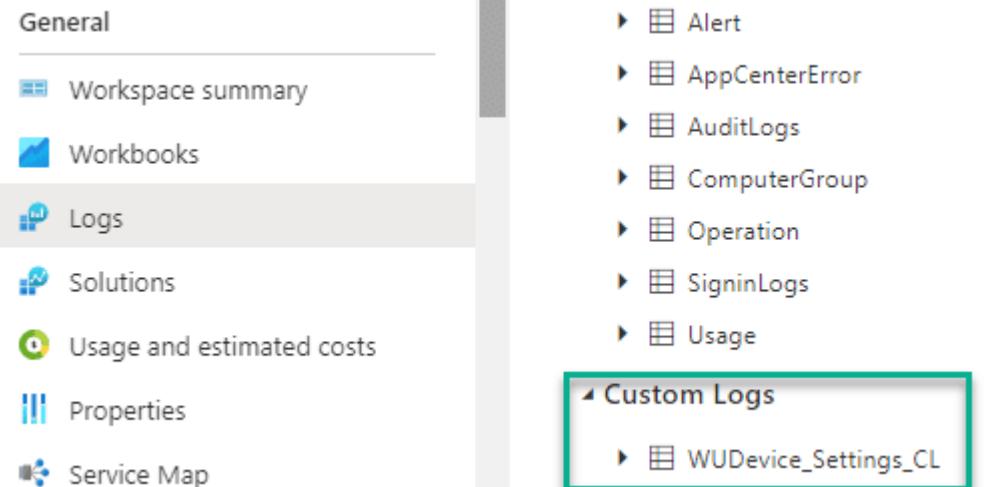
Remediation script

Input script text

Run this script using the logged-on credentials Yes No

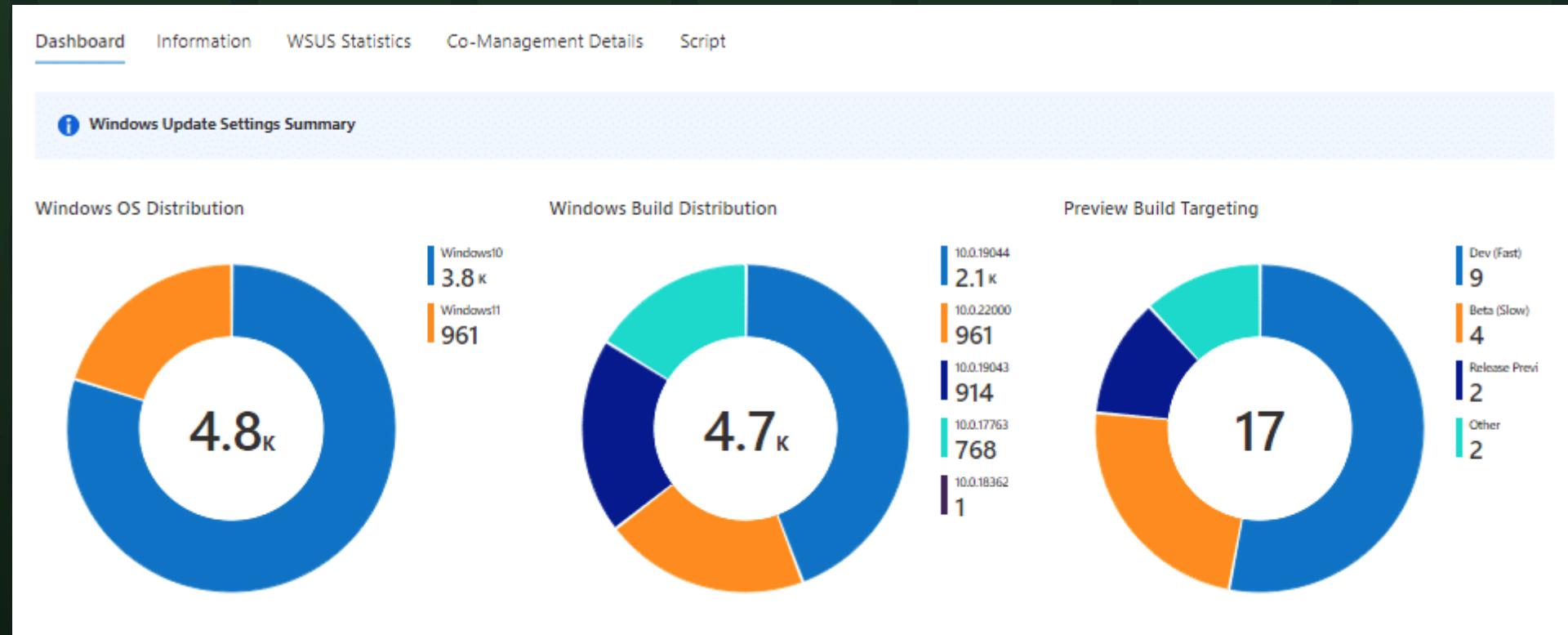
Enforce script signature check Yes No

Run script in 64-bit PowerShell Yes No



<https://msendpointmgr.com/2022/05/13/windows-update-settings-compliance/>

# Settings Summary

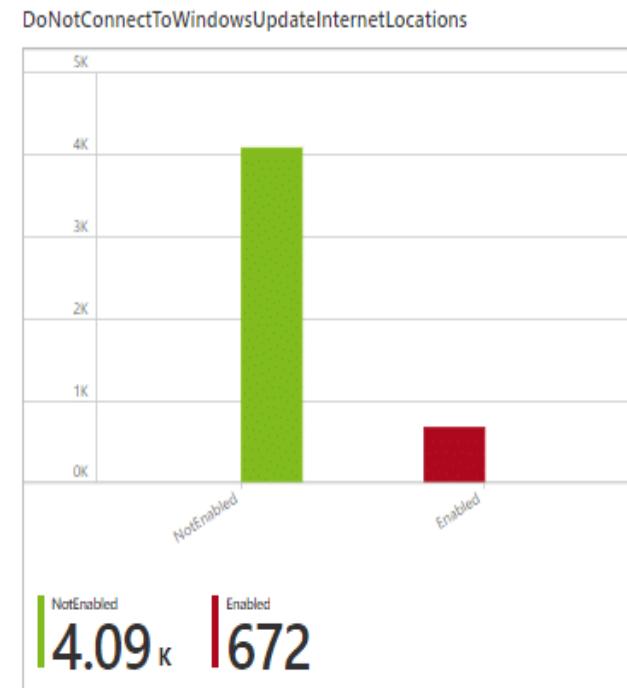
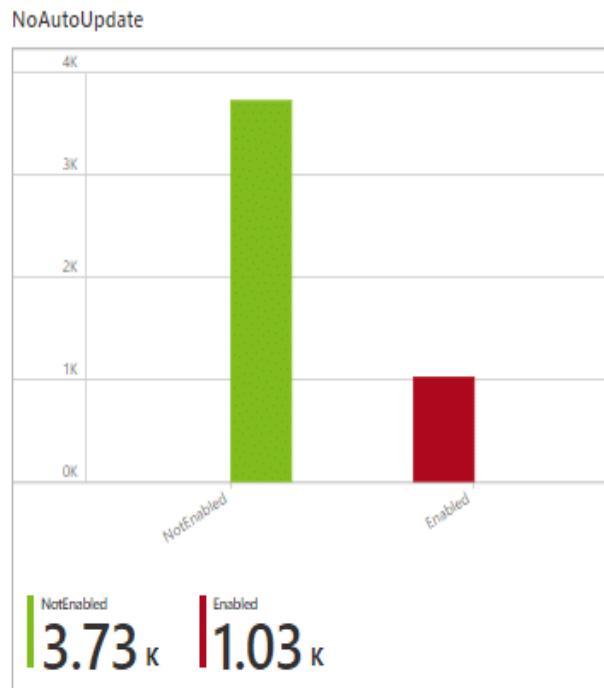
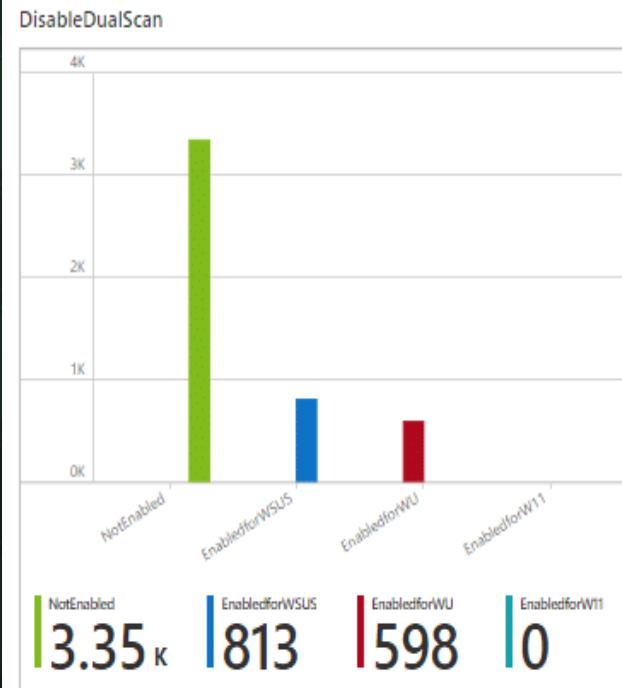


