WHAT'S NEW IN WINDOWS 11?

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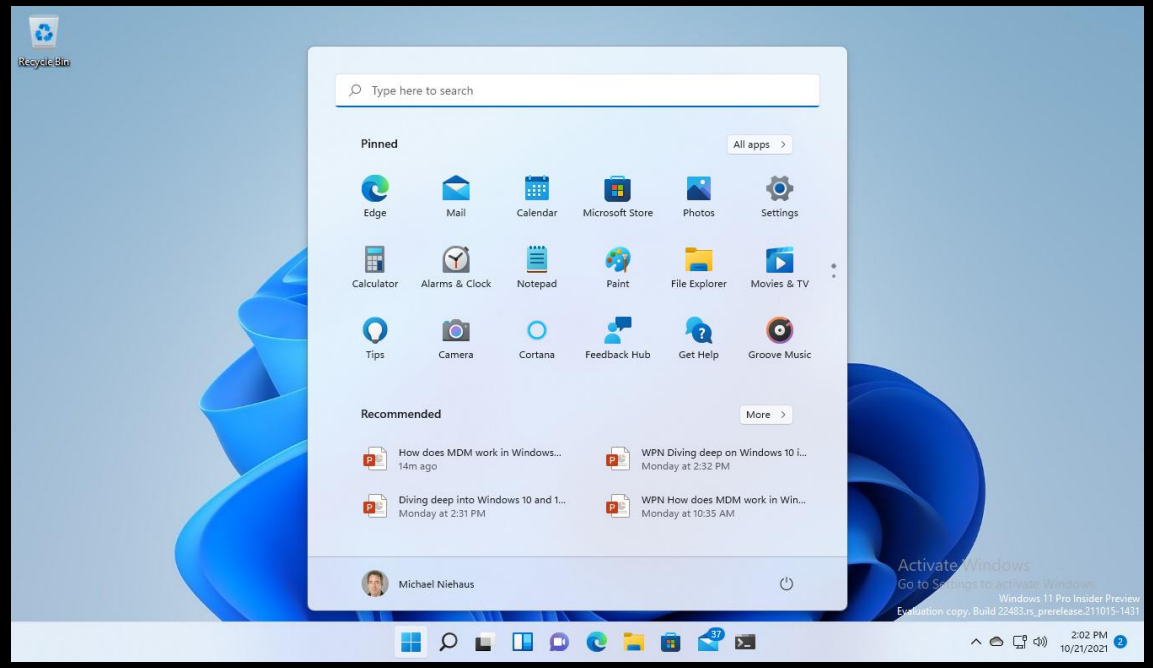
IS WINDOWS 11 A SIGNIFICANT RELEASE?

- 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

USER INTERFACE IMPROVEMENTS

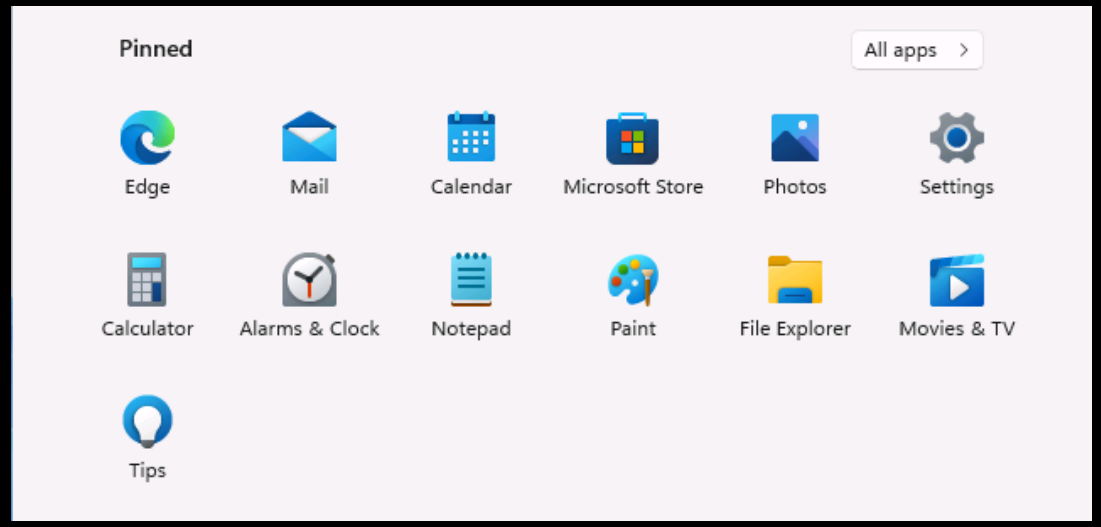
NEW START MENU



- 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

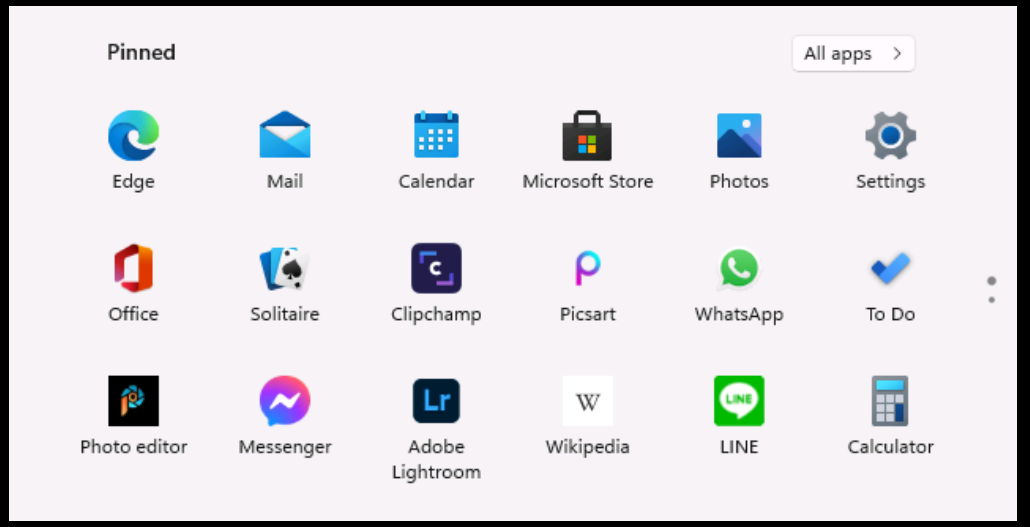
NEW START MENU

- 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

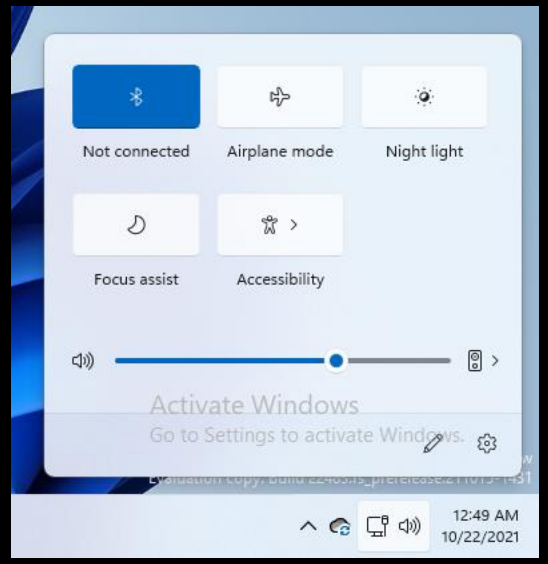
- Look and feel
  - Always at the bottom
  - Icons are centered, but can be moved to the left
  - Right-clicking on the task bar gives a very short menu (no Task Manager)
  - Right-clicking on the Start button still gives lots of options
  - Weather is gone, replaced by widgets icon
  - Policies to hide icons you don’t want, or users can turn them off themselves

