

# What's New in Windows 11?

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– VIRTUAL SUMMIT –

# Is Windows 11 a significant release?

- It depends on your perspective
  - UI changes to Start and Task Bar are significant enough to impact users
  - Changes to support next-generation hardware will be realized later
  - New features (beyond UI changes) don't have major impact on organizations
  - Feels like a standard feature update (not an enablement package)
- Changes in hardware requirements are a big discussion point (will save that for the end)
  - Mostly focused on "security improvements" offered by existing Windows 10 features
  - Nothing to do with performance

# But does it matter?

- Windows 11 will succeed, regardless
  - You can't stay on Windows 10 forever
  - You still need to run your apps
- But you do have leverage
  - Microsoft wants you to move to Windows 11, for all hardware that supports it
  - They are working hard to quickly address negative feedback
  - Someone there has deployment goals they need to meet
  - Make sure they hear from you!

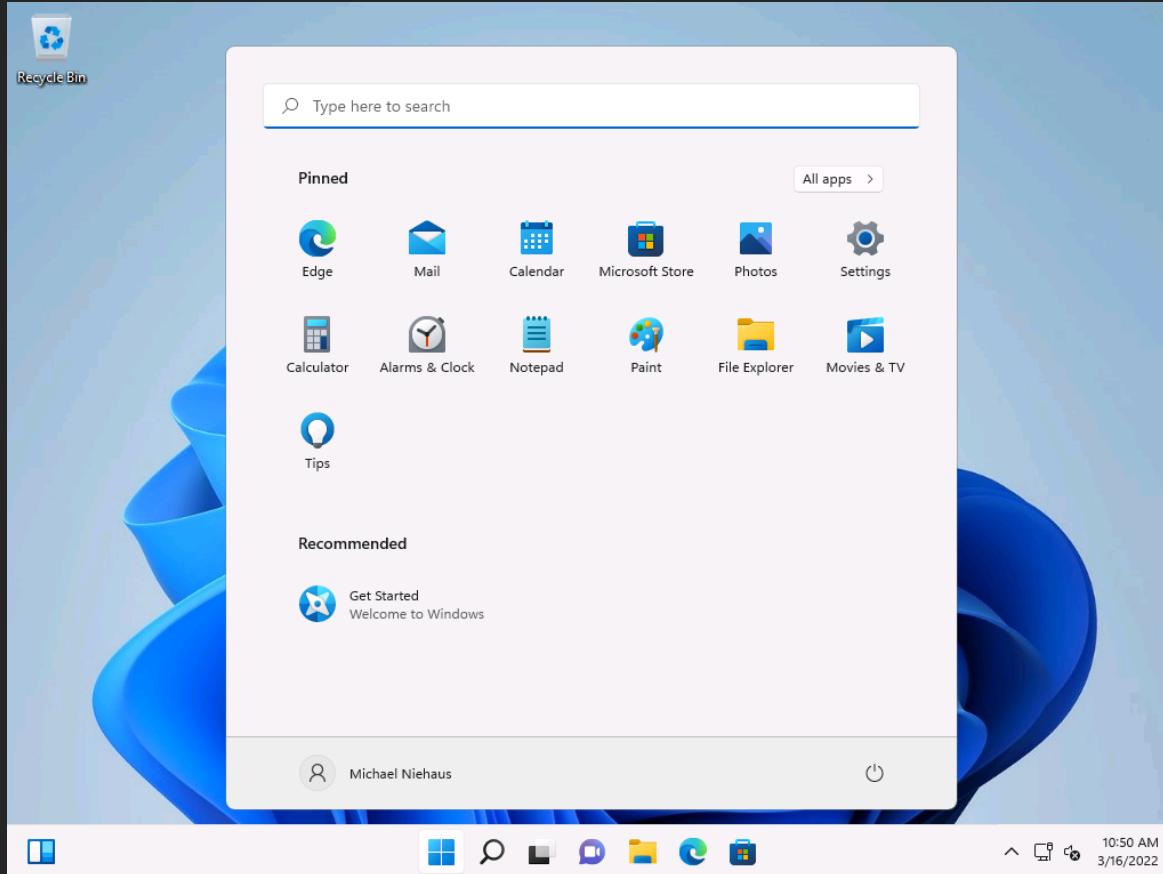
# What are your choices?

- Stay on Windows 10 until 2025
  - Likely will be just enablement packages going forward, no new features
  - Trivial to update each year
  - The only realistic option for PCs that don't meet the hardware requirements
  - Eventually incompatible devices need to be replaced (and they probably should have been already)
- Move to Windows 11
  - Likely will be full feature updates each year as new features are added
  - Quite possible to deploy every other one (e.g. every other year)



# User interface improvements

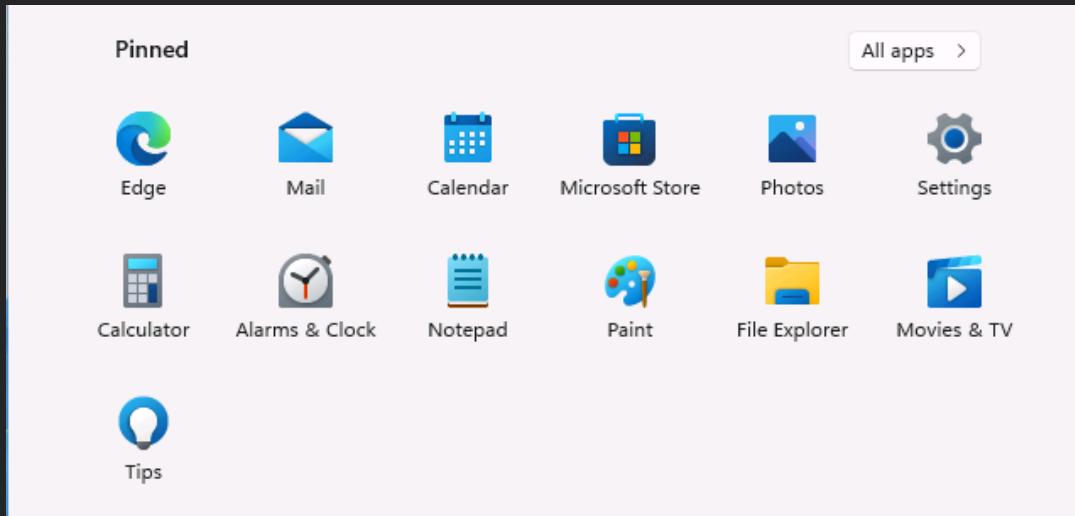
# New Start Menu



- Fixed size
  - Three rows of pinned apps, scroll between sets
  - Small number of “recommended items” that can include docs, apps, etc.
- Can be centered (default) or moved to the left

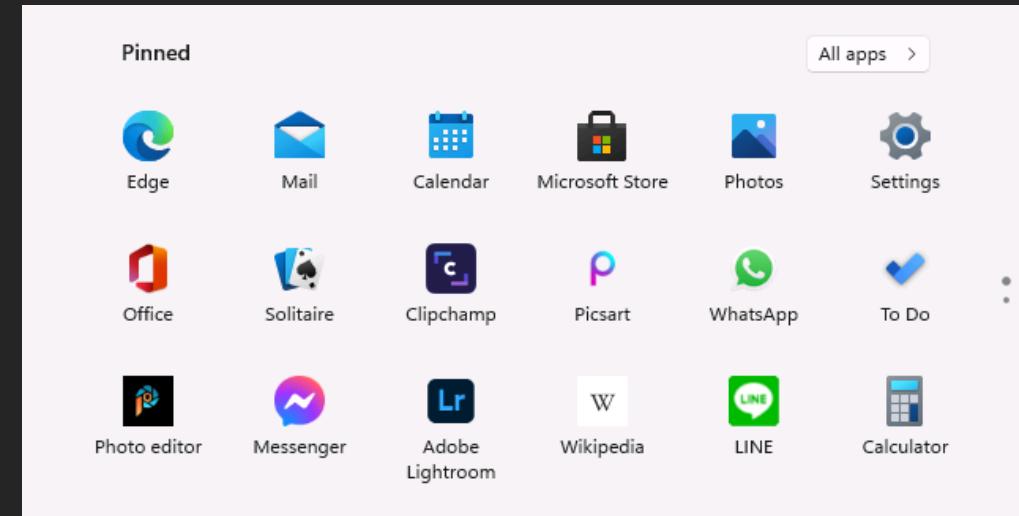
# New Start Menu

- Pinned items on Enterprise and Education:



- Teams, Word, Excel, Outlook, OneNote, Whiteboard, Minecraft for Education, and Flipgrid will be added if they are installed

- Pinned items on Home and Pro:



- Word, Excel, PowerPoint, OneNote will be added if they are installed
- Up to 11 "dynamic layout" tiles will be added

# New Start Menu

- Layout can be customized
  - Customize the layout the way you want it
  - Export it as a JSON file
  - Copy the pinnedList elements to be deployed as a machine policy using MDM
  - No GPO 😊
- Processed when a new user profile is created
- See <https://docs.microsoft.com/en-us/windows/configuration/customize-start-menu-layout-windows-11> and <https://docs.microsoft.com/en-us/windows/configuration/supported-csp-start-menu-layout-windows> for more information
  - Old Start Layout policy and GPO is no longer supported
  - There is a separate OEM process, but it can only add a small number of additional items

ⓘ Note

Assigned access multi-app kiosk will not be available in the **initial release** of Windows 11 IoT Enterprise. See **What's new in Windows 11 IoT Enterprise** for more information.

# Task Bar

- Look and feel
  - Always at the bottom
  - Icons are centered, but can be moved to the left
  - Right-clicking on the task bar gives a very short menu (no Task Manager)
  - Right-clicking on the Start button still gives lots of options
  - Policies to hide icons you don't want, or users can turn them off themselves
  - Widgets icon was originally in the center, now on the left, will eventually show the weather (again)

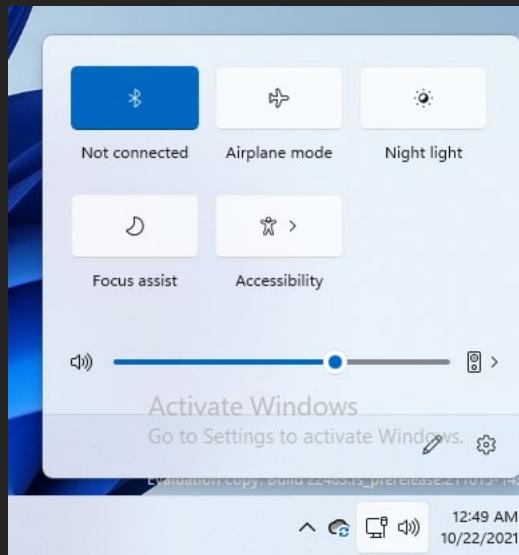
# Task Bar

- Pinned items can be customized
  - Manually build an XML file with the items you want
  - You can specify to replace all the default pinned items, or to just add custom items
  - Not sure what to put in the XML file? Pin the item you want to the Start menu, export that with “Export-StartLayout -Path my.xml”, then copy and paste
  - Deploy the XML file via a GPO policy (the Start menu layout file policy that was used in Windows 10), via MDM, or via unattend.xml
  - See <https://docs.microsoft.com/en-us/windows/configuration/customize-taskbar-windows-11> for more information



# Action Center

- Click on the network or volume icons to see the action center:

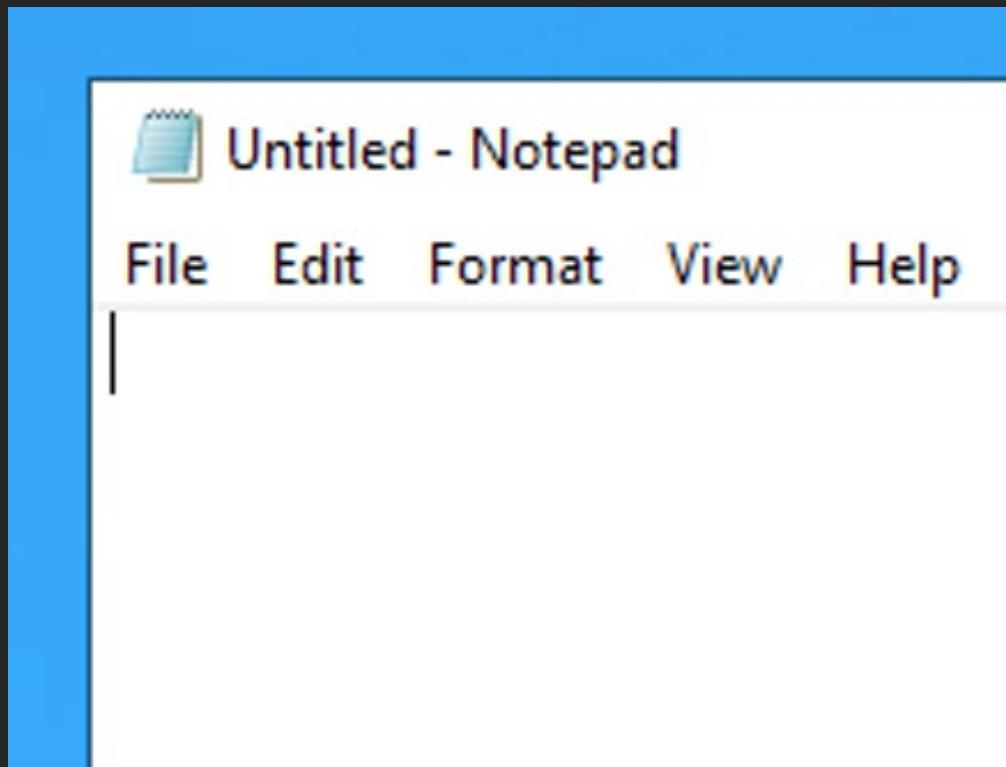


- Click on the date and time to see notifications, date/calendar:

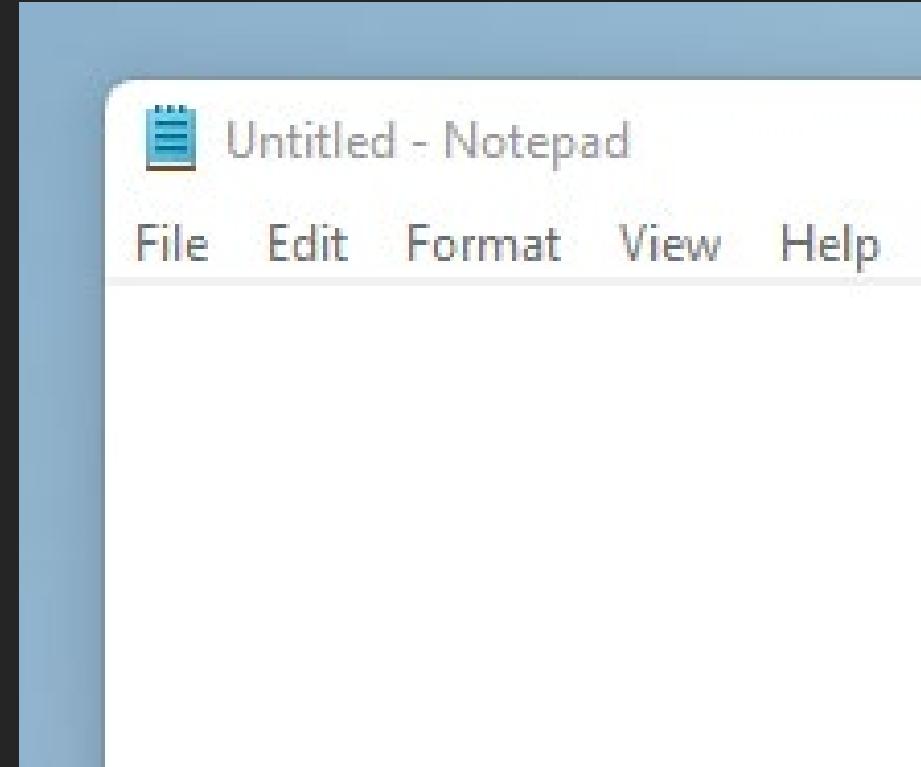


# Rounded corners

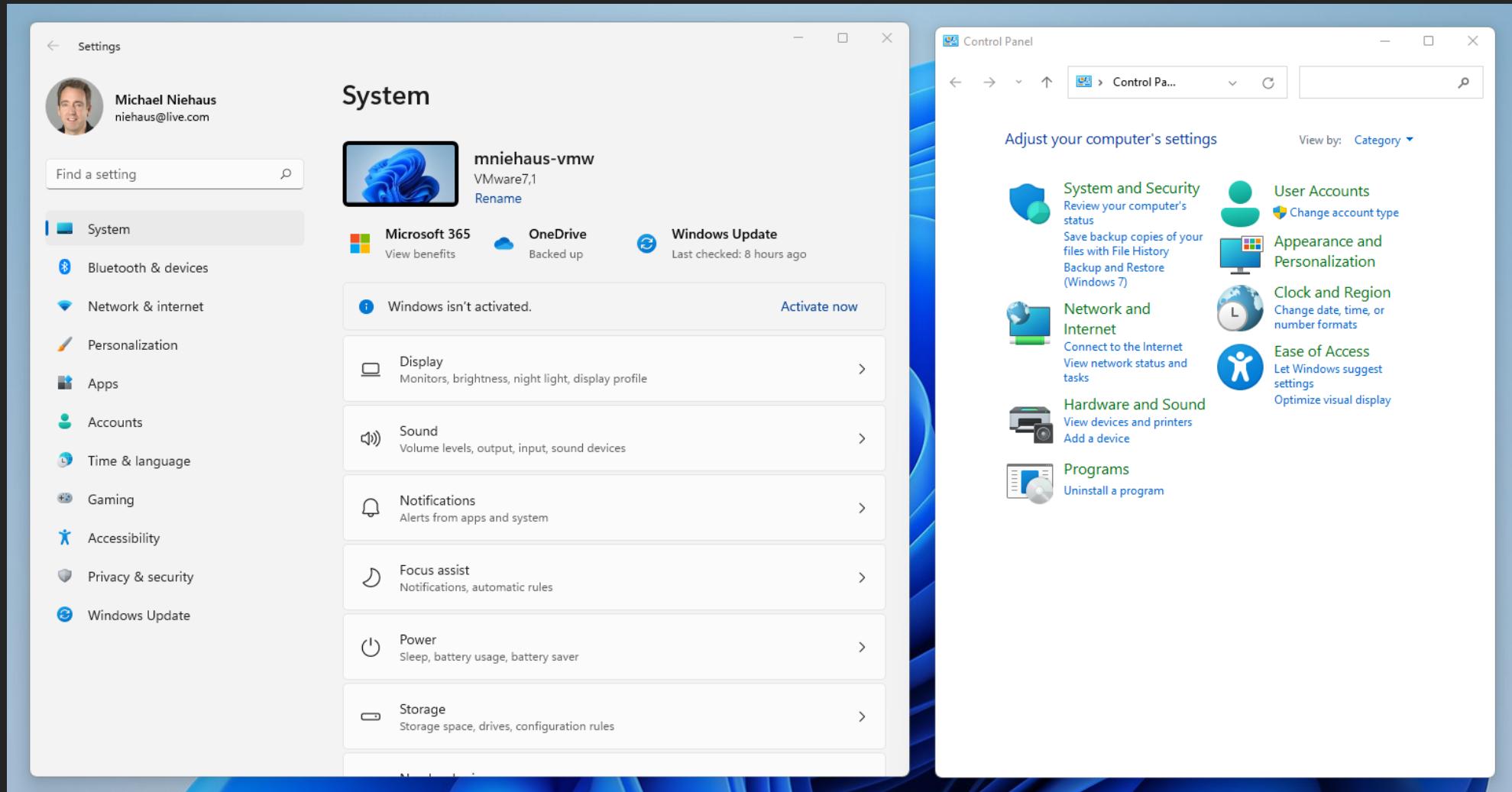
- Old:



- New:



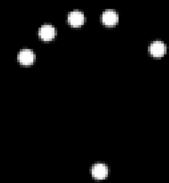
# Settings



# New system font



Just a moment...

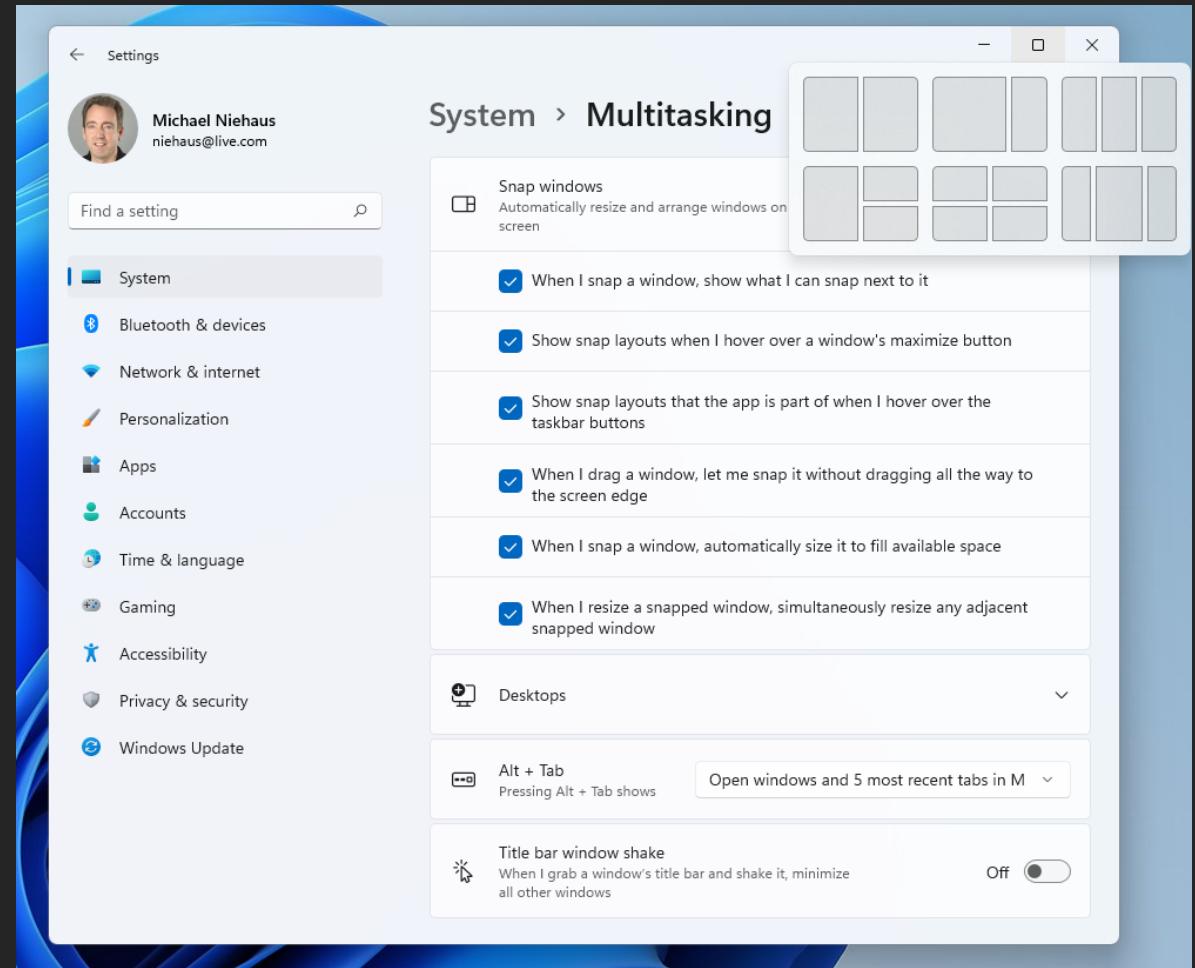


Just a moment...