<https://msendpointmgr.com/2022/05/13/windows-update-settings-compliance/>

# Service Break Settings



**MSEndpointMgr**



**DisableDualScan**

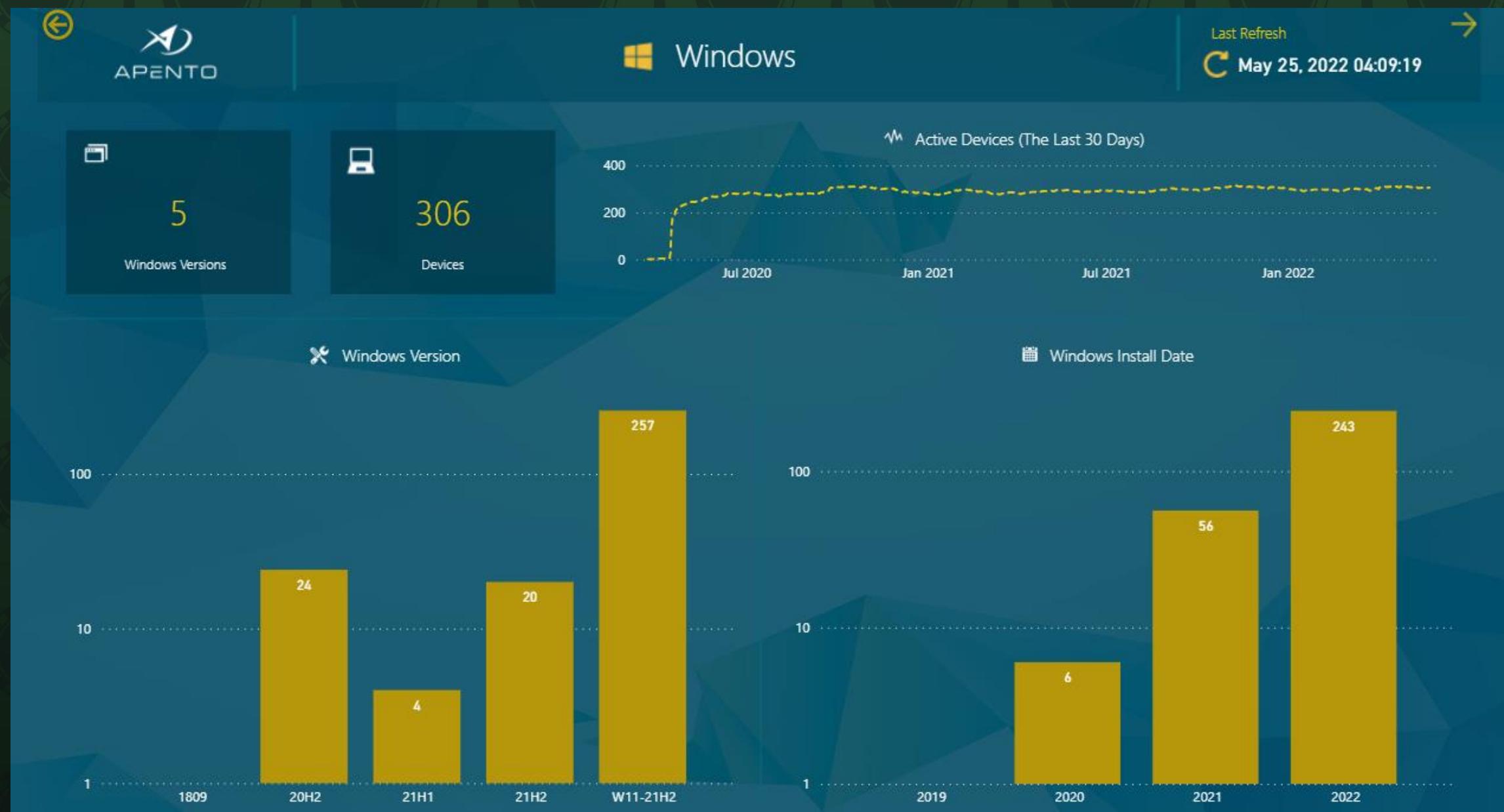
Setting	↑↓	Devices↑↓
NotEnabled		3346
Enabled (WU)		598
Enabled (WSUS)		813

**NoAutoUpdate**

Setting	↑↓	Devices↑↓
NotEnabled		3729
Enabled		1028

**DoNotConnectToWindowsUpdateInternetLocations**

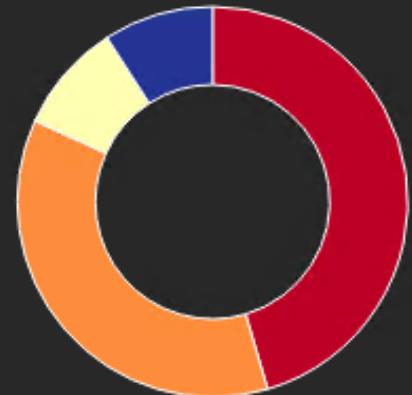
Setting	↑↓	Devices↑↓
NotEnabled		4085
Enabled		672



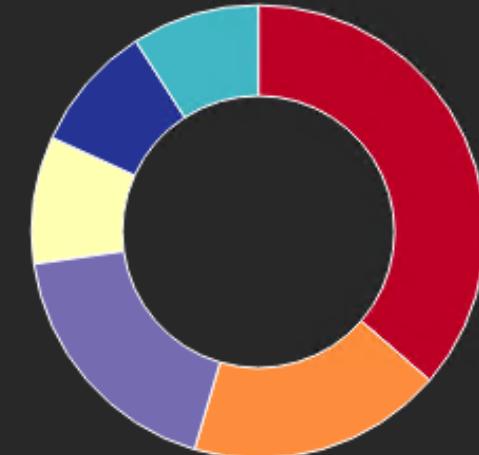
# Windows Servicing (MEMCM)



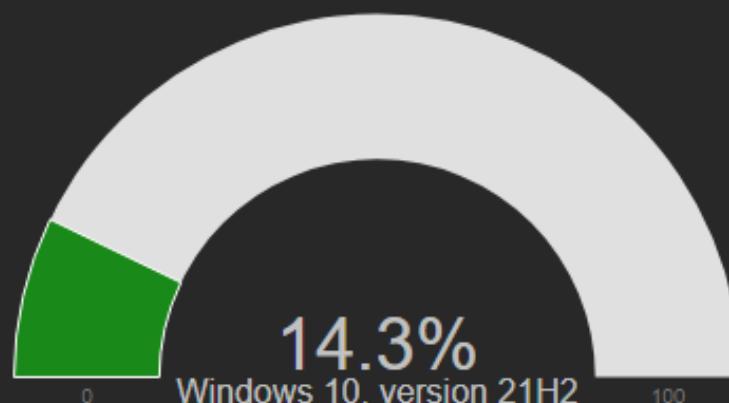
## Feature Update Versions

[Show Table](#)