TASK BAR

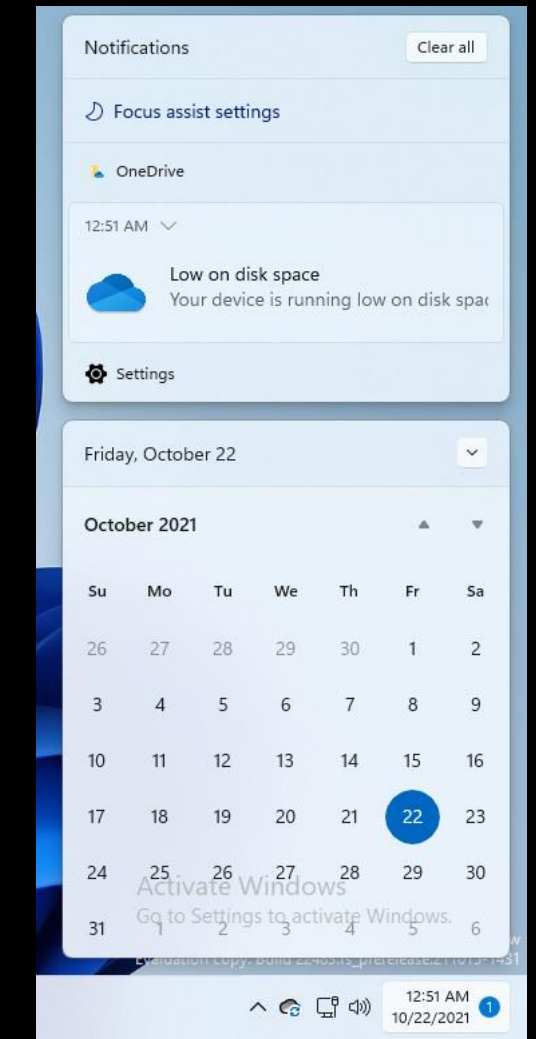
- Pinned items can be customized
  - Manually build an XML file with the items you want
  - You can specific to replace all the default pinned items, or to just add custom items
  - Not sure what to put in the XML file? Pin the item you want to the Start menu, export that with "Export-StartLayout -Path 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:

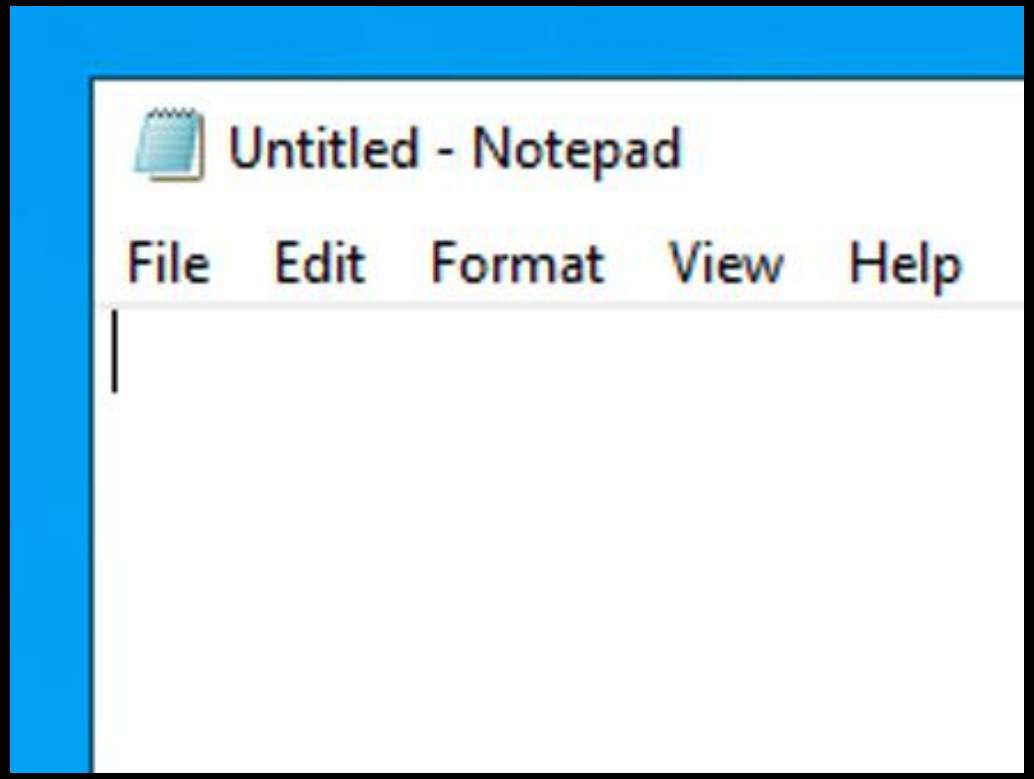


- Click on the date and time to see notifications, date/calendar:

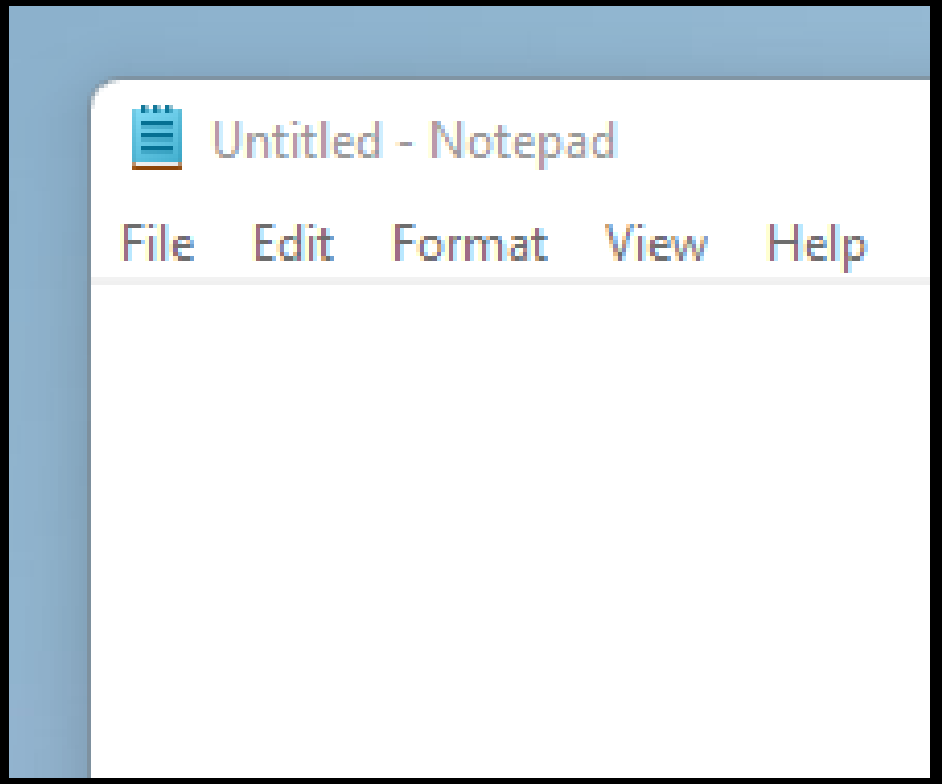


ROUNDED CORNERS

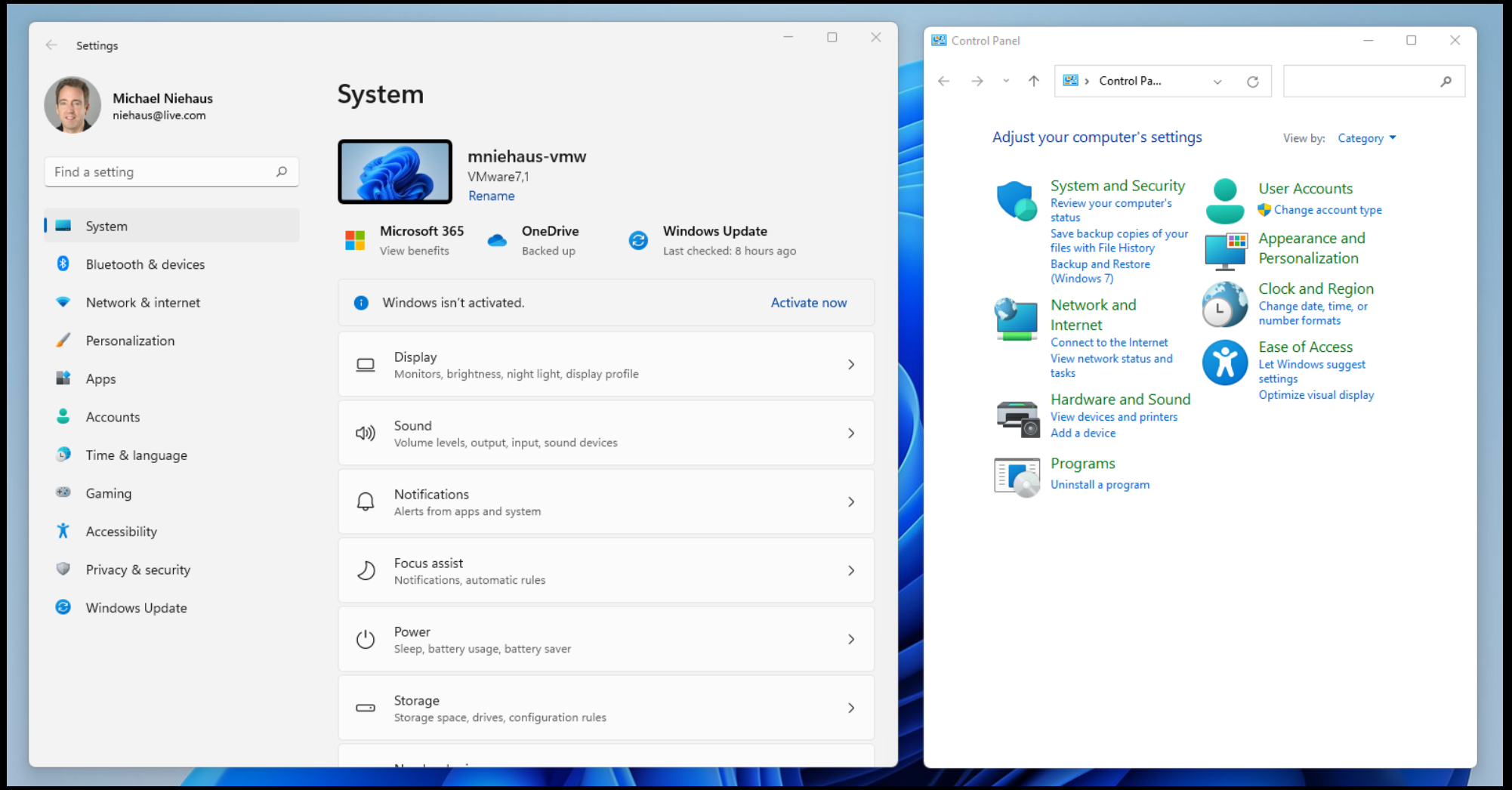
- Old:



- New:



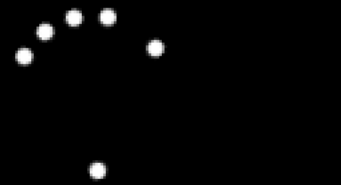
SETTINGS


Settings
Michael Niehaus
niehaus@live.com
Find a setting
System
Bluetooth & devices
Network & internet
Personalization
Apps
Accounts
Time & language
Gaming
Accessibility
Privacy & security
Windows Update
System
mniehaus-vmw
VMware7,1
Rename
Microsoft 365
View benefits
OneDrive
Backed up
Windows Update
Last checked: 8 hours ago
Windows isn't activated.
Activate now
Display
Monitors, brightness, night light, display profile
Sound
Volume levels, output, input, sound devices
Notifications
Alerts from apps and system
Focus assist
Notifications, automatic rules
Power
Sleep, battery usage, battery saver
Storage
Storage space, drives, configuration rules
Control Panel
Control Pa...
Adjust your computer's settings
View by: Category
System and Security
Review your computer's status
Save backup copies of your files with File History
Backup and Restore (Windows 7)
Network and Internet
Connect to the Internet
View network status and tasks
Hardware and Sound
View devices and printers
Add a device
Programs
Uninstall a program
User Accounts
Change account type
Appearance and Personalization
Clock and Region
Change date, time, or number formats
Ease of Access
Let Windows suggest settings
Optimize visual display

NEW SYSTEM FONT

- Old (Windows 10):

- New (Windows 11):

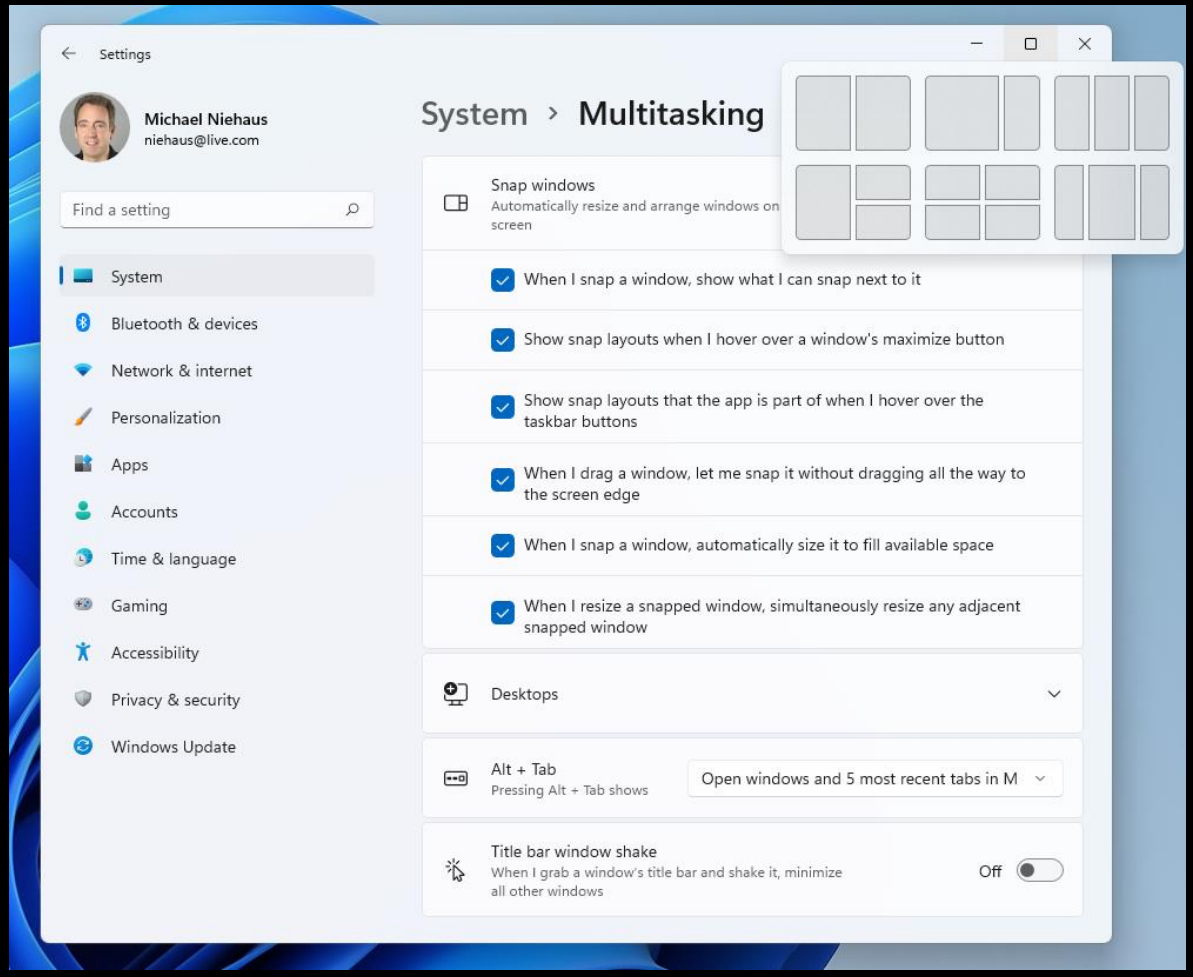


Just a moment...