- Segoe UI
- Segoe UI Variable  
<https://docs.microsoft.com/en-us/windows/apps/design/signature-experiences/typography>

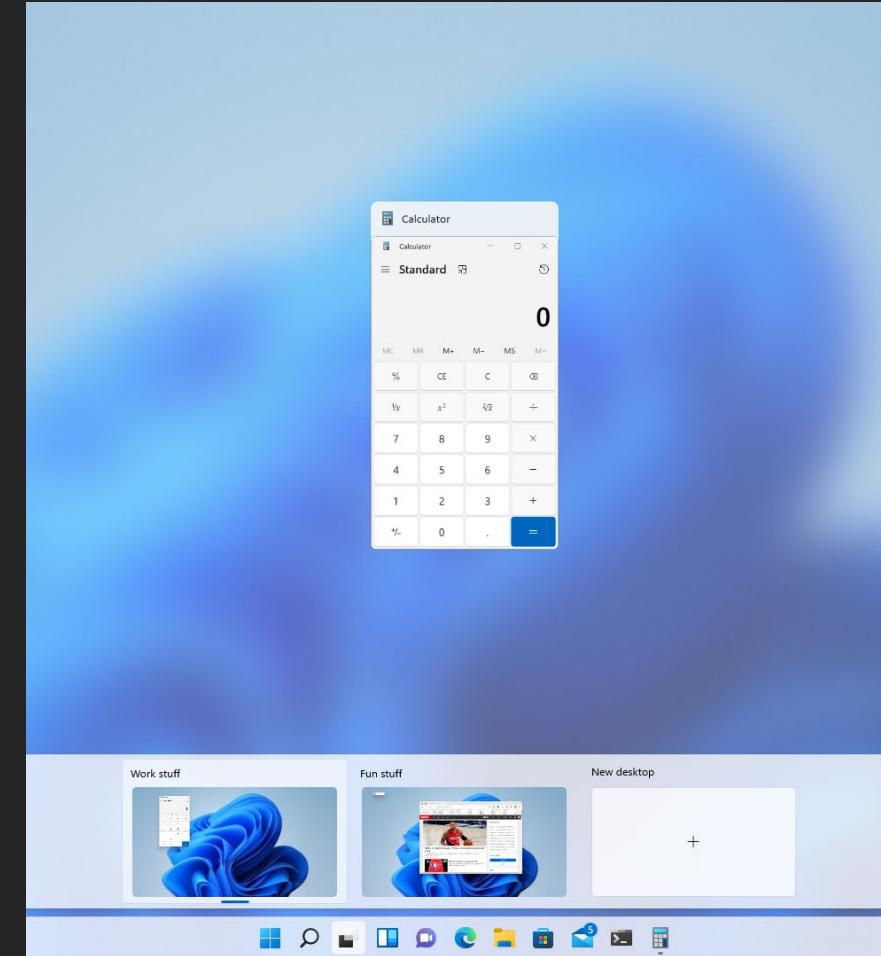
# Snap

- Snap assist:
  - Arrange apps into one of several predefined arrangements (three columns requires 1920px width)
  - Easily resize the windows after snapping them
- Snap groups:
  - Once arranged, you can restore or minimize the entire group from the task bar



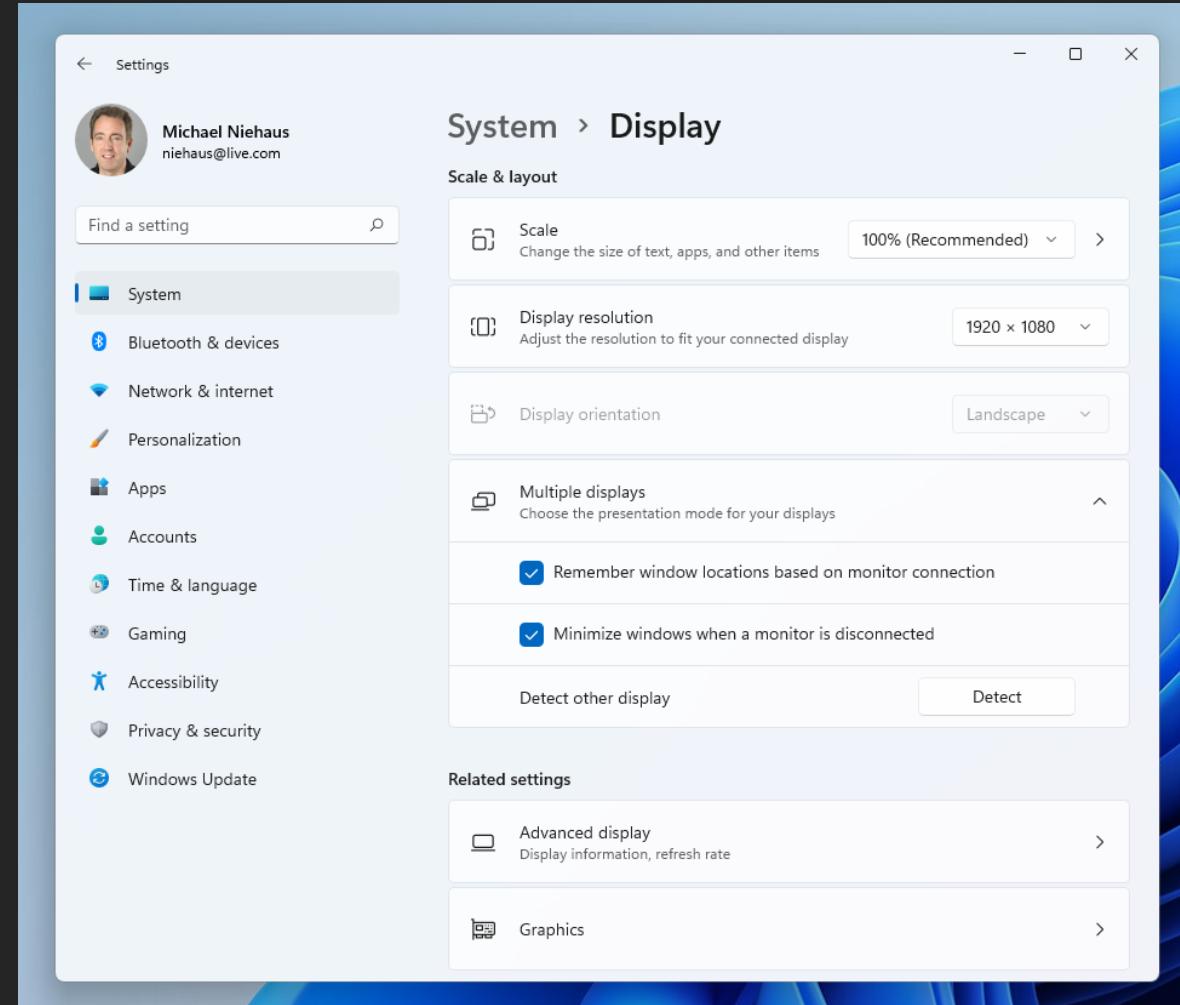
# Multiple desktops

- “Virtual Desktops” is now called “Desktops”
- Click the “Task view” button on the task bar, or use Windows key + Tab to see
- Click on a desktop to see apps running on that desktop
- Drag an app to a different desktop



# Multiple displays

- Windows 11 can remember where app windows were with specific multi-monitor configurations
  - Apps will move back when monitors are re-connected
  - Apps will be minimized when their current monitor disappears



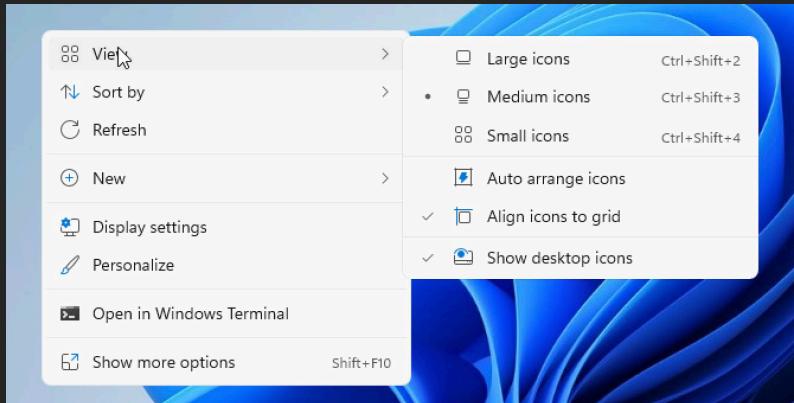
# Widgets



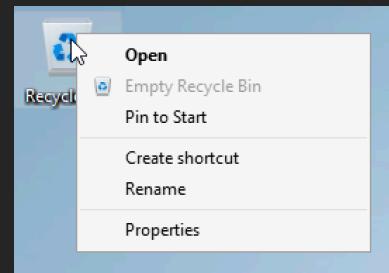
- Replaces the weather on the task bar with a new “wigdets” icon (soon to again show weather)
- Widgets can be customized, added, removed – but only Microsoft ones, no third-party support yet
  - News feed is the same as what you would see on the Edge new tab page – definitely needs customization
- Requires signing in with a Microsoft account
  - Azure AD account only works if Azure AD joined?

# Right-click menus

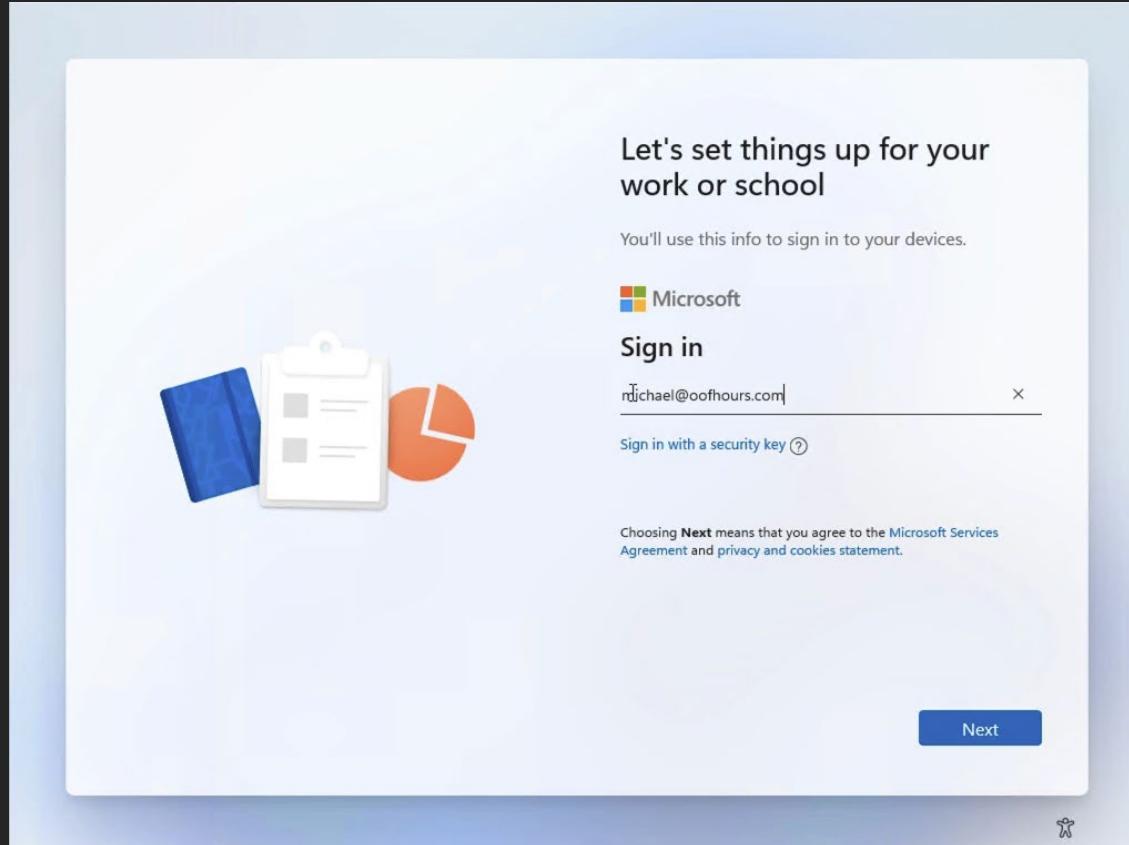
- Most menus have been replaced with a new UI style
- Some “old” menus still show up
  - Use “Show more options” in Explorer to see menu items that don’t appear on “new” menus