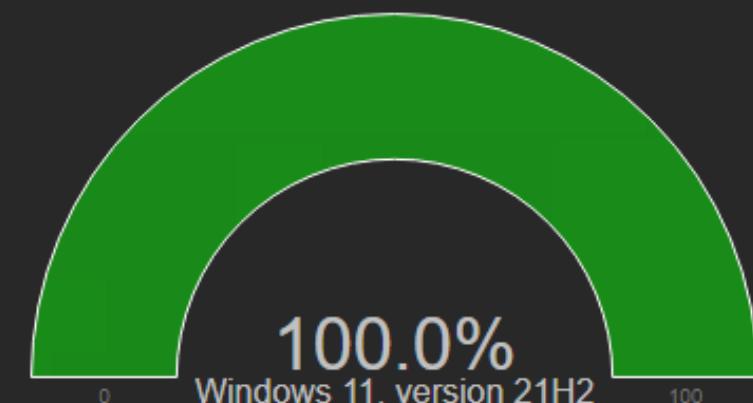
## Quality Update Versions

[Show Table](#)

## Windows 10 Latest Feature Update

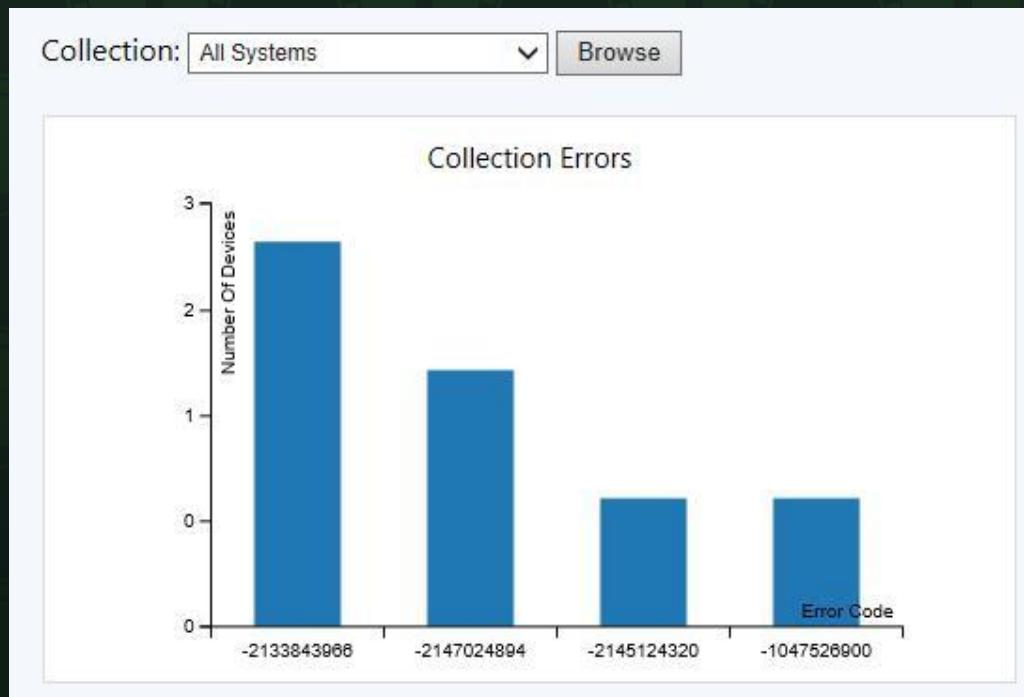


## Windows 11 Latest Feature Update



# Windows Servicing (MEMCM)

Error messages show up in the dashboard



# MEMCM Windows 11 servicing

- Windowsupdatebox.exe + .esd file
- Content can come from Microsoft Update
- Can be run from an application instead
  - WindowsUpdateBox /Update /PreDownload /quiet
  - WindowsUpdateBox /Update /Install /quiet
  - WindowsUpdateBox /Update /Finalize /quiet

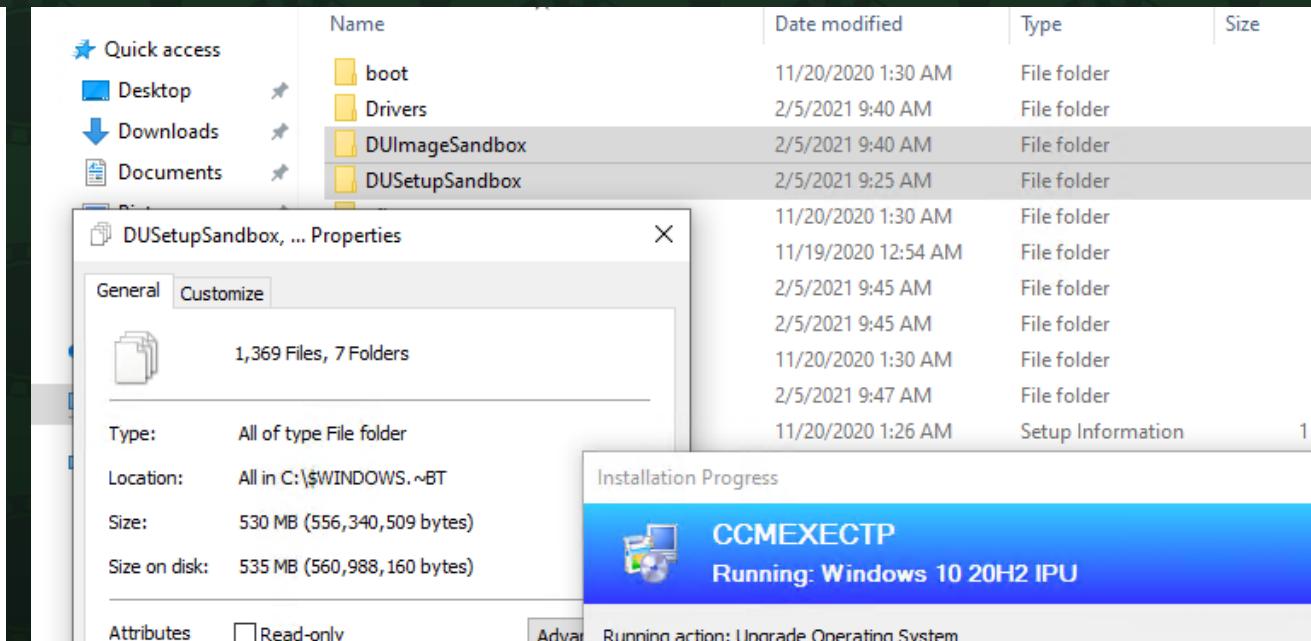
Name	Date modified	Type	Size
22000.132.210809-2349.co_release_svc_refresh_CLIENTBUSIN...	2021-09-03 11:13	ESD File	3 558 713 KB
WindowsUpdateBox.exe	2021-09-03 10:59	Application	22 968 KB

[SCCM/MEMCM: Windows 10 Feature Update Rollouts via Application Deployment - TechNet Articles - United States \(English\) - TechNet Wiki \(microsoft.com\)](#)

# Dynamic Updates

- Servicing will always trigger Dynamic Updates

- **Setup DU:** Fixes to Setup binaries or any files that Setup uses for feature updates.
- **SafeOS DU:** Fixes for the 'safe OS' that we use to update Windows recovery environment (WinRE).
- **Servicing Stack Update (SSU)/Critical DU:** Fixes that are necessary to address the Windows 10 servicing stack issue and thus required to complete the feature update.
- **Latest Cumulative Update (LCU)/General Distribution Release (GDR) DU:** Installs the latest cumulative quality update.
- **Language Pack (LP) and Feature On Demand (FOD) DU:** Preserves users' installed language packs and optional features by reinstalling them.
- **Driver DU:** Latest version of applicable drivers that have been already published by manufacturers (OEMs and/or IHVs) into Windows Update and specifically targeted for Dynamic Update.