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

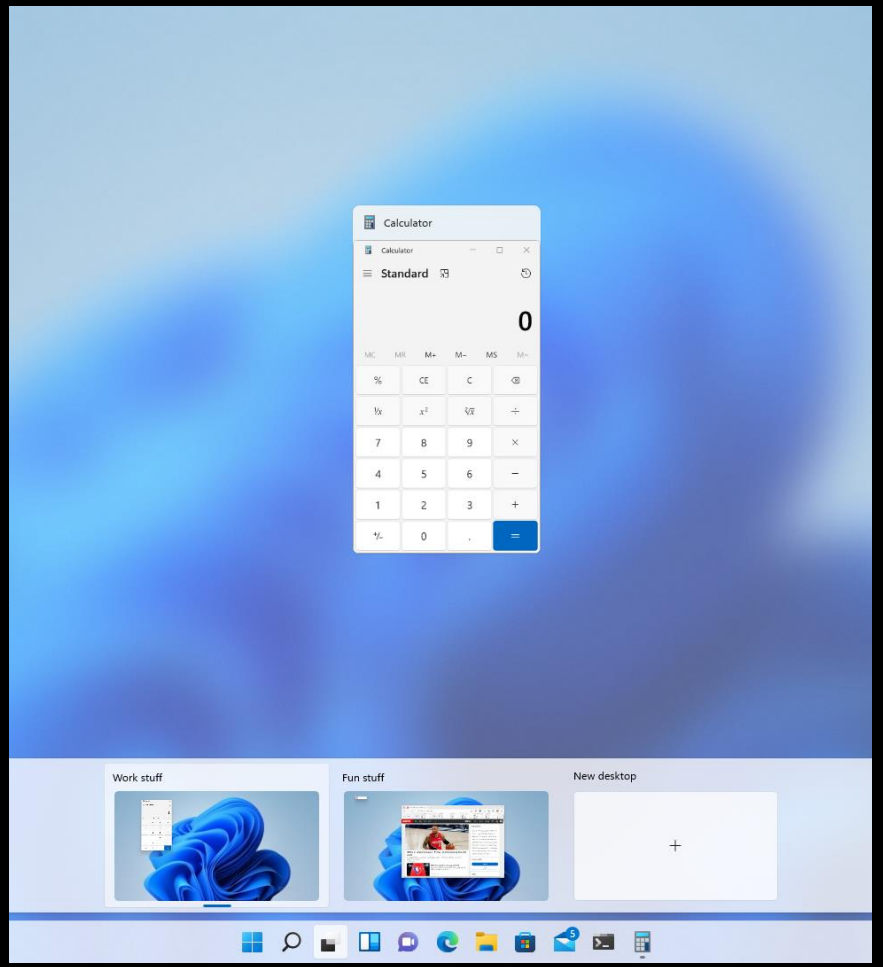
SNAP

- 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



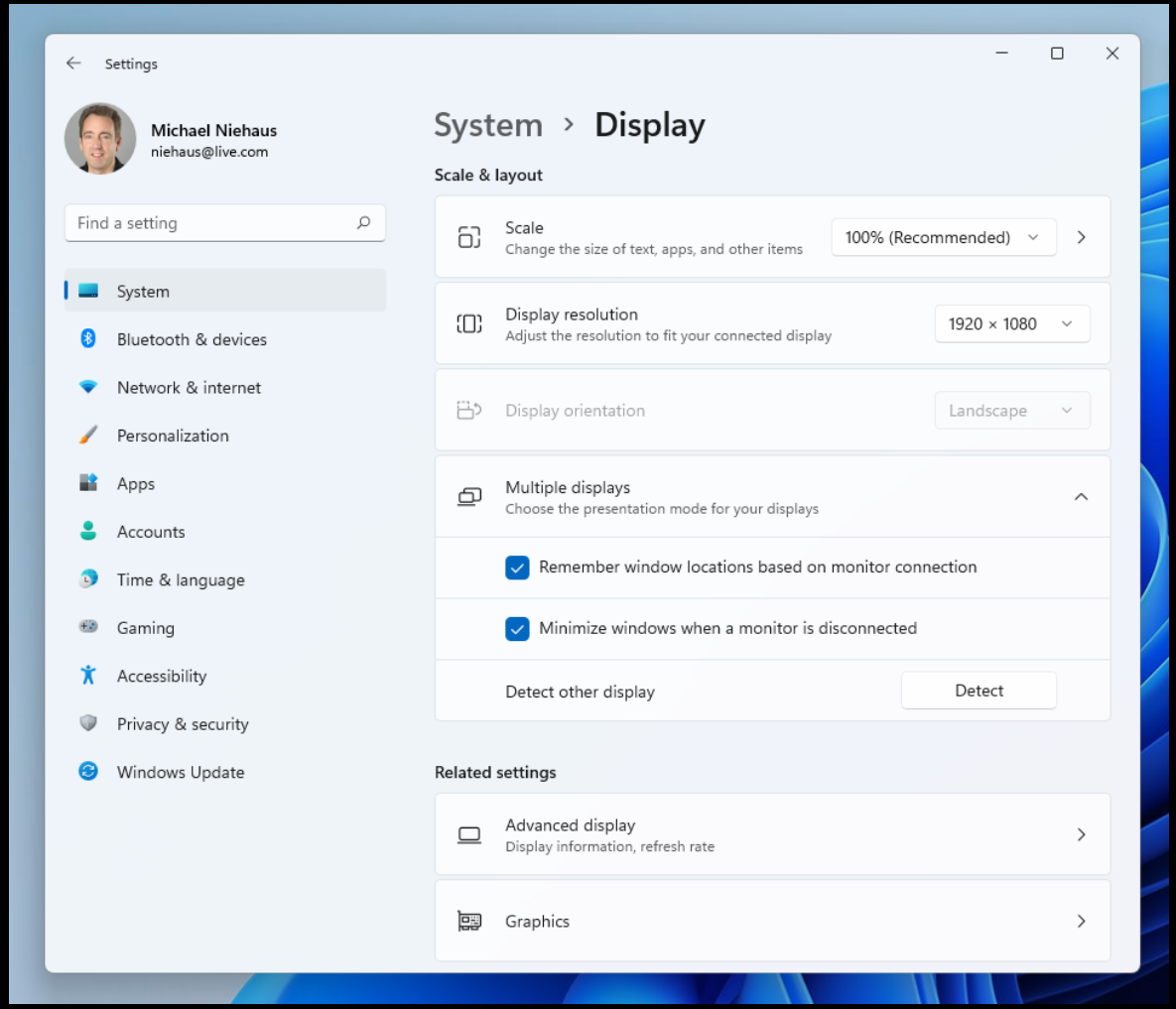
MULTIPLE DESKTOPS

- "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

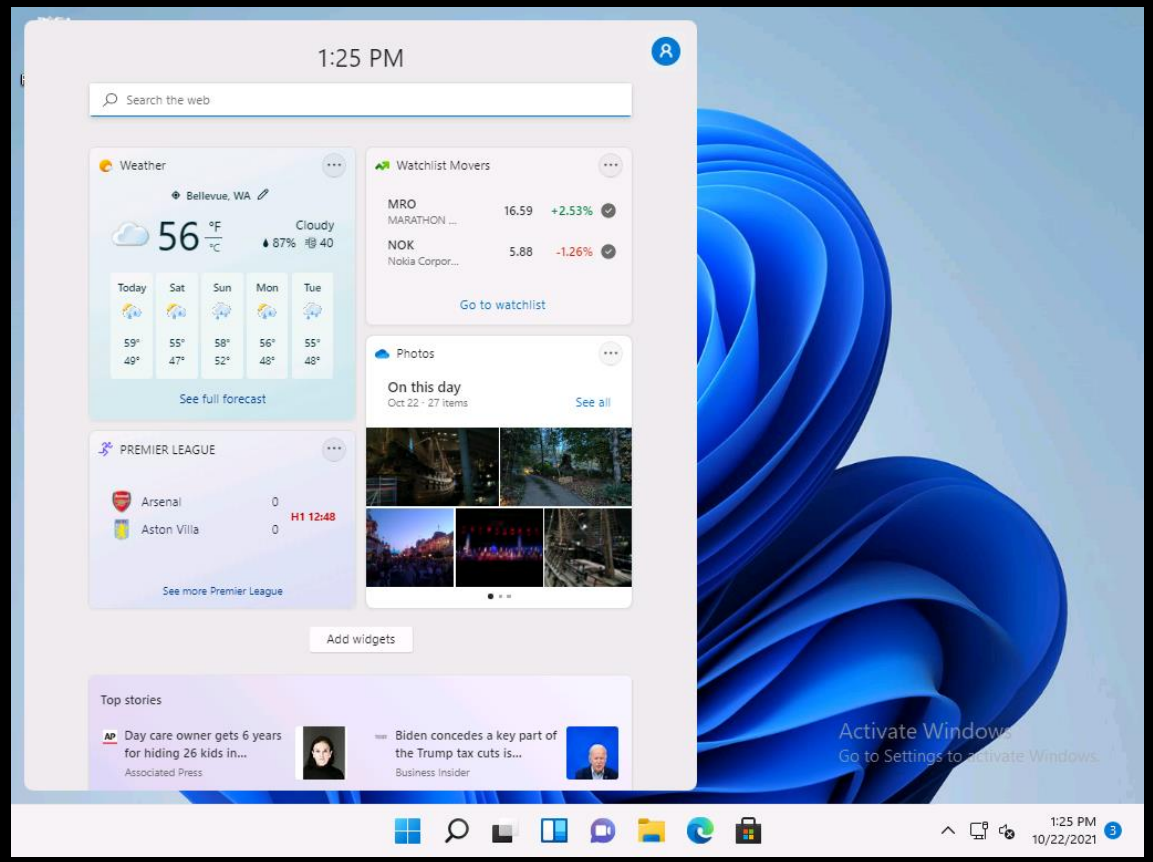


MULTIPLE DISPLAYS

- 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

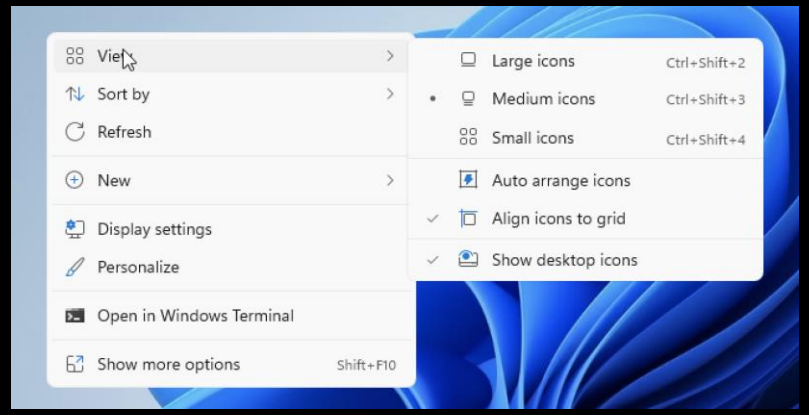


WIDGETS

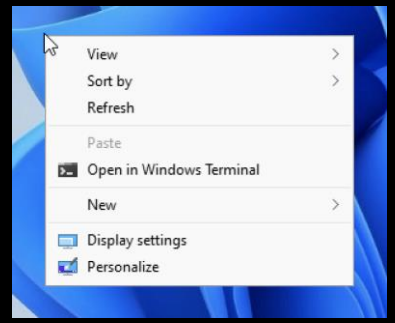


- Replaces the weather on the task bar with a new “wigdets” icon