- Not too hard to find menus that were missed

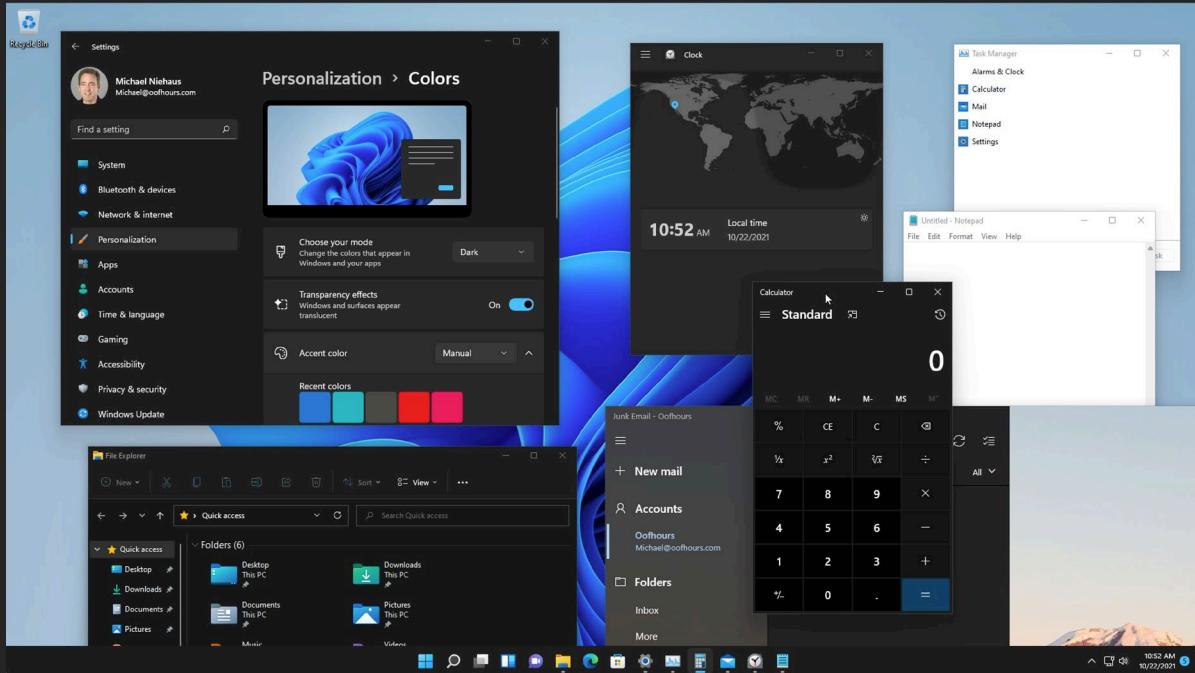


# Out of box experience (OOBE)



- New look and feel
    - Less space for “real” content
  - Design would work well on dual side-by-side screens. Coincidence? ☺
- 
- A screenshot of the Microsoft OOBE setup progress screen titled "Setting up for work or school". It informs the user that "This will take a few minutes. Your device might need to restart as we complete the setup." The screen shows two sections: "Device preparation" and "Device setup". Under "Device preparation", there is a completed task: "Securing your hardware (Completed)". Under "Device setup", tasks include "Joining your organization's network (Completed)", "Registering your device for mobile management (Completed)", "Preparing your device for mobile management (Completed)", and "Working on it...". Sub-tasks under "Working on it..." are: "Security policies (Identifying)", "Certificates (Identifying)", "Network connections (Identifying)", and "Apps (Identifying)".

# Dark mode



- Better system-wide support, but still with some gaps
- Some apps may still need to be updated

# Other stuff

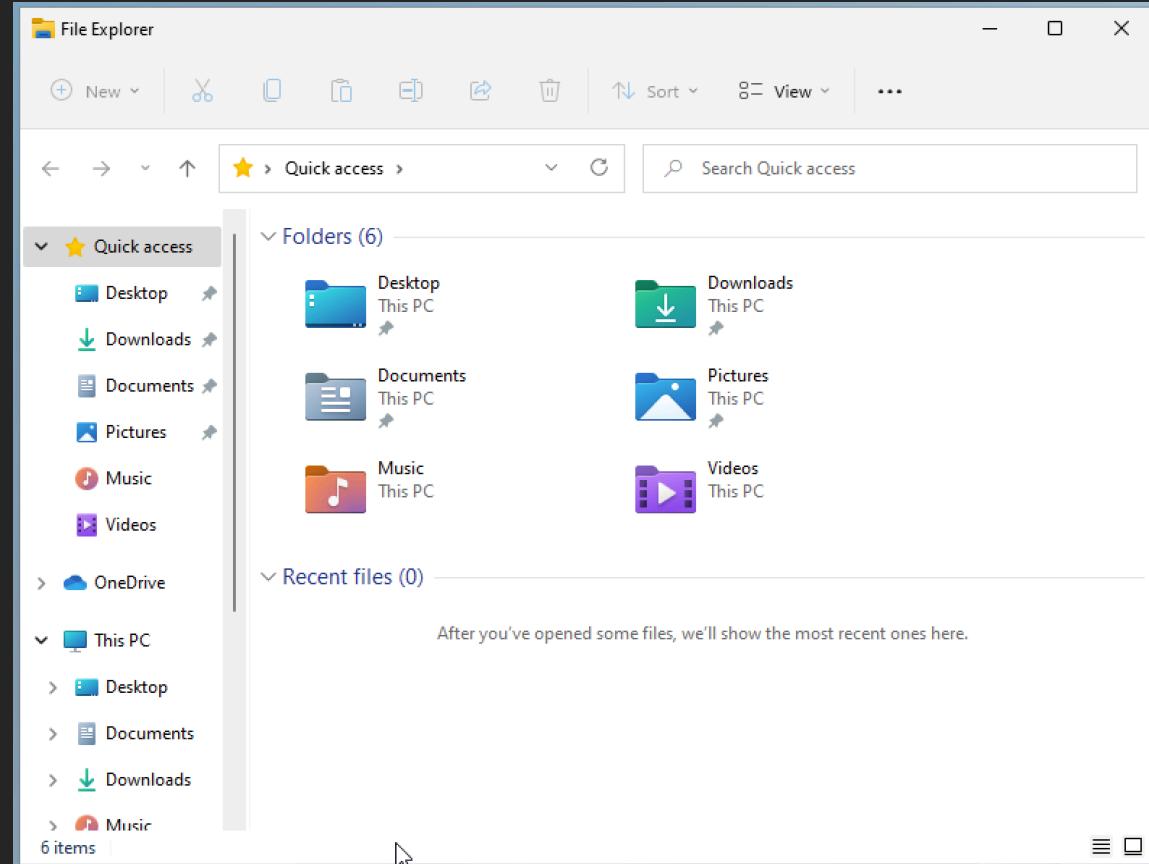
- New icons
- Touch improvements (e.g. more space between buttons, larger touch points)
  - No more tablet mode
- Pen haptics
- HDR support
- New emojis (search for emojigate)



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# Apps

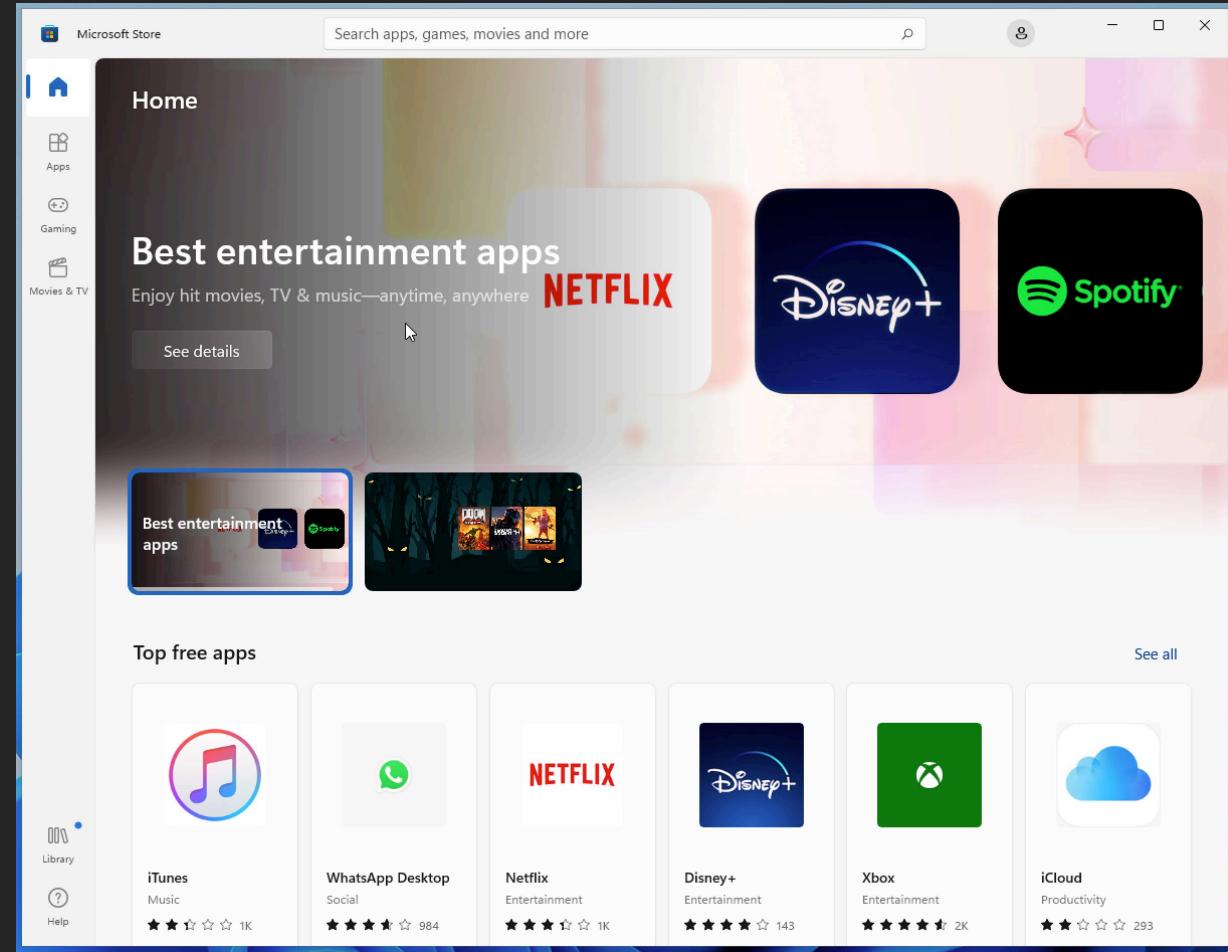
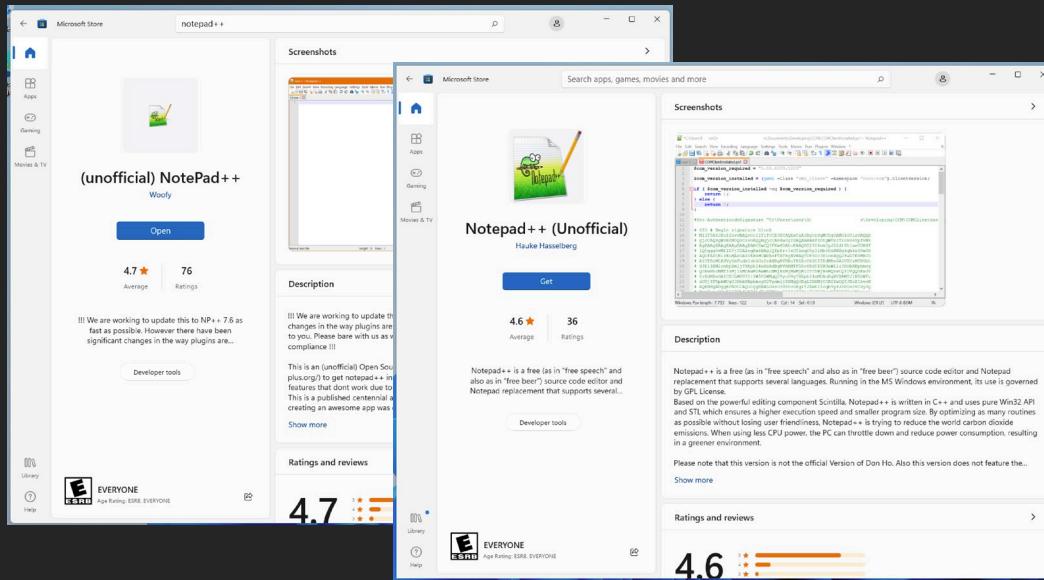
# File Explorer