# How can we run commands pre/post Feature Update?

**Option 1:** Setupconfig.ini

**Option 2:**

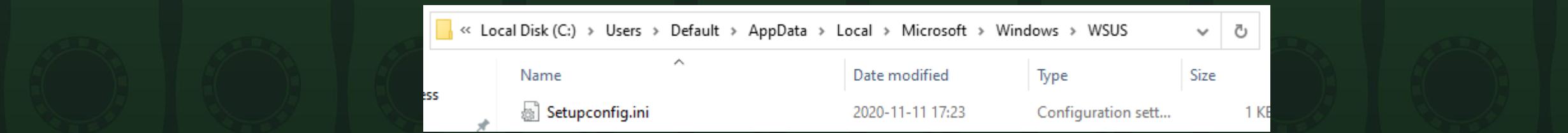
- %windir%\System32\update\run\{GUID}\preinstall.cmd
- %windir%\System32\update\run\{GUID}\precommit.cmd
- %windir%\System32\update\run\{GUID}\failure.cmd
- %windir%\System32\update\run\{GUID}\success.cmd (2004)
- %windir%\System32\update\run\{GUID}\postuninstall.cmd (2004)

Use Runonce instead of Run for = runonce ;-)

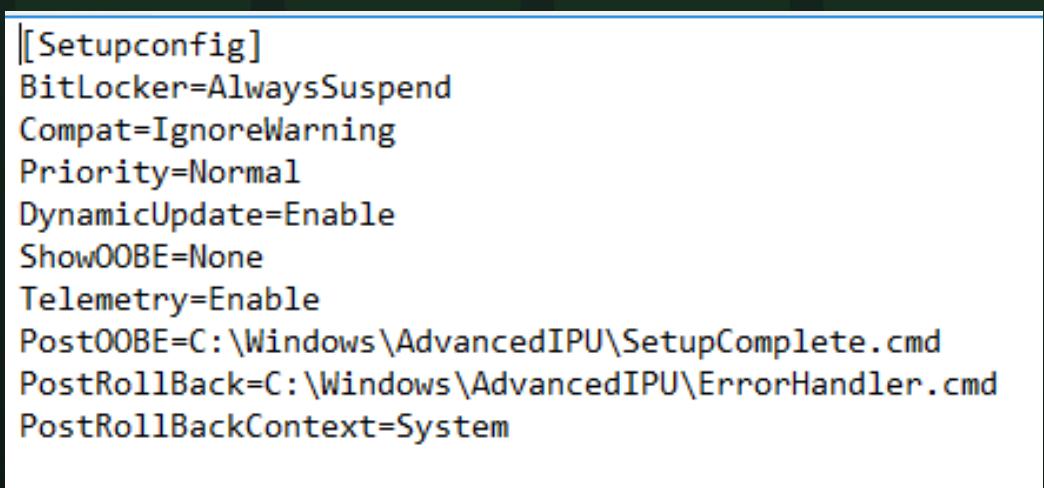
<https://docs.microsoft.com/en-us/windows-hardware/manufacture/desktop/windows-setup-enable-custom-actions>

# Setupconfig.ini = your new best friend

- Drivers, commands and more = total control!

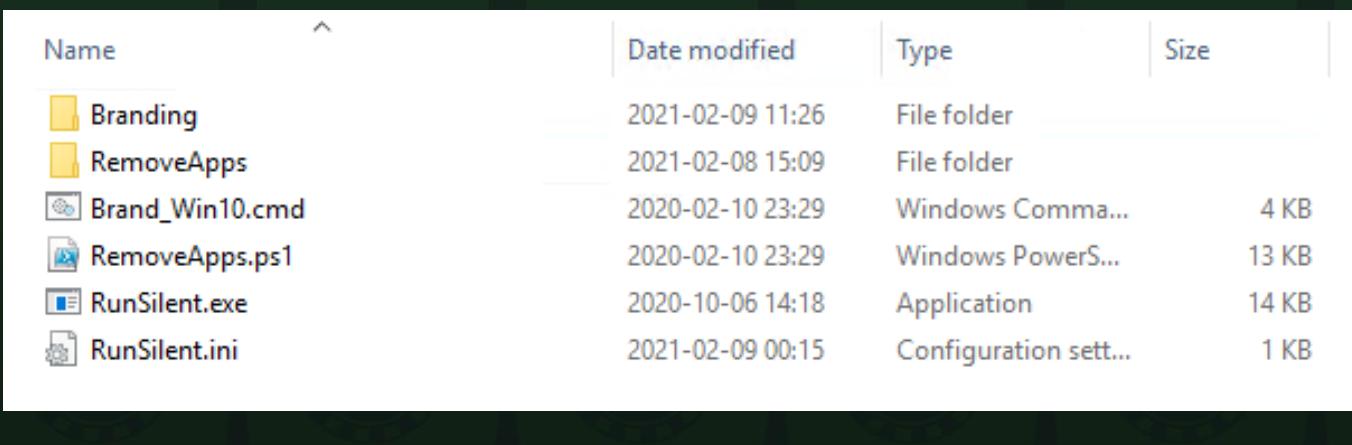


A screenshot of a Windows File Explorer window. The path is Local Disk (C:) > Users > Default > AppData > Local > Microsoft > Windows > WSUS. A single file named "Setupconfig.ini" is listed. The file was modified on 2020-11-11 at 17:23 and is 1 KB in size. The file type is Configuration sett... (Configuration settings).



The contents of the Setupconfig.ini file:

```
[Setupconfig]
BitLocker=AlwaysSuspend
Compat=IgnoreWarning
Priority=Normal
DynamicUpdate=Enable
ShowOOBE=None
Telemetry=Enable
PostOOBE=C:\Windows\AdvancedIPU\SetupComplete.cmd
PostRollBack=C:\Windows\AdvancedIPU\ErrorHandler.cmd
PostRollBackContext=System
```



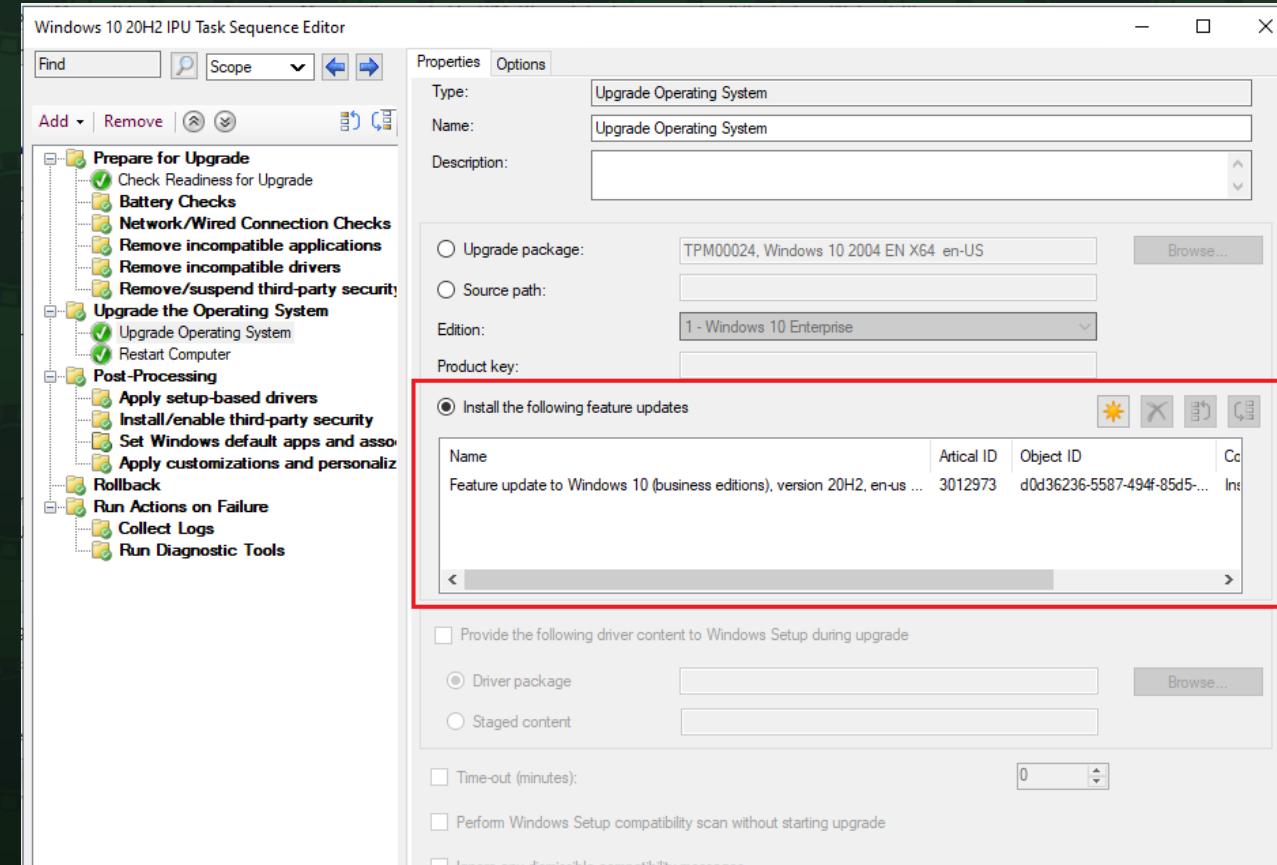
A screenshot of a Windows File Explorer window showing several files and folders in the WSUS folder. The files are:

Name	Date modified	Type	Size
Branding	2021-02-09 11:26	File folder	
RemoveApps	2021-02-08 15:09	File folder	
Brand_Win10.cmd	2020-02-10 23:29	Windows Comma...	4 KB
RemoveApps.ps1	2020-02-10 23:29	Windows PowerS...	13 KB
RunSilent.exe	2020-10-06 14:18	Application	14 KB
RunSilent.ini	2021-02-09 00:15	Configuration sett...	1 KB

<https://www.asquaredozen.com/2019/08/25/windows-10-feature-updates-using-setupconfig-ini-to-manage-feature-updates-in-the-enterprise/>

# New in Configuration Manager 2103

- Feature update in Task Sequence
- Why you ask?
  - IPU Source = 5,1 GB
  - \*.ESD = 3.8 GB
- Will always run Dynamic Updates
- Need to use setupconfig.ini



# Advanced Windows Servicing (MEMCM)

- Community Tool
- DeploymentScheduler + IPUInstaller – by Johan Schrewelius
- Either patched Media or .Esd
- Post commands
- Driver updates

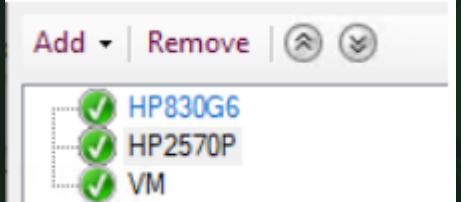
Name	Date modified	Type
ErrorHandler	2021-02-07 13:43	File folder
Media	2021-02-07 21:29	File folder
SetupComplete	2021-02-07 14:56	File folder
IpuInstaller.exe	2021-02-09 11:46	Application

<https://onevinn.schrewelius.it/>

Name	Date modified	Type	Size
Branding	2021-02-07 13:43	File folder	
DefaultApps	2021-02-07 13:43	File folder	
Edge	2021-02-07 13:43	File folder	
RemoveApps	2021-02-07 13:44	File folder	
RemoveEdgeWelcome	2021-02-07 13:44	File folder	
StartMenu	2021-02-07 13:44	File folder	
StartMenuFiles	2021-02-07 13:44	File folder	
Brand_Win10.cmd	2020-02-10 23:29	Windows Comma...	4 KB
ChangeSearchbarFor1903AndLater.ps1	2020-11-19 10:27	Windows PowerS...	2 KB
CleanUp.ps1	2021-02-02 17:01	Windows PowerS...	1 KB
DefaultApps.ps1	2020-02-10 23:29	Windows PowerS...	11 KB
Importlayout.ps1	2020-02-10 23:29	Windows PowerS...	10 KB
RemoveApps.ps1	2020-02-10 23:29	Windows PowerS...	13 KB
RunSilent.exe	2020-10-06 14:18	Application	14 KB
RunSilent.ini	2021-02-07 14:57	Configuration sett...	1 KB

# IPUInstaller - drivers

- Driver Package
- IPUDrivers.WIM anywhere in CCMCache



This group/step will run if the following conditions are met:

If All the conditions are true:

```
WMI Query SELECT * FROM Win32_ComputerSystem WHERE Manufacturer='Hewlett-Packard' AND Model='HP EliteBook 2570p'
```

Properties Options

Type: Download Package Content  
Name: HP2570P  
Description:

Name	Type	Size (MB)	Package ID
1 HP2570P	Package	443	EKX00518

Place into the following location:

Task sequence working directory  
 Configuration Manager client cache  
 Custom path: %ProgramData%\~IPUDrivers

Save path as a variable:

Refer to the variable in subsequent steps, using %mycontent02% or %mycontent03%, where the number corresponds to the order this Download Package Content step lists the packages.

If a package download fails, continue downloading other packages in the list



Recycle Bin



Google  
Chrome



Microsoft  
Edge



Microsoft  
Teams



Deployment scheduler

A Windows upgrade is available.  
Please, schedule the upgrade.

Schedule

Postpone



Type here to search



13°C Molnigt



SWE

9:31 AM  
11/19/2021

# Why move to Servicing?

- User experience / productivity
- Content from Microsoft Update?
- Better WFH experience
- Windows 10 20h2 -> Windows 11 21h1 (Fujitsu Lifebook)

Technology	Installation	Reboot	User Downtime	Total time
Task Sequence	14	9	25	23
Windows Servicing	38	4	4	42
IPUInstaller	12	3	3	15

# Customizations Windows 11

# Windows Display version has not changed!

- ProductName and ReleaseId is **“Deprecated”**
- Great for compatibility
- Bad for CM queries, scripts etc..

Name	Type	Data
(Default)	REG_SZ	(value not set)
BaseBuildRevisionNumber	REG_DWORD	0x00000001 (1)
BuildBranch	REG_SZ	co_release
BuildGUID	REG_SZ	ffffffff-ffff-ffff-ffff-ffffffff
BuildLab	REG_SZ	22000.co_release.210604-1628
BuildLabEx	REG_SZ	22000.1.amd64fre.co_release.210604-1628
CompositionEditionId	REG_SZ	Enterprise
CurrentBuild	REG_SZ	22000
CurrentBuildNumber	REG_SZ	22000
CurrentMajorVersionNumber	REG_DWORD	0x0000000a (10)
CurrentMinorVersionNumber	REG_DWORD	0x00000000 (0)
CurrentType	REG_SZ	Multiprocessor Free
CurrentVersion	REG_SZ	6.3
DigitalProductId	REG_BINARY	a4 00 00 03 00 00 30 30 33 33 30 2d 38 30 30 ...
DigitalProductId4	REG_BINARY	f8 04 00 00 04 00 00 30 00 33 00 36 00 31 00 32 00...
DisplayVersion	REG_SZ	21H2
EditionID	REG_SZ	Enterprise
EditionSubManufacturer	REG_SZ	
EditionSubstring	REG_SZ	
EditionSubVersion	REG_SZ	
InstallationType	REG_SZ	Client
InstallDate	REG_DWORD	0x615cf0f7e (1633423230)
InstallTime	REG_QWORD	0x1d7b9c4a780a85e (132778968305674334)
PathName	REG_SZ	C:\Windows
PendingInstall	REG_DWORD	0x00000000 (0)
ProductId	REG_SZ	00330-90000-00000-AA438
ProductName	REG_SZ	Windows 10 Enterprise
ReleaseId	REG_SZ	2009
SoftwareType	REG_SZ	System
SystemRoot	REG_SZ	C:\WINDOWS
UBR	REG_DWORD	0x000000c2 (194)

# App Assurance – Windows 11

## App Assure

[Learn more](#) [Sign in to request App Assure](#)

Get app compatibility assistance when deploying Windows 10 and Windows 11, including ARM64 devices, Microsoft 365 Apps, Microsoft Edge, Azure Virtual Desktop, and Windows 365. This is included at no additional cost with your eligible Microsoft 365 or Windows 10/11 plans of 150+ licenses.