- Widgets can be customized, added, removed – but only Microsoft ones, no third-party support yet
  - News feed is the same as what you would see on the Edge new tab page – definitely needs customization
- Requires signing in with a Microsoft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

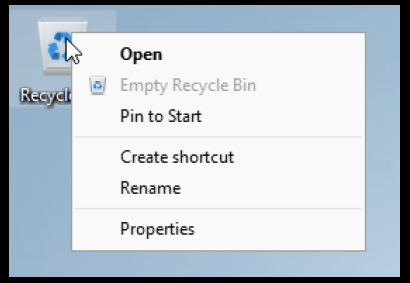
RIGHT-CLICK MENUS



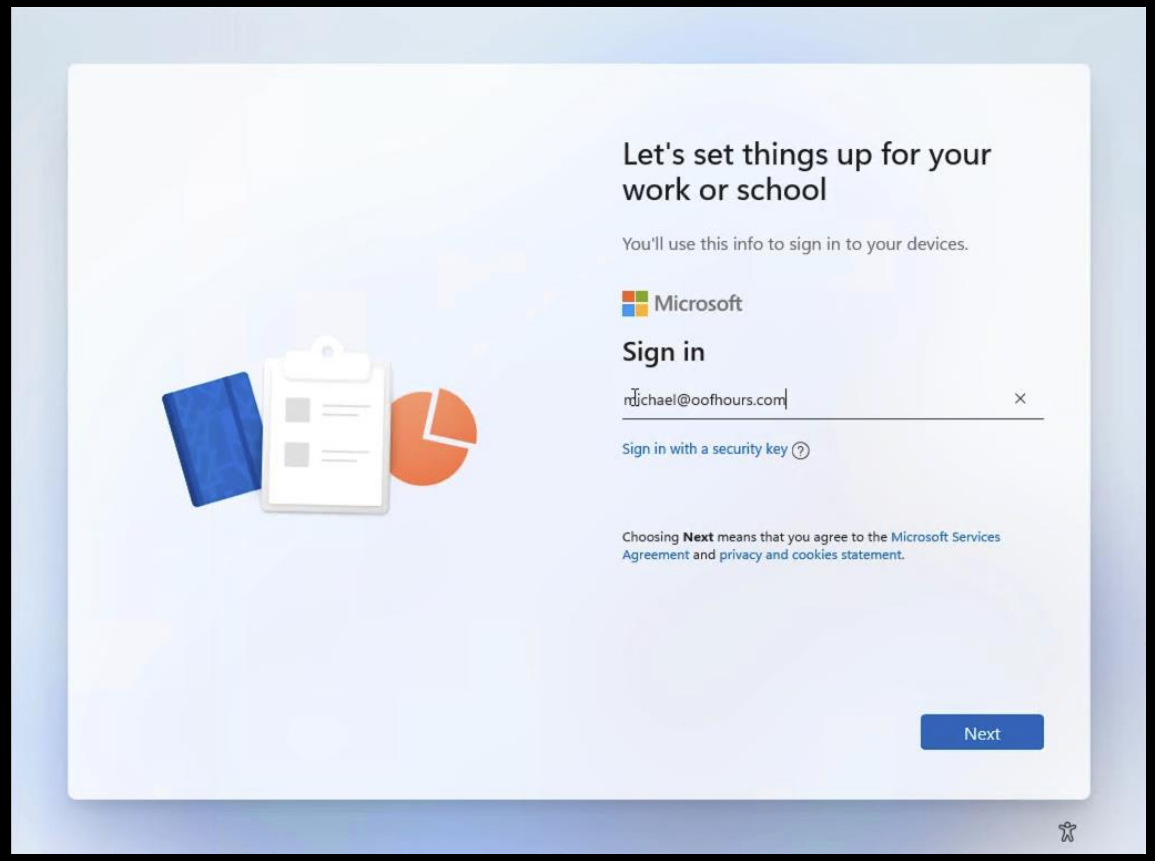
- Most menus have been replaced with a new UI style
- Some "old" menus still show up
  - Use "Show more options" in Explorer to see menu items that don't appear on "new" menus