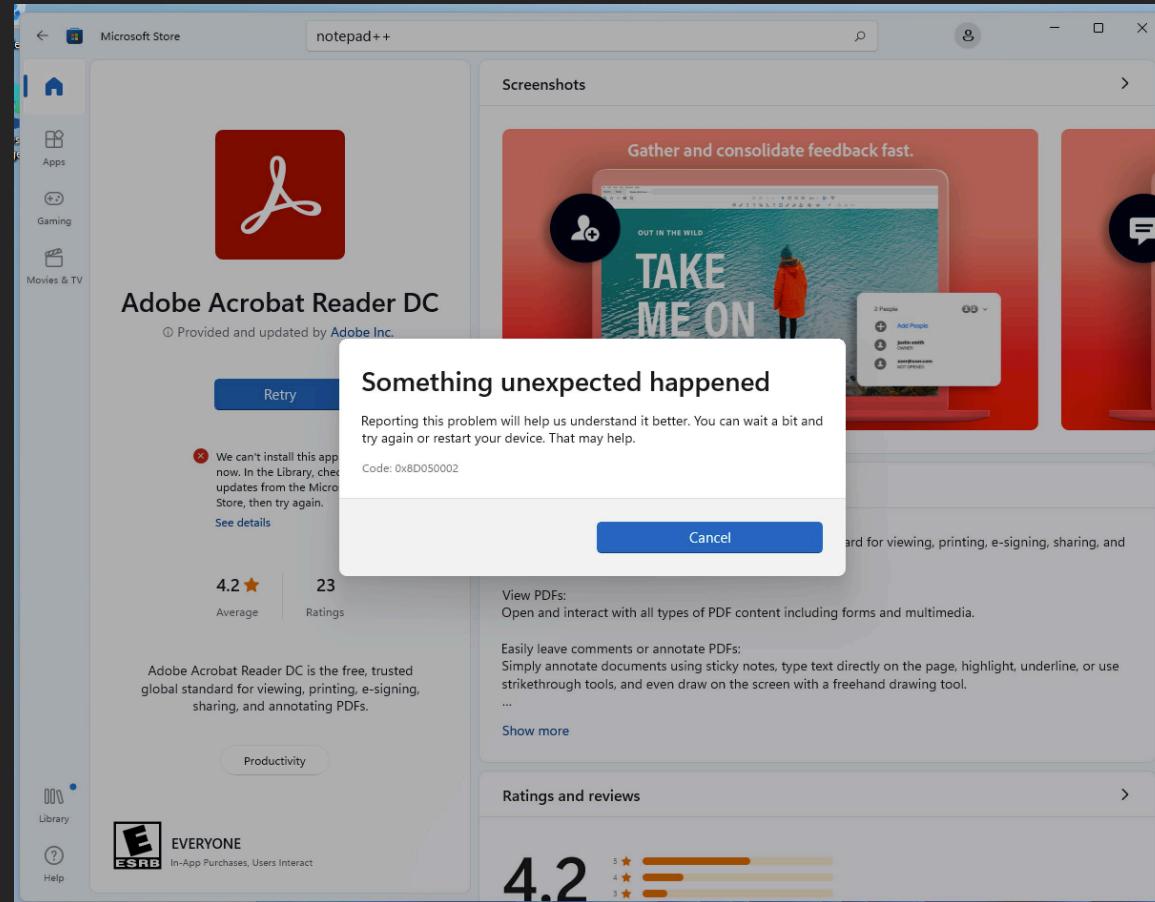
- Minor UI refresh
  - New icons, menus
  - Rounded corners (but only after patching)

# Store

- Completely reworked UI
- Support for all types of app installers
  - Anyone can submit anything
  - Non-admins can install UWP, MSIX, but not MSI/EXE
  - Content could come from the ISV's download location



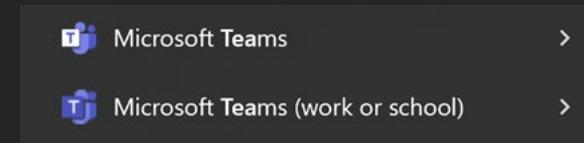
# Store



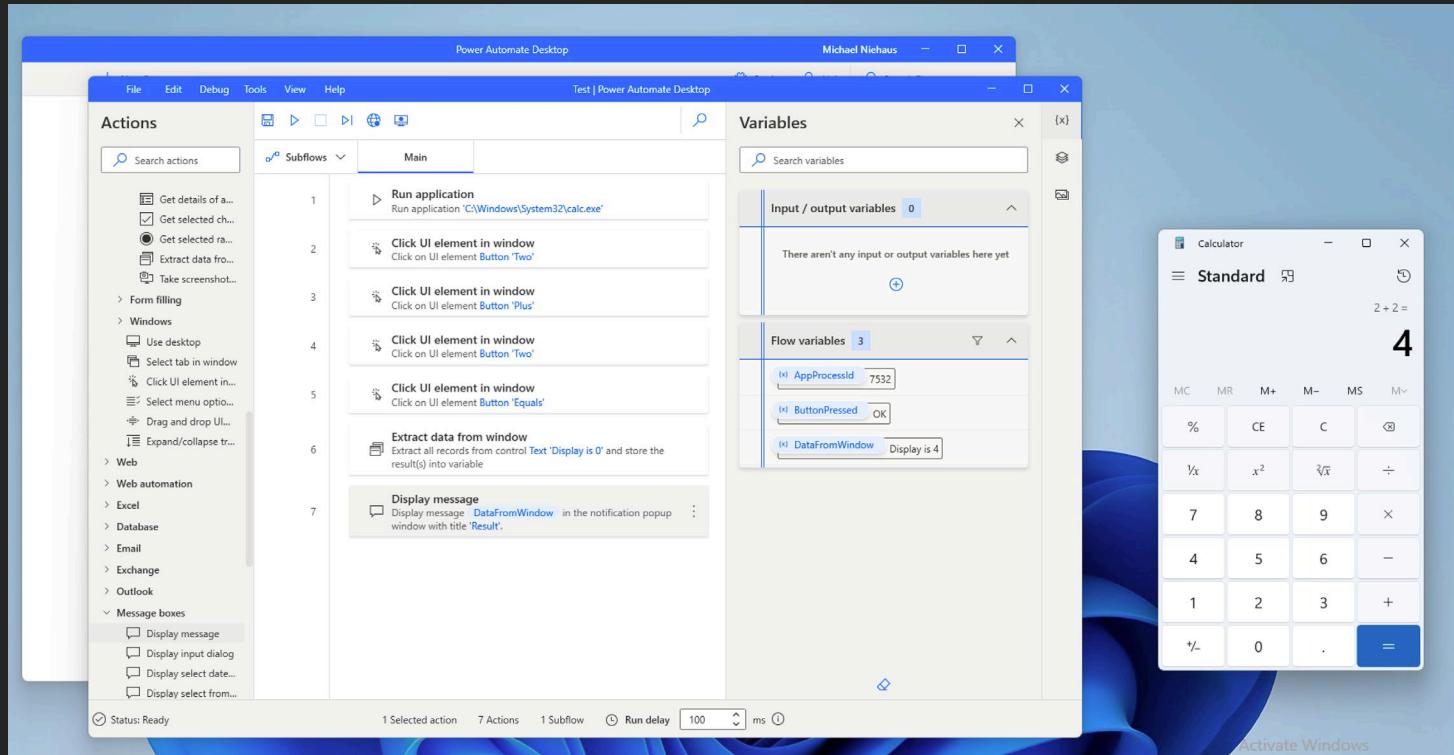
# Teams (consumer chat)



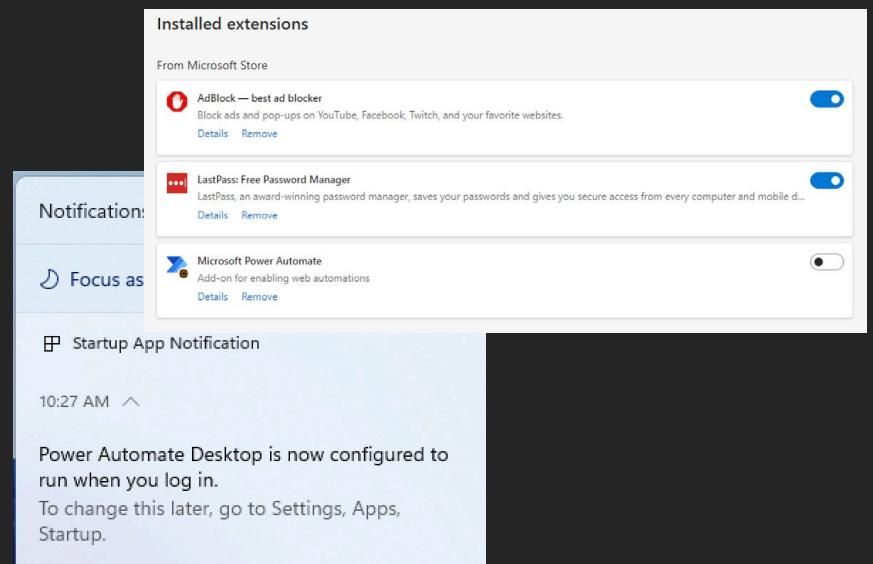
- Consumer-only, not for use with Azure AD/work accounts
  - Uses the consumer Teams client (white T), not the commercial Teams client (blue T)
- See <https://techcommunity.microsoft.com/t5/microsoft-teams-blog/introducing-chat-from-microsoft-teams-on-windows-11-for-your-base-p/2809877> for more details
- Probably a good one to remove...



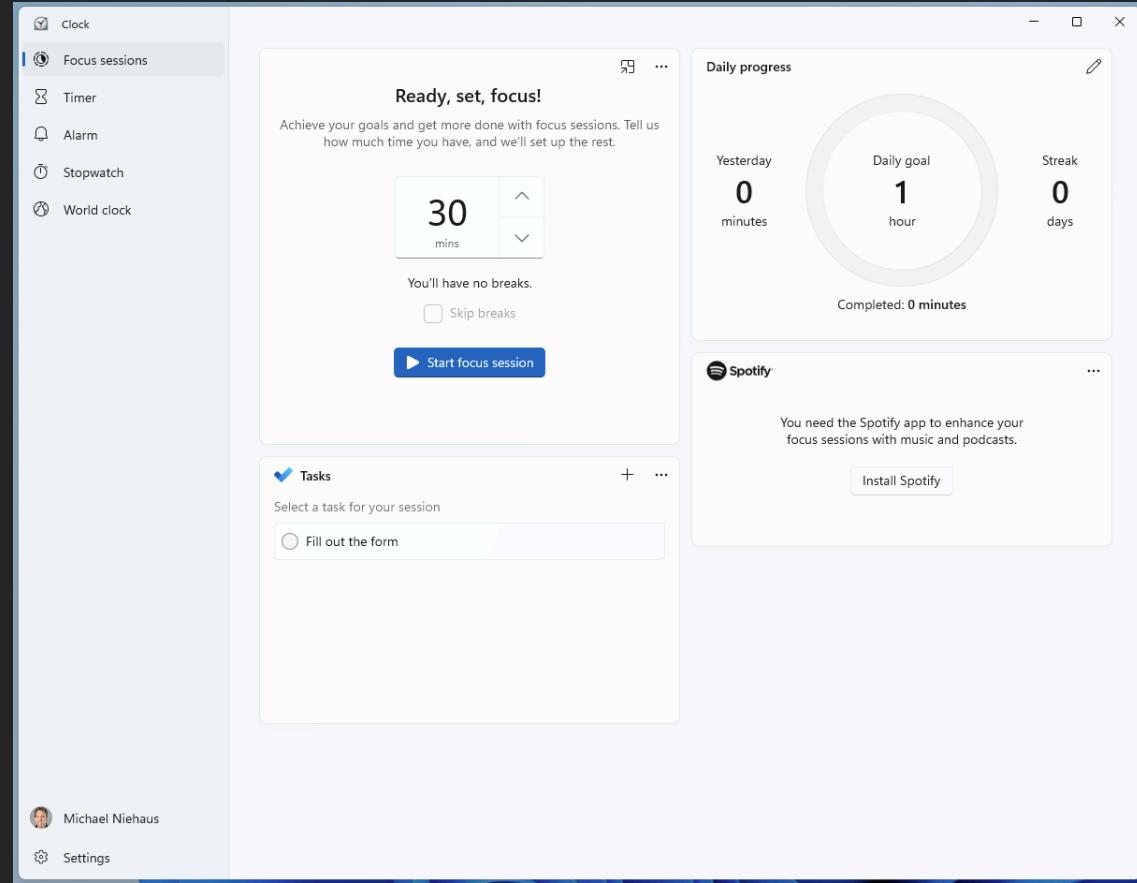
# Power Automate Desktop



- Robotic process automation app
  - Launch an app or web page
  - Click on UI elements
  - Build a flow to automate otherwise-manual tasks
- Watch out:



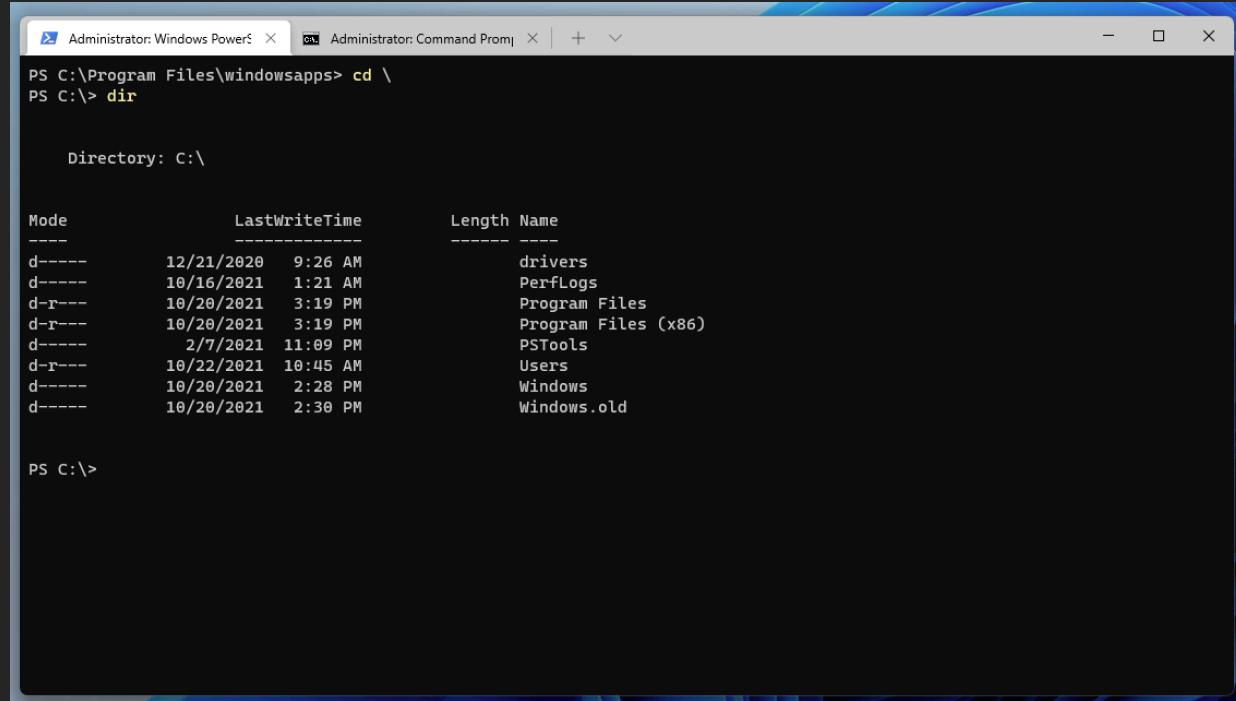
# Clock



- Is it possible to overdo a clock app? Yes.
  - When first launched, it wants you to sign in so you can see your tasks.
  - Want to focus? Set a timer with the clock app, have it launch Spotify to listen to music while you work
  - Just want to see the time? Click on World clock, that's the best you'll get:



# Terminal



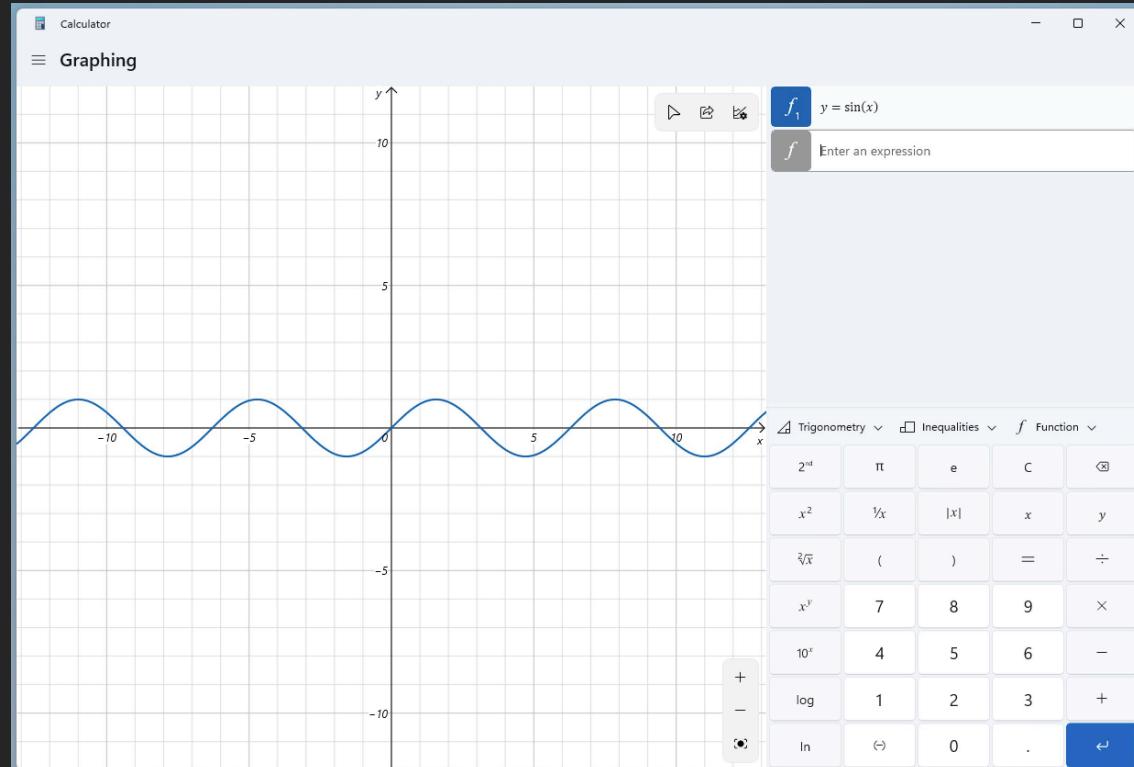
```
Administrator: Windows PowerShell x Administrator: Command Prom| x | + v
PS C:\Program Files\windowsapps> cd \
PS C:\> dir

Directory: C:\

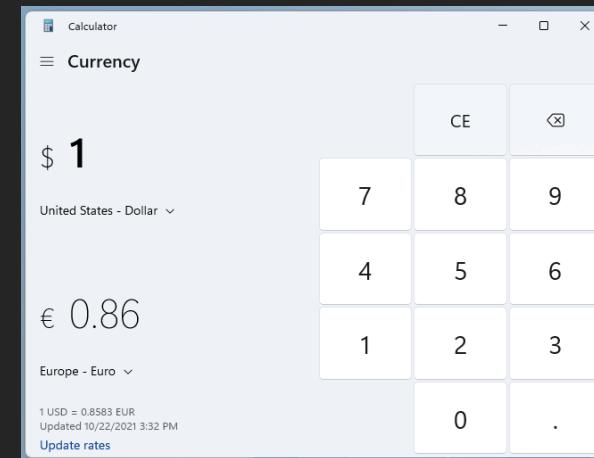
Mode                LastWriteTime       Length Name
----                -              -          -
d----
```

- Highly recommended
  - Supports PowerShell 5.1, Command Prompt (cmd.exe), and Azure Cloud Shell out of the box
  - Add PowerShell 7, Linux shell (with WSL)
  - Extremely customizable

# Calculator

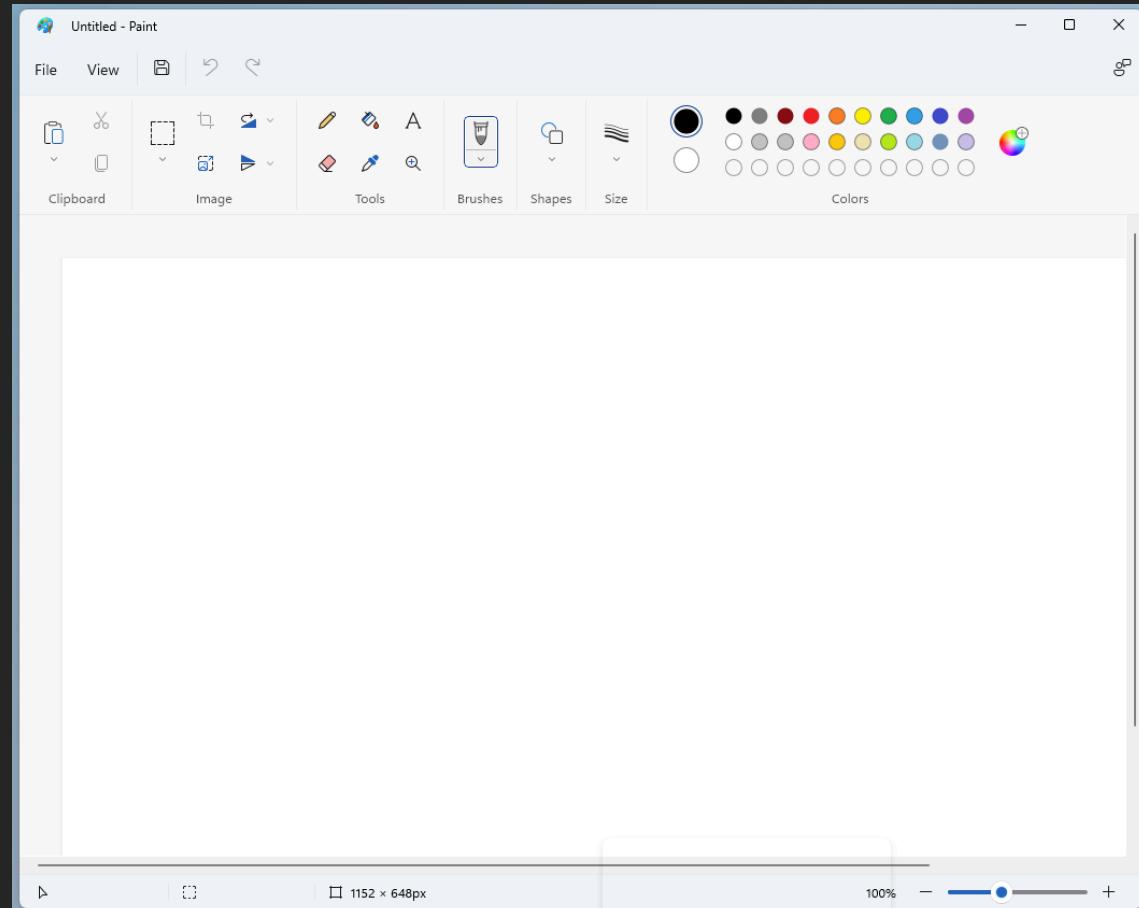


- So much functionality:
  - New graphic capabilities
  - Existing unit and currency conversion capabilities



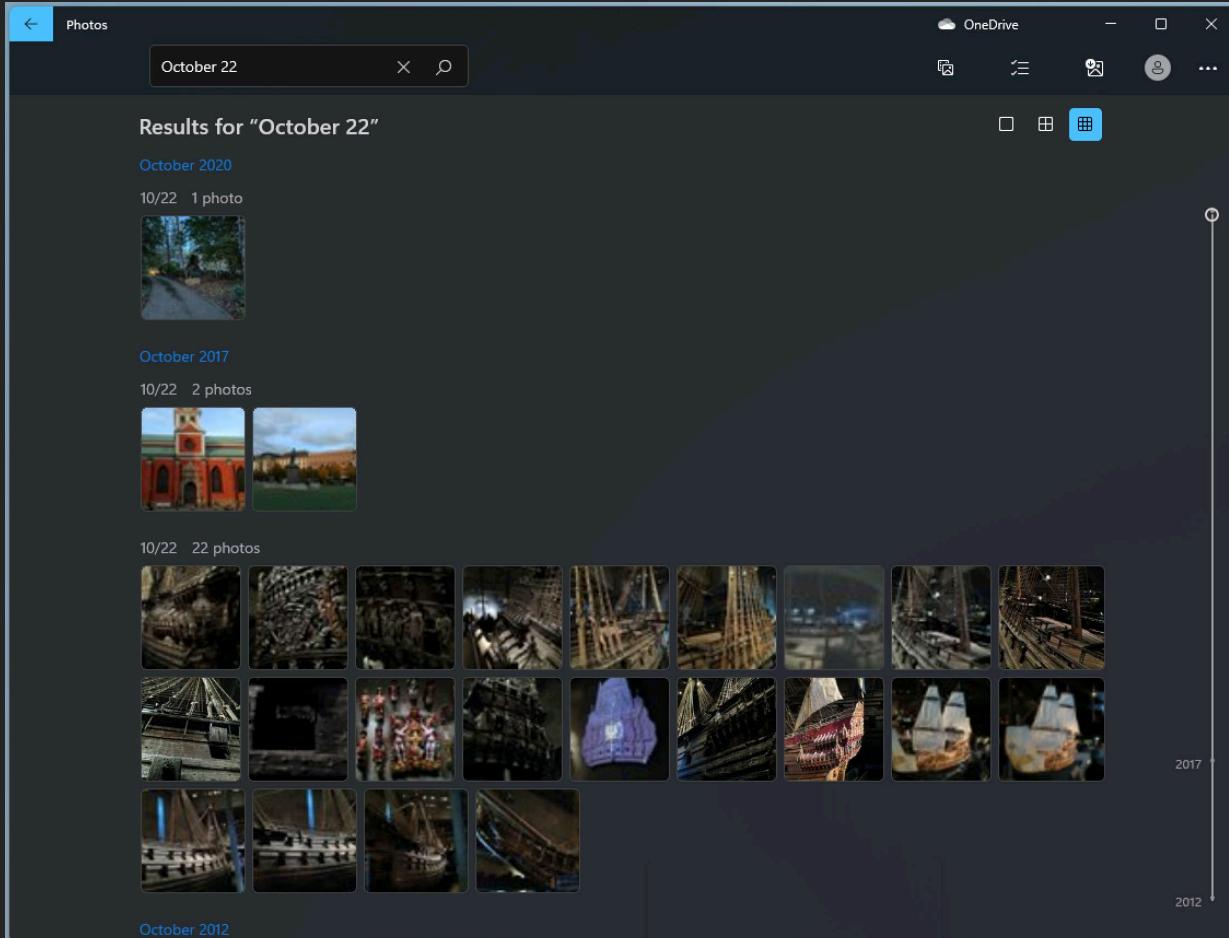
- Rewritten in C# and on GitHub at <https://aka.ms/calculator>