[Learn more >](#)



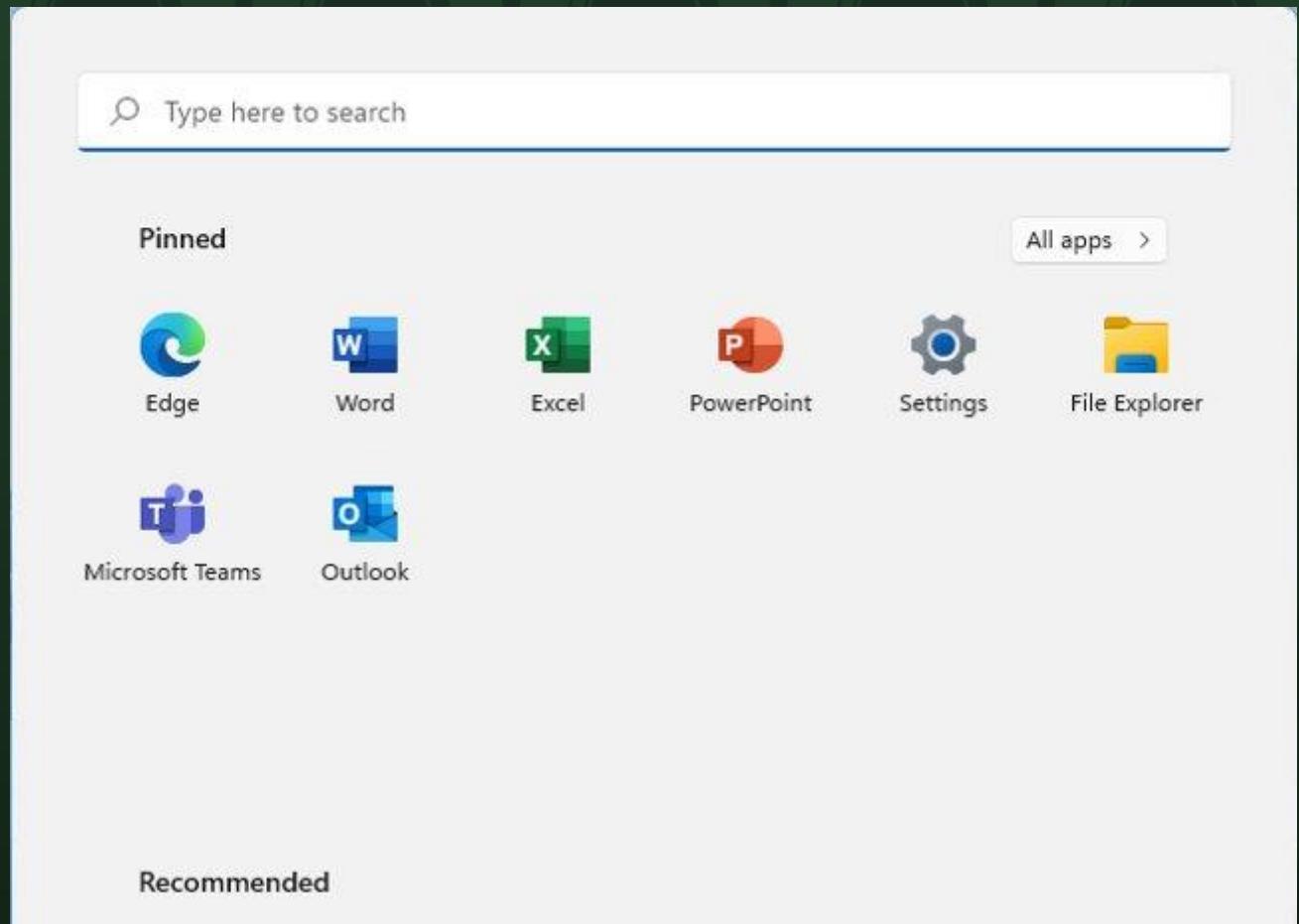
# Windows 11 = modern managed

Most customizations are only possible using Intune/MDM

Example Start Menu, a custom start menu can only be deployed using Intune/MDM

Export-StartLayout PowerShell exports a \*.json file that only can be used with Intune

Can be done copying the registry key that the MDM policy sets and deploy it using a script.

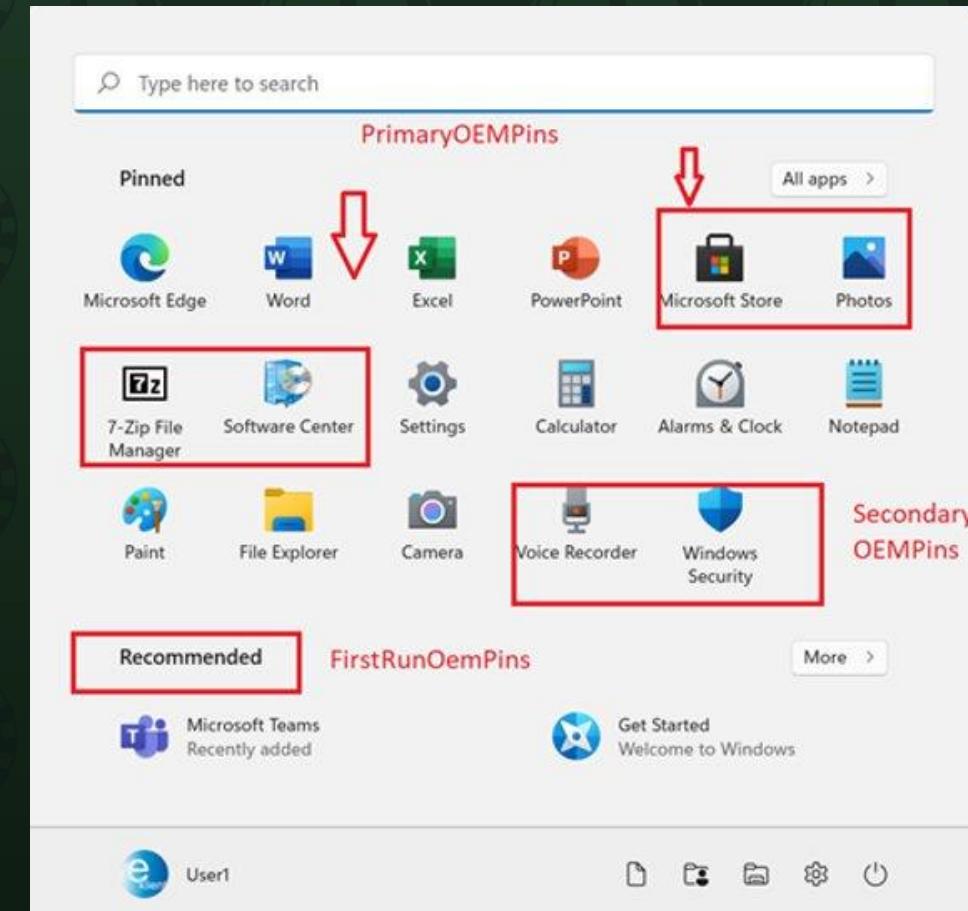


# Customized Start Menu using "OEMPinned"

- An option created for OEMs which makes it possible to at modify some parts during OSD
- 4 st Primary OEMPins
- 4 st Secondary OEMPins
- 1st Recommended Managed with Layoutmodification.json

Copy the Layoutmodification.json during OSD:

```
Copy-Item -Path $PSScriptRoot'\LayoutModification.json'  
-Destination $env:SystemDrive'\Users\Default\AppData\  
Local\Microsoft\Windows\Shell'
```