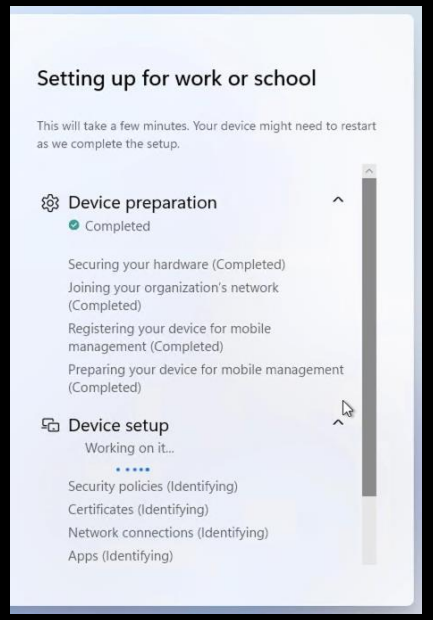
  - Not too hard to find menus that were missed



OUT OF BOX EXPERIENCE (OOBE)

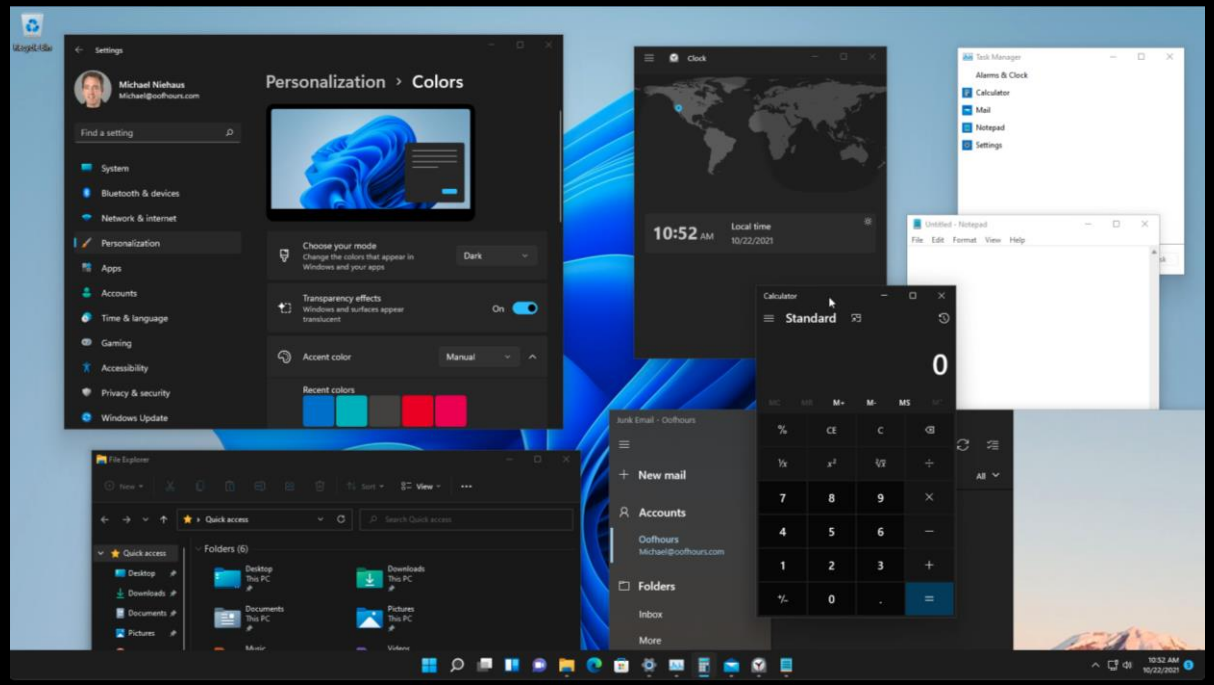


- New look and feel
  - Less space for "real" content



- Design would work well on dual side-by-side screens. Coincidence? ☺

DARK MODE



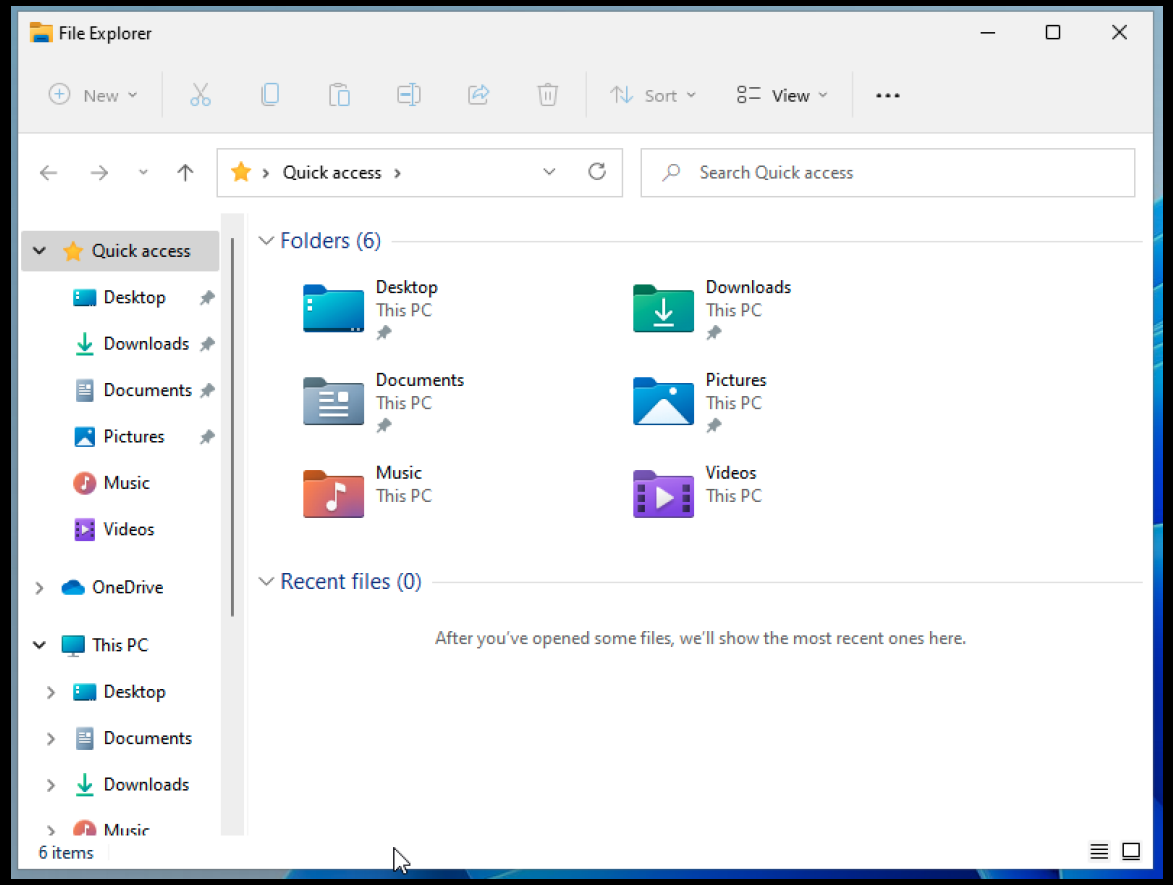
- Better system-wide support, but still with some gaps
- Some apps may still need to be updated

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)