# Paint



- Refreshed UI, but little to no change in functionality

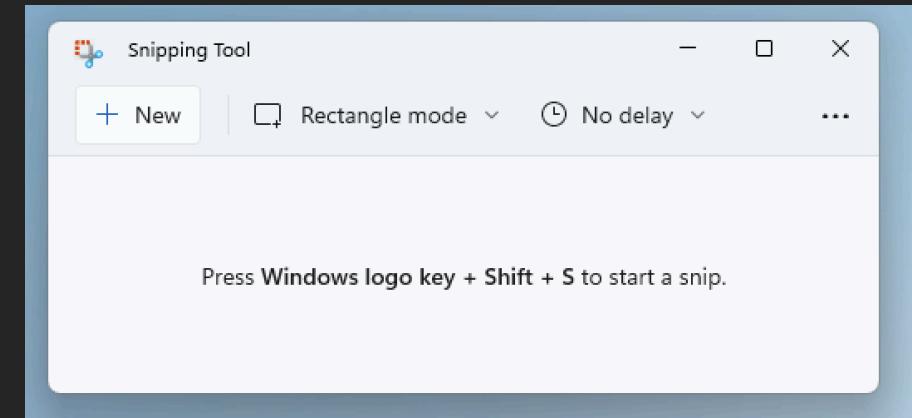
# Photos



- Some UI tweaks
- Simple editing capabilities for photos and movies
- Minor enhancements overall

# Snipping tool

- Snipping Tool (Win32) ->  
Snip & Sketch (UWP) ->  
Snipping Tool (Win32+WinUI)
- “Best of both”:
  - Instead of replacing the original tool with a new UWP app, the existing tool will pick up new features from the UWP app





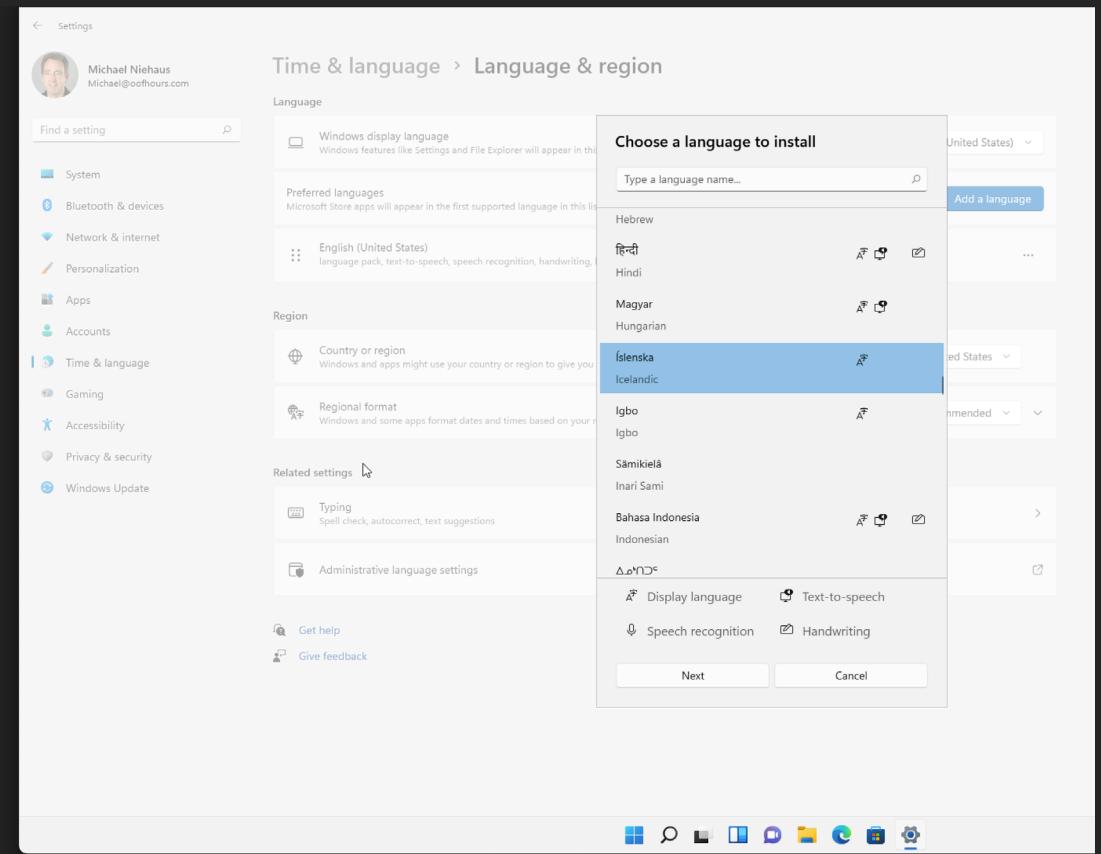
# Core functionality / Infrastructure

# SMB Compression

- Requires Windows Server 2022 + Windows 11
- Even when requested, an algorithm checks if the data is compressible (for now)
  - If 100MB out of the first 500MB can be compressed, it will keep compressing
  - This will change with the next Windows 11 release, always compressing when requested
- Great for compressible data (e.g. VHD files), but not for already-compressed content (e.g. zip files, WIM files)
- Can be enabled at the file share level:  
`New-SmbShare -Name "Sales" -Path "C:\sales" -CompressData $true`
- Can be specified when mapping a drive:  
`New-SmbMapping -LocalPath "Z:" -RemotePath "\\\fs1.corp.contoso.com\sales" -CompressNetworkTraffic $true  
NET USE * '\\fs1.corp.contoso.com\sales /REQUESTCOMPRESSION:YES`
- Can be explicitly requested with XCOPY.EXE and ROBOCOPY.EXE:  
`ROBOCOPY \\server\disks$ c:\disks /COMPRESS  
XCOPY c:\hypervdisks\*.vhdx \\server\disks$\ /COMPRESS`
- Can be forced on or off via registry:  
`[HKLM\System\CurrentControlSet\Services\LanManWorkstation\Parameters]  
DisableCompression=1`

# Language packs

- Important changes with Windows 11
  - Images can only contain one of the 38+5 core languages or five LIP languages
    - Must use the LPCAB for the 38 core languages
  - Remaining 67 LIP languages must be installed by the user via Settings (LXPs)
    - Works even if they don't have admin rights
- See  
<https://techcommunity.microsoft.com/t5/windows-it-pro-blog/update-to-language-imaging-in-windows-11/ba-p/2758043> for more details



# Cumulative updates

- Smaller cumulative updates:
  - Reduction in file differential payload
  - Cumulative update size reduction of up to 40% is possible
- Improvements to combined SSU + CU packaging:
  - Leverages client-side UUP logic, present on all Windows 11 devices
  - But you can no longer extract the CAB file from inside the MSU (may break MDT?)
  - Uninstalling the cumulative update is also done differently: don't use WUSA.EXE, use DISM /online /remove-package

See <https://techcommunity.microsoft.com/t5/windows-it-pro-blog/windows-11-cumulative-update-improvements-an-overview/ba-p/2842961> for more details

# Windows 11 on ARM improvements



- Emulation options:
  - 32-bit x86 apps
  - 64-bit x64 apps
  - ARM64EC, enabling partial native code with a single binary supporting x64+ARM64
- Benefits:
  - Full support for x86 and x64 apps, including x64 plug-ins for Office
  - Improved performance overall, leveraging more native code
- Native ARM64 support for Electron apps
  - Visual Studio Code
  - Microsoft Teams
- See  
<https://blogs.windows.com/windowsdeveloper/2021/06/28/announcing-arm64ec-building-native-and-interoperable-apps-for-windows-11-on-arm/> for more information

# New MDM settings

- Published:
  - <https://docs.microsoft.com/en-us/windows/client-management/mdm/new-in-windows-mdm-enrollment-management#whats-new-in-mdm-for-windows-11-version-21h2>
  - Full list:

New or updated article	Description
Policy CSP	Added the following new policies in Windows 11, version 21H2: <ul style="list-style-type: none"><li>- NewsAndInterests/AllowNewsAndInterests</li><li>- Experiences/ConfigureChatIcon</li><li>- Start/ConfigureStartPins</li><li>- Virtualizationbasedtechnology/HypervisorEnforcedCodeIntegrity</li><li>- Virtualizationbasedtechnology/RequireUEFIMemoryAttributesTable</li></ul>
DMClient CSP	Updated the description of the following node: <ul style="list-style-type: none"><li>- Provider/ProviderID/ConfigLock/Lock</li><li>- Provider/ProviderID/ConfigLock/UnlockDuration</li><li>- Provider/ProviderID/ConfigLock/SecuredCore</li></ul>

# Additional ADMX-backed MDM policies



- “We enabled over 1400 new mobile device management (MDM) policies. With them, you can configure policies that Group Policies also support. These new MDM policies include administrative template (ADMX) policies, such as App Compat, Event Forwarding, Servicing, and Task Scheduler.”
- Translation:
  - Removed restrictions on GPO policies that weren’t previously available via MDM ADMX-backed policies
  - ADMX allow list no longer used (in theory)
- Same capability included in September cumulative update to Windows 10 21H1, 20H2, and 2004 as well

# New GPO settings

- Download a spreadsheet from <https://www.microsoft.com/en-us/download/details.aspx?id=103506>
  - While the download says “Windows 11” the spreadsheet itself says Windows 10 and refers to “21H2” without indicating if that’s Windows 10 or Windows 11
  - The settings \*appear to be\* for Windows 11
- Example policies of interest:
  - Allow widgets
  - Configure the inclusion of Microsoft Edge tabs into Alt-Tab

# Windows as a service changes

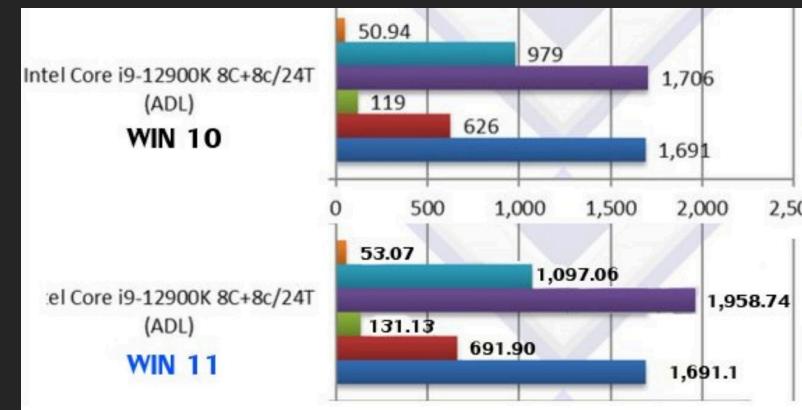
- Windows 10:
  - New feature updates ~~twice per year~~ once per year
  - Home, Pro: ~~18~~ 24 months support
  - Enterprise, Education: ~~18 months for spring releases, 30~~ months for fall releases
- LTSC releases: now with only 5 years of support
- Windows 11:
  - New feature updates once per year, in the fall
  - Home, Pro: 24 months of support
  - Enterprise, Education: ~~36~~ months of support
  - Weirdly, Windows 11 can also get new features at any time (e.g. any Patch Tuesday)
- LTSC releases (not yet available): 5 years of support