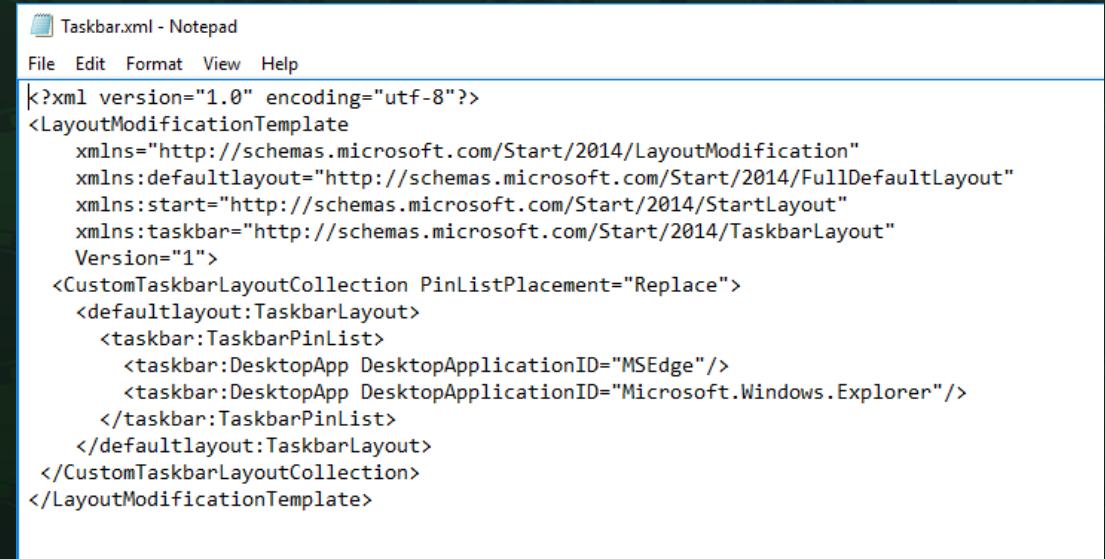
# Sample LayoutModification.json

```
{  
  "primaryOEMPins": [  
    {  
      "desktopAppLink": "%ALLUSERSPROFILE%\Microsoft\Windows\Start Menu\Programs\7-Zip\7-Zip File Manager.lnk"  
    },  
    {  
      "desktopAppLink": "%ALLUSERSPROFILE%\Microsoft\Windows\Start Menu\Programs\Microsoft Endpoint Manager\Configuration Manager\Software Center.lnk"  
    },  
    {  
      "desktopAppLink": "%ALLUSERSPROFILE%\Microsoft\Windows\Start Menu\Programs\Outlook.lnk"  
    },  
    {  
      "packagedAppId": "Microsoft.WindowsTerminal_8wekyb3d8bbwe!App"  
    }  
],  
  "secondaryOEMPins": [  
    {  
      "packagedAppId": "Microsoft.WindowsCamera_8wekyb3d8bbwe!App"  
    },  

```

# Customized taskbar

- Still possible using all the "old" options, Start-Layout; GPO, Import-startlayout, Intune.
- **Note:** Windows 10 Start Menu GPO hits a Windows 11 computer with a full Start-layout and Taskbar config, users can only unpin apps from start and NOT pin.
- Import-StartLayout -LayoutPath \$PSScriptRoot\Startmenustd.xml -MountPath \$env:SystemDrive\

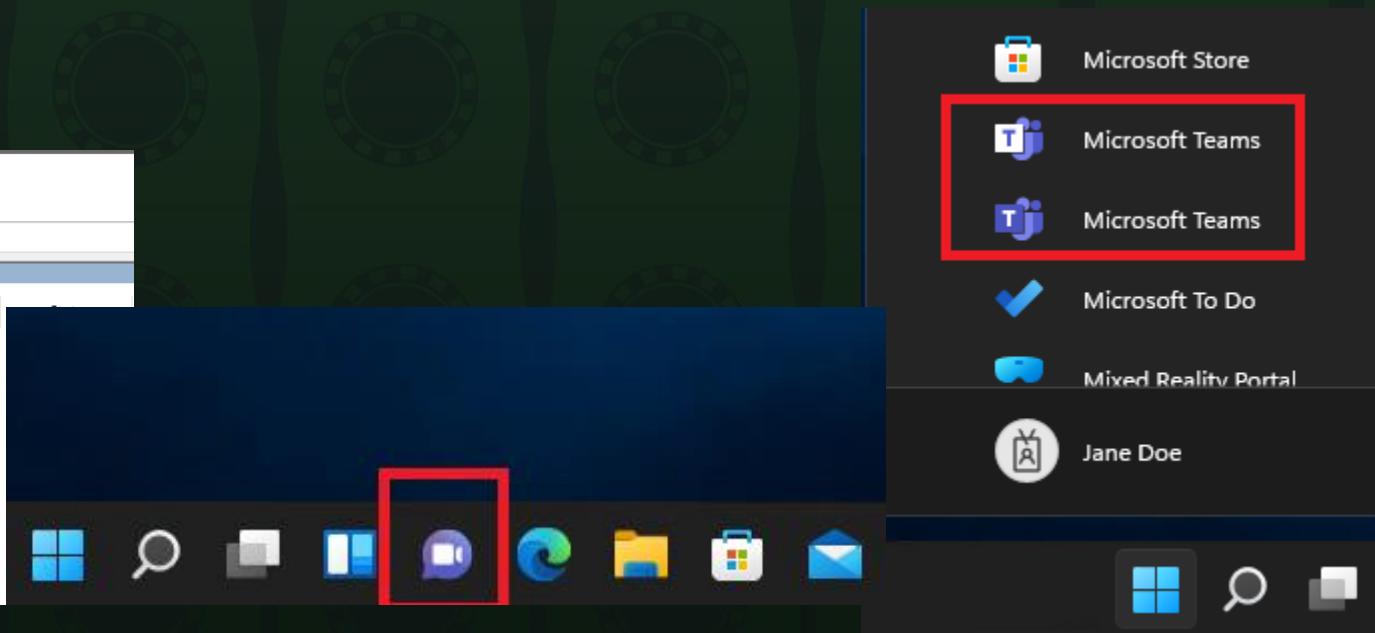
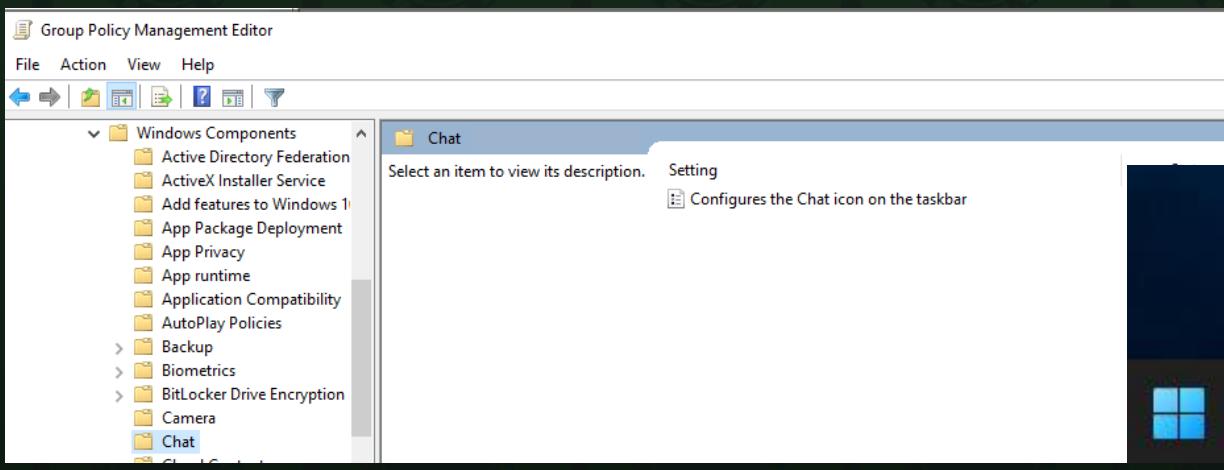


The screenshot shows a Notepad window titled "Taskbar.xml - Notepad". The window contains XML code used for customizing the Windows taskbar. The code defines a "LayoutModificationTemplate" with "CustomTaskbarLayoutCollection" and "DefaultTaskbarLayout" sections, specifying pinned applications like MSEdge and Microsoft.Windows.Explorer.

```
<?xml version="1.0" encoding="utf-8"?>
<LayoutModificationTemplate
  xmlns="http://schemas.microsoft.com/Start/2014/LayoutModification"
  xmlns:defaultlayout="http://schemas.microsoft.com/Start/2014/FullDefaultLayout"
  xmlns:start="http://schemas.microsoft.com/Start/2014/StartLayout"
  xmlns:taskbar="http://schemas.microsoft.com/Start/2014/TaskbarLayout"
  Version="1">
  <CustomTaskbarLayoutCollection PinListPlacement="Replace">
    <defaultlayout:TaskbarLayout>
      <taskbar:TaskbarPinList>
        <taskbar:DesktopApp DesktopApplicationID="MSEdge"/>
        <taskbar:DesktopApp DesktopApplicationID="Microsoft.Windows.Explorer"/>
      </taskbar:TaskbarPinList>
    </defaultlayout:TaskbarLayout>
  </CustomTaskbarLayoutCollection>
</LayoutModificationTemplate>
```