APPS

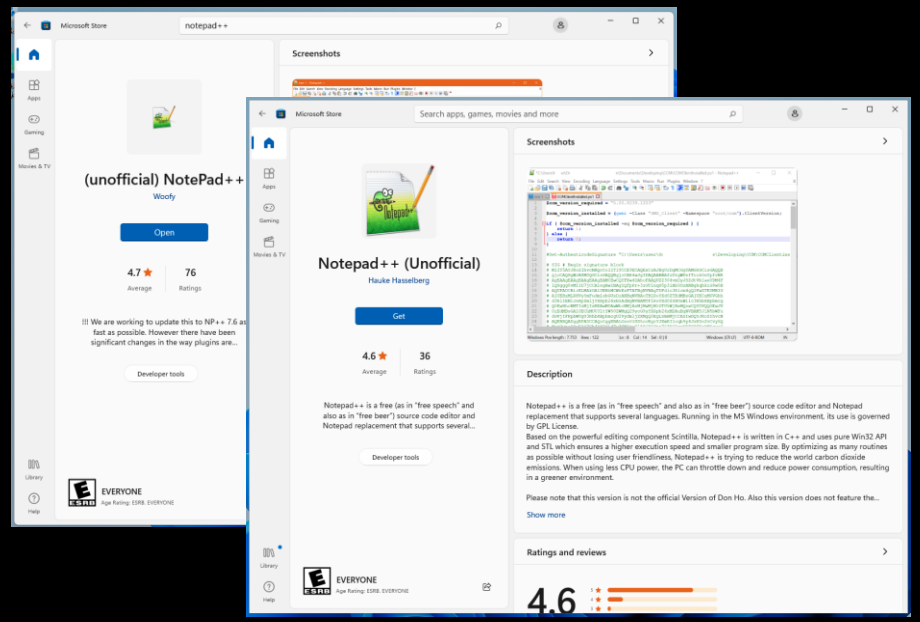
FILE EXPLORER

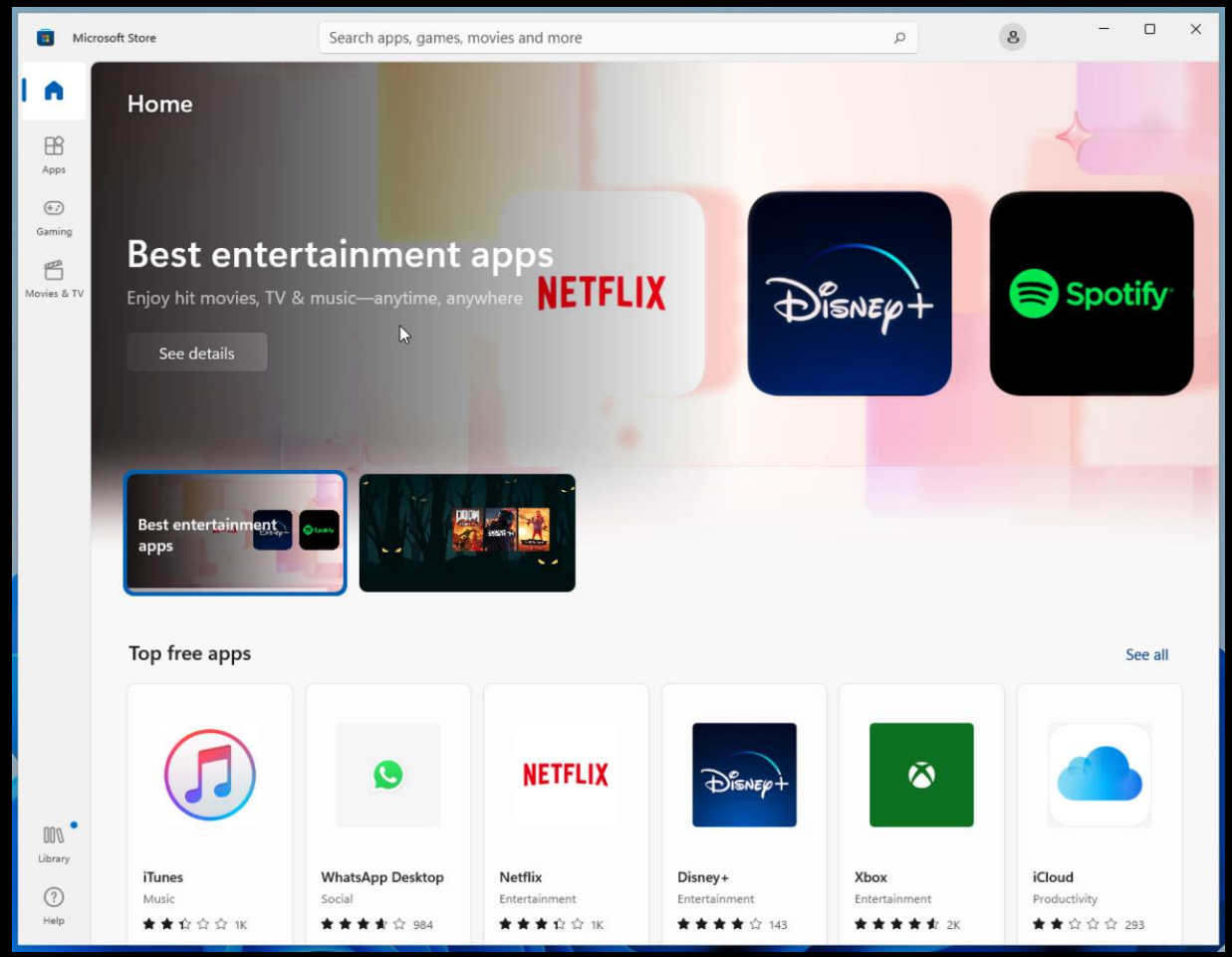


- Minor UI refresh
  - New icons, menus
  - Rounded corners (but only after patching)