# Windows Update for Business

- Devices that talk directly to Windows Update can upgrade to Windows 11 (assuming the user has admin rights)
- Devices configured for Windows Update for Business need to specify explicitly that they want to go to Windows 11:
  - In Group Policy, **Select target Feature Update version** has two entry fields after taking the 9/1/2021 optional update ([KB5005101](#)) or a later update: **Product Version** and **Target Version**.
  - The product field must specify Windows 11 in order for devices to upgrade to Windows 11. If only the target version field is configured, the device will be offered matching versions of the same product.
  - For example, if a device is running *Windows 10, version 2004* and only the target version is configured to 21H1, this device will be offered version *Windows 10, version 21H1*, even if multiple products have a 21H1 version.
- See <https://docs.microsoft.com/en-us/windows/whats-new/windows-11-prepare> for more information

# Performance

- Foreground processes run with (even higher) priority
  - Gamers have tweaked this for years (Win32PrioritySeparation)
- Faster resume from sleep
  - RAM can be kept powered
- Support for Intel 12<sup>th</sup> generation Alder Lake processors
  - OS needs to leverage Intel's Thread Director to decide what work should be done in a "big/fast/high performance" core vs. a "little/slower/efficient" core
  - [Microsoft and Intel confirm Windows 11 is optimized for Alder Lake's big.LITTLE design](#)
  - [https://twitter.com/TUM\\_APISAK/status/1446742599193141253/photo/1](https://twitter.com/TUM_APISAK/status/1446742599193141253/photo/1)



# Other stuff

- Improvements to voice typing and commands
- New sounds
- Windows Subsystem for Linux support for GUI (X Windows) apps
- USB 4 and Wi-Fi 6E support



# Still to come

# Windows 11 22H2

- Folder support coming back to Start menu
- More flexible Start layout, split between lines of pinned apps and lines of recommended items
- More “fluency” and consistency (e.g. no more spinning dots on boot, Task Manager dark mode)
- Cmdlets for installing languages/language packs
- Clipchamp added as an in-box app
- Credential Guard enabled by default
- Windows 11 Pro requires internet access for OOBE

See <https://changewindows.org/platforms/pc/releases/windows-11-version-22h2> for a full list

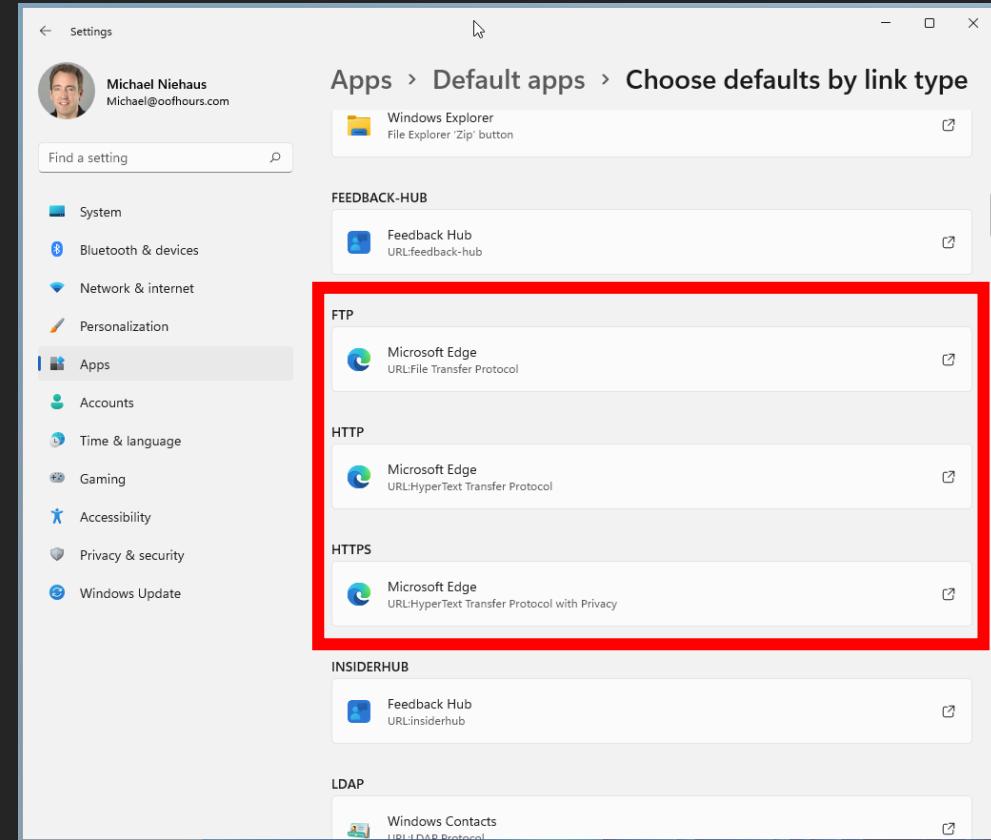
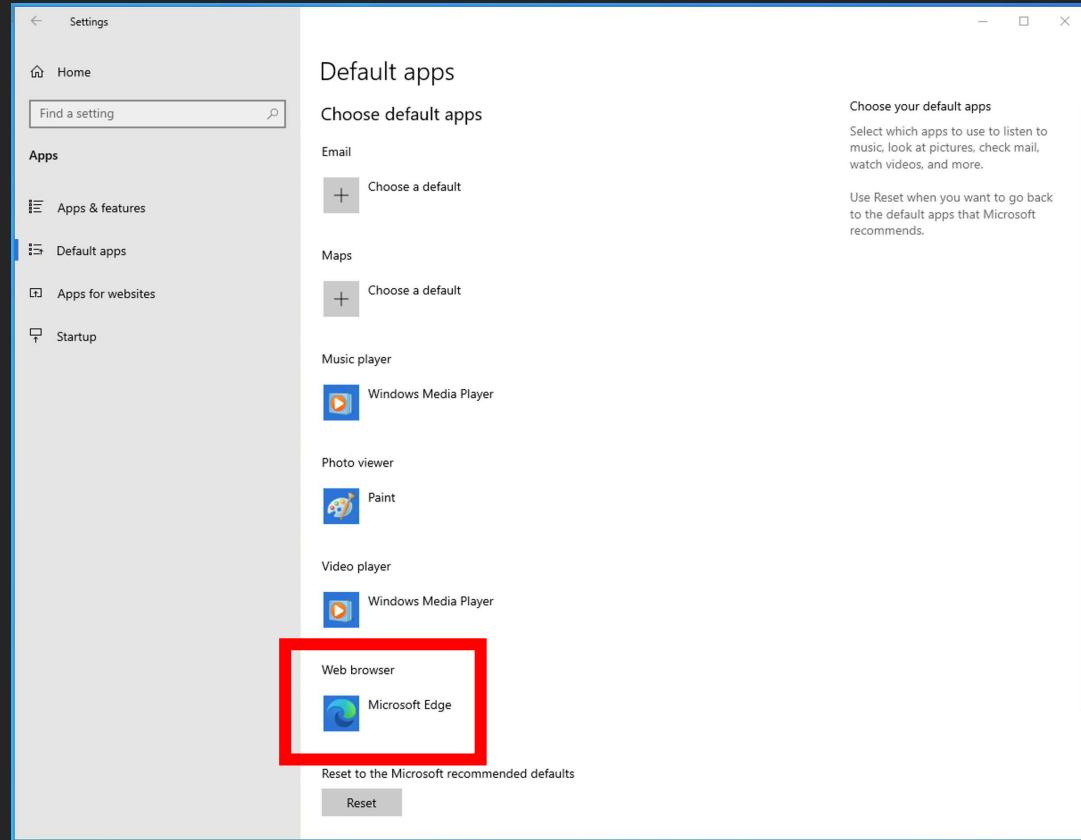


# Features removed

# Features removed

- Roaming wallpaper
- Multi-app kiosk support (coming back in the future)
- Tablet mode
- S mode (except on Home)
- Internet Explorer (sort of)
- Timeline
- Wallet
- Simple default app interface (maybe coming back?)
- WDS: Only supports a custom boot WIM
  - See <https://docs.microsoft.com/en-us/windows/deployment/wds-boot-support>
  - Effectively, use a different tool (possibly with WDS as a transport for booting Windows PE)
- Private (enterprise) store
- Removed apps: 3D Viewer, OneNote for Windows 10 (UWP version), Paint 3D, Skype

# Features removed





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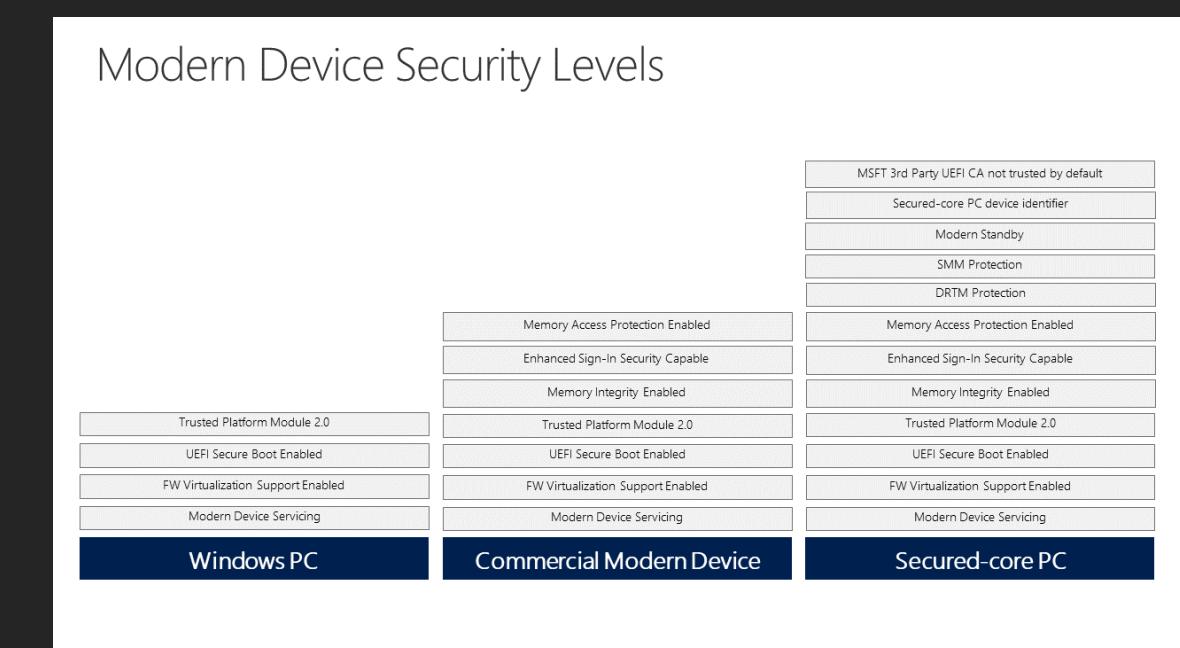
# Hardware Requirements

# Hardware requirements

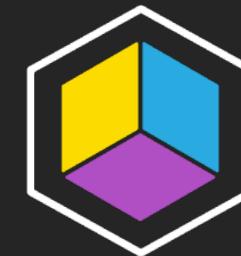
- Processor: 1GHz or faster, 64-bit only, 2 or more cores, 8<sup>th</sup> generation or above (with two 7<sup>th</sup> gen exceptions)
- RAM: 4GB or greater
- Storage: 64GB or greater
- Firmware: UEFI, Secure Boot
- TPM 2.0
- Display: 720p or greater, 9" or larger
- Internet: required for Home and some features
- Why?
  - Security. The hardware features are needed to ensure the OS is as secure as possible.
  - Reliability. The hardware requirements will ensure the OS crashes less.
  - Compatibility. The OS shouldn't have requirements lower than those of key apps like Office and Teams.
- These requirements (except for the 2 or more cores) really don't have anything to do with performance
  - Intel Celeron J4125 (8th gen, 4 cores): CPU Mark: 3,043
  - Intel i5-6500 (6<sup>th</sup> gen, 4 cores): CPU Mark: 5,638

# Hardware requirements

- Really, why?
  - VBS and HVCI require certified drivers that only exist for 8th generation and above CPUs
  - UEFI and Secure Boot are needed to protect the OS before it can protect itself
  - TPM 2.0 provides a tamper-proof location for storing secrets and measurements (e.g. boot file details, to detect OS tampering)
    - But there are too many features that fall back to software emulation when TPM 2.0 isn't working right
- Ironically, Windows 11 still doesn't ship in a "secured" configuration
  - Apply a Security Baseline and enable the needed security features (not enabled by default) to get there
  - <https://techcommunity.microsoft.com/t5/microsoft-security-baselines/windows-11-security-baseline/ba-p/2810772>



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