# Chat icon

- Points to personal Microsoft Teams
- Can be disabled on modern managed clients using:  
OMA-URI = “./Device/Vendor/MSFT/Policy/Config/Experience/ConfigureChatIcon”
- Registry:[KEY\_CURRENT\_USER\Software\Microsoft\Windows\CurrentVersion\Explorer\Advanced]  
“TaskbarMn”=dword:00000000
- Group Policy



# Start Location and more

- Start button alignment – 0 = Left  
[HKEY\_CURRENT\_USER\Software\Microsoft\Windows\CurrentVersion\Explorer\Advanced]  
"TaskbarAl"=dword:00000000

Remove Task View from the Taskbar  
[KEY\_CURRENT\_USER\Software\Microsoft\Windows\CurrentVersion\Explorer\Advanced]  
"ShowTaskViewButton"=dword:00000000

Remove Chat from the Taskbar  
[KEY\_CURRENT\_USER\Software\Microsoft\Windows\CurrentVersion\Explorer\Advanced]  
"TaskbarMn"=dword:00000000

- Remove Widgets from the Taskbar  
[KEY\_CURRENT\_USER\Software\Microsoft\Windows\CurrentVersion\Explorer\Advanced]  
"TaskbarDa"=dword:00000000

Remove Search from the Taskbar  
[HKEY\_CURRENT\_USER\Software\Microsoft\Windows\CurrentVersion\Search]  
"SearchboxTaskbarMode"=dword:00000000



# Enable Start Menu folders

- A great feature not enabled by default, can only be managed using Intune/MDM
- PowerShell WMI/Bridge to the rescue
- Downside, end users cannot change it

[Configure Windows 11 Start Menu folders using PowerShell - CCMEXEC.COM - Enterprise Mobility](#)



Personalization > Start > Folders

⚙️ Settings	On	<input checked="" type="checkbox"/>
📁 File Explorer	On	<input checked="" type="checkbox"/>
📄 Documents	On	<input checked="" type="checkbox"/>
⬇️ Downloads	On	<input checked="" type="checkbox"/>
🎵 Music	Off	<input type="checkbox"/>
🖼️ Pictures	Off	<input type="checkbox"/>
🎥 Videos	Off	<input type="checkbox"/>
🌐 Network	Off	<input type="checkbox"/>

# Is uninstalling built-in apps still a thing?

- Uninstall or not?
- New builtin apps in Windows 11
  - PowerAutomate desktop, Microsoft Teams personal

} | Select DisplayName, PackageName, Version, InstallFolder, Size | Out-GridView

Filter

+ Add criteria ▾

DisplayName	PackageName	Version	InstallFolder	Size
Microsoft.YourPhone	Microsoft.YourPhone_1.22022.180.0_neutral_~_8wekyb3d8bbwe	1.22022.180.0	C:\Program Files\WindowsApps\Microsoft.YourPhone_1.22022.180.0_neutral_~_8wekyb3d8bbwe	310,407,689.00
microsoft.windowscommunicationsapps	microsoft.windowscommunicationsapps_16005.14326.20858.0_neu...	16005.1432...	C:\Program Files\WindowsApps\microsoft.windowscommunicationsapps_16005.14326.20858.0_neu...	214,925,848.00
Microsoft.Windows.Photos	Microsoft.Windows.Photos_2021.21120.8011.0_neutral_~_8wekyb3...	2021.21120....	C:\Program Files\WindowsApps\Microsoft.Windows.Photos_2021.21120.8011.0_neutral_~_8wekyb3...	197,229,166.00
Microsoft.WindowsStore	Microsoft.WindowsStore_22203.1401.21.0_neutral_~_8wekyb3d8bb...	22203.1401....	C:\Program Files\WindowsApps\Microsoft.WindowsStore_22203.1401.21.0_neutral_~_8wekyb3d8bb...	150,674,691.00
MicrosoftTeams	MicrosoftTeams_22006.600.1133.7409_x64_8wekyb3d8bbwe	22006.600.1...	C:\Program Files\WindowsApps\MicrosoftTeams_22006.600.1133.7409_x64_8wekyb3d8bbwe	93,947,119.00
Microsoft.MicrosoftSolitaireCollection	Microsoft.MicrosoftSolitaireCollection_4.12.3171.0_neutral_~_8wek...	4.12.3171.0	C:\Program Files\WindowsApps\Microsoft.MicrosoftSolitaireCollection_4.12.3171.0_neutral_~_8wek...	60,347,508.00
Microsoft.549981C3F5F10	Microsoft.549981C3F5F10_4.2203.4603.0_neutral_~_8wekyb3d8bbwe	4.2203.4603.0	C:\Program Files\WindowsApps\Microsoft.549981C3F5F10_4.2203.4603.0_neutral_~_8wekyb3d8bbwe	49,295,136.00
Microsoft.XboxGamingOverlay	Microsoft.XboxGamingOverlay_5.722.3302.0_neutral_~_8wekyb3d8...	5.722.3302.0	C:\Program Files\WindowsApps\Microsoft.XboxGamingOverlay_5.722.3302.0_neutral_~_8wekyb3d8...	48,071,159.00
Microsoft.ZuneVideo	Microsoft.ZuneVideo_2019.22021.10291.0_neutral_~_8wekyb3d8bb...	2019.22021....	C:\Program Files\WindowsApps\Microsoft.ZuneVideo_2019.22021.10291.0_neutral_~_8wekyb3d8bb...	37,797,561.00
Microsoft.StorePurchaseApp	Microsoft.StorePurchaseApp_12109.1001.10.0_neutral_~_8wekyb3d...	12109.1001....	C:\Program Files\WindowsApps\Microsoft.StorePurchaseApp_12109.1001.10.0_neutral_~_8wekyb3d...	37,502,130.00
MicrosoftWindows.Client.WebExperience	MicrosoftWindows.Client.WebExperience_421.20070.95.0_neutral_~...	421.20070.9...	C:\Program Files\WindowsApps\MicrosoftWindows.Client.WebExperience_421.20070.95.0_neutral_~...	35,986,673.00
Microsoft.ZuneMusic	Microsoft.ZuneMusic_11.2202.45.0_neutral_~_8wekyb3d8bbwe	11.2202.45.0	C:\Program Files\WindowsApps\Microsoft.ZuneMusic_11.2202.45.0_neutral_~_8wekyb3d8bbwe	34,634,868.00
Microsoft.WindowsFeedbackHub	Microsoft.WindowsFeedbackHub_2022.317.2207.0_neutral_~_8wek...	2022.317.22...	C:\Program Files\WindowsApps\Microsoft.WindowsFeedbackHub_2022.317.2207.0_neutral_~_8wek...	33,006,672.00
Microsoft.VCLibs.140.00	Microsoft.VCLibs.140.00_14.0.29231.0_x64_8wekyb3d8bbwe	14.0.29231.0	C:\Program Files\WindowsApps\Microsoft.VCLibs.140.00_14.0.29231.0_x64_8wekyb3d8bbwe	32,107,153.00
Microsoft.SMM_0.0.55_1.1.1	Microsoft.SMM_0.0.55_1.1.1_10.21102.12112.0_neutral_~_8wekyb3d8bbwe	10.21102.121...	C:\Program Files\WindowsApps\Microsoft.SMM_0.0.55_1.1.1_10.21102.12112.0_neutral_~_8wekyb3d8bbwe	20,502,825.00

# Windows 11 Summary

- Best managed from the cloud
- Some features still missing, example Multi-App kiosk
- No Partial managed Start Menu
- Windows 10 Support ends in October 2025 – time to start moving!?!?

 **Note**

Currently, multi-app kiosk is only supported on Windows 10. It's not supported on Windows 11.