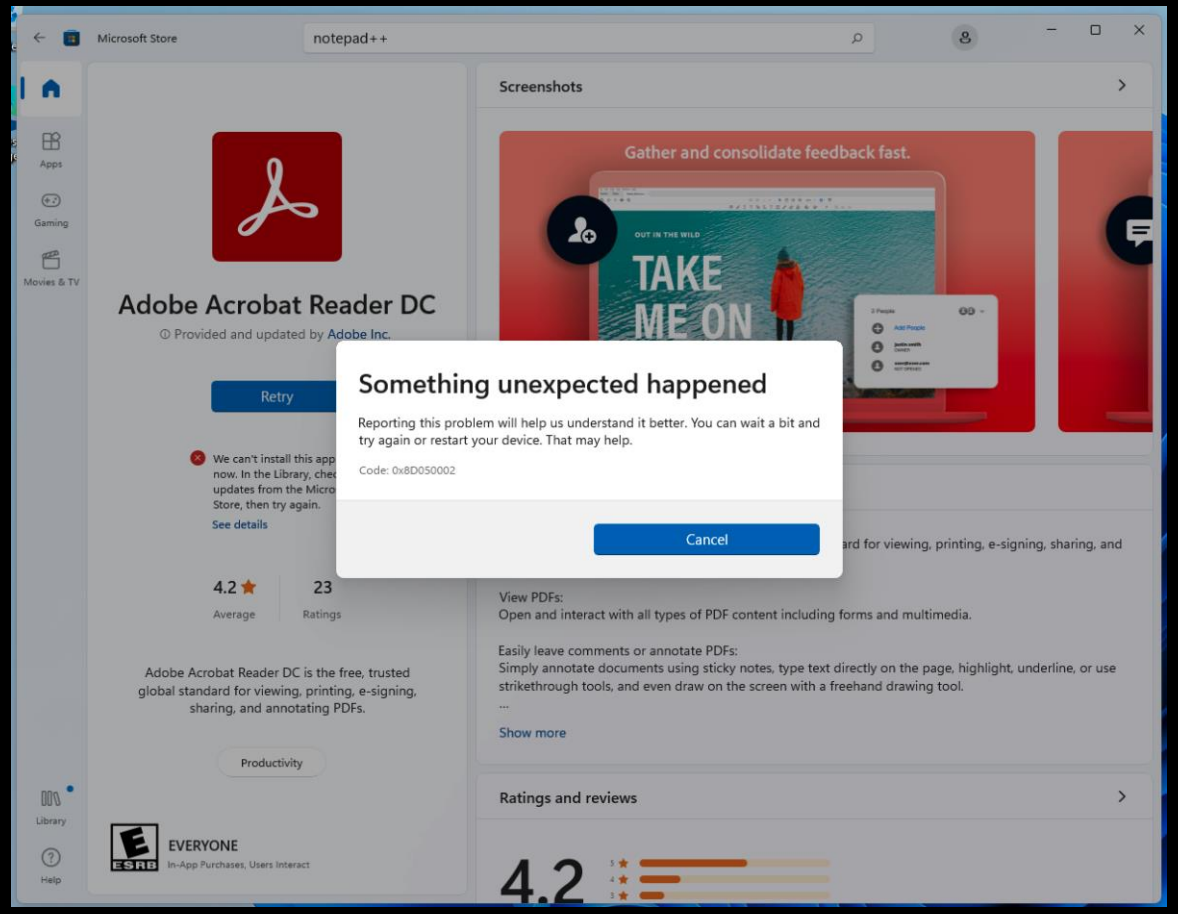
STORE

- 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



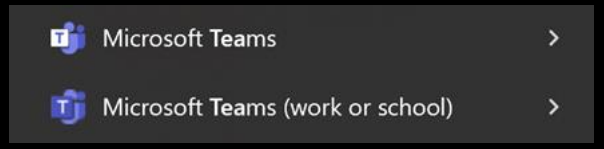


STORE


Microsoft Store
notepad++
Apps
Gaming
Movies & TV
Library
Help
Adobe Acrobat Reader DC
Provided and updated by Adobe Inc.
Retry
We can't install this app now. In the Library, check updates from the Microsoft Store, then try again.
See details
4.2
Average
23
Ratings
Adobe Acrobat Reader DC is the free, trusted global standard for viewing, printing, e-signing, sharing, and annotating PDFs.
Productivity
EVERYONE
In-App Purchases, Users Interact
Screenshots
Gather and consolidate feedback fast.
TAKE ME ON
Something unexpected happened
Reporting this problem will help us understand it better. You can wait a bit and try again or restart your device. That may help.
Code: 0x8D050002
Cancel
ard for viewing, printing, e-signing, sharing, and
View PDFs:
Open and interact with all types of PDF content including forms and multimedia.
Easily leave comments or annotate PDFs:
Simply annotate documents using sticky notes, type text directly on the page, highlight, underline, or use strikethrough tools, and even draw on the screen with a freehand drawing tool.
...
Show more
Ratings and reviews
4.2

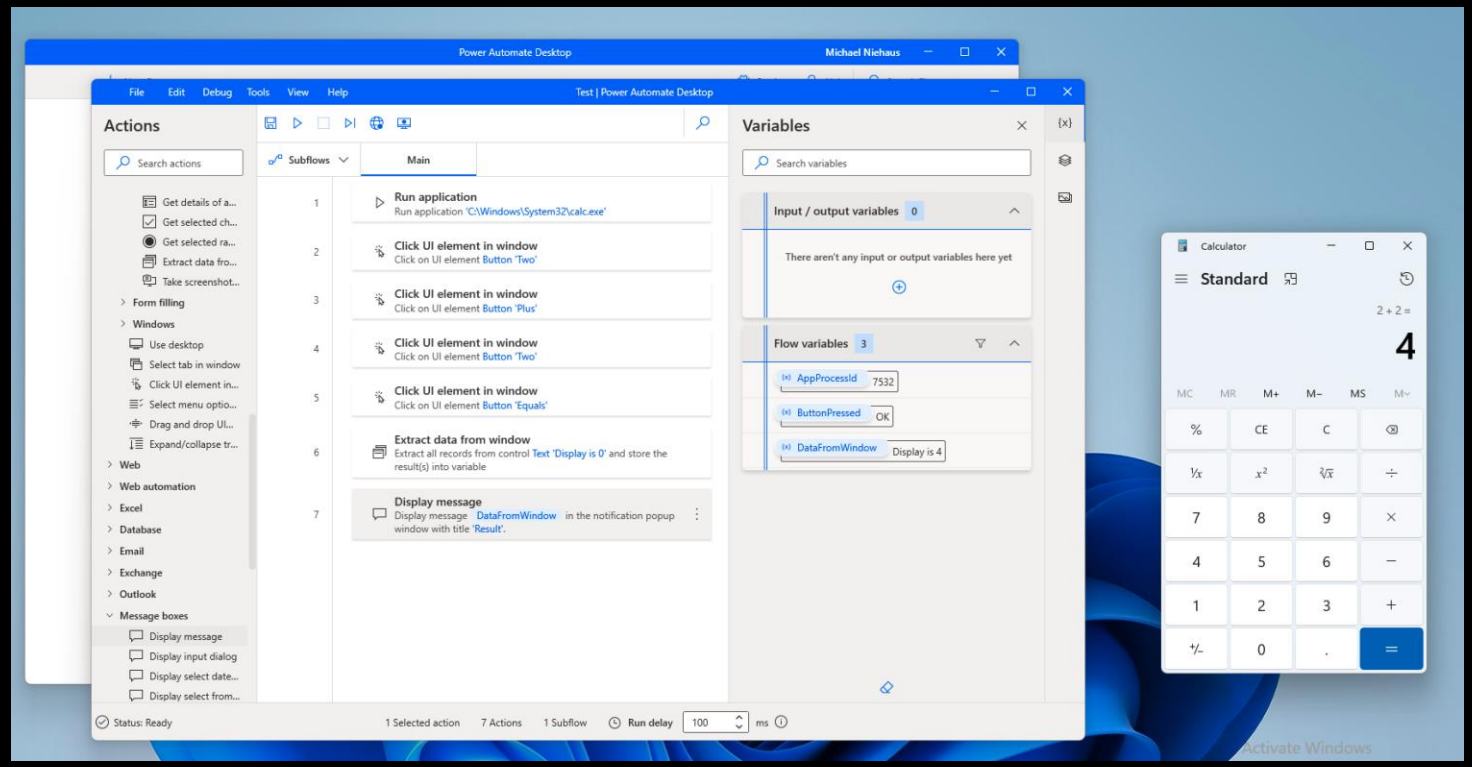
TEAMS (CONSUMER CHAT)

- Consumer-only, not for use with Azure AD/work accounts
  - Uses the consumer Teams client (white T), not the commercial Teams client (blue T)

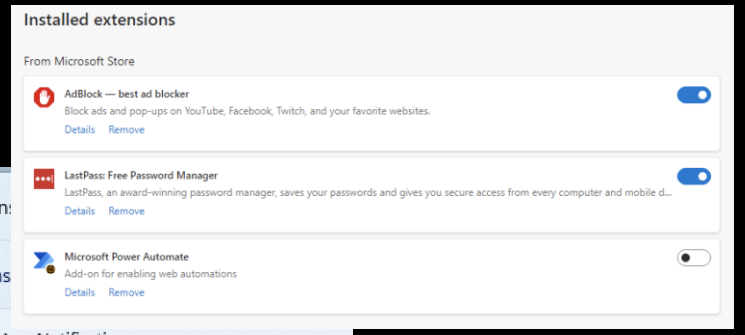


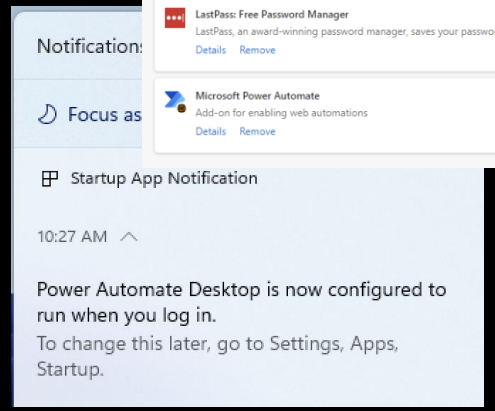
  - See https://techcommunity.microsoft.com/t5/microsoft-teams-blog/introducing-chat-from-microsoft-teams-on-windows-11-for-your/ba-p/2809877 for more details
  - Probably a good one to remove…

POWER AUTOMATE DESKTOP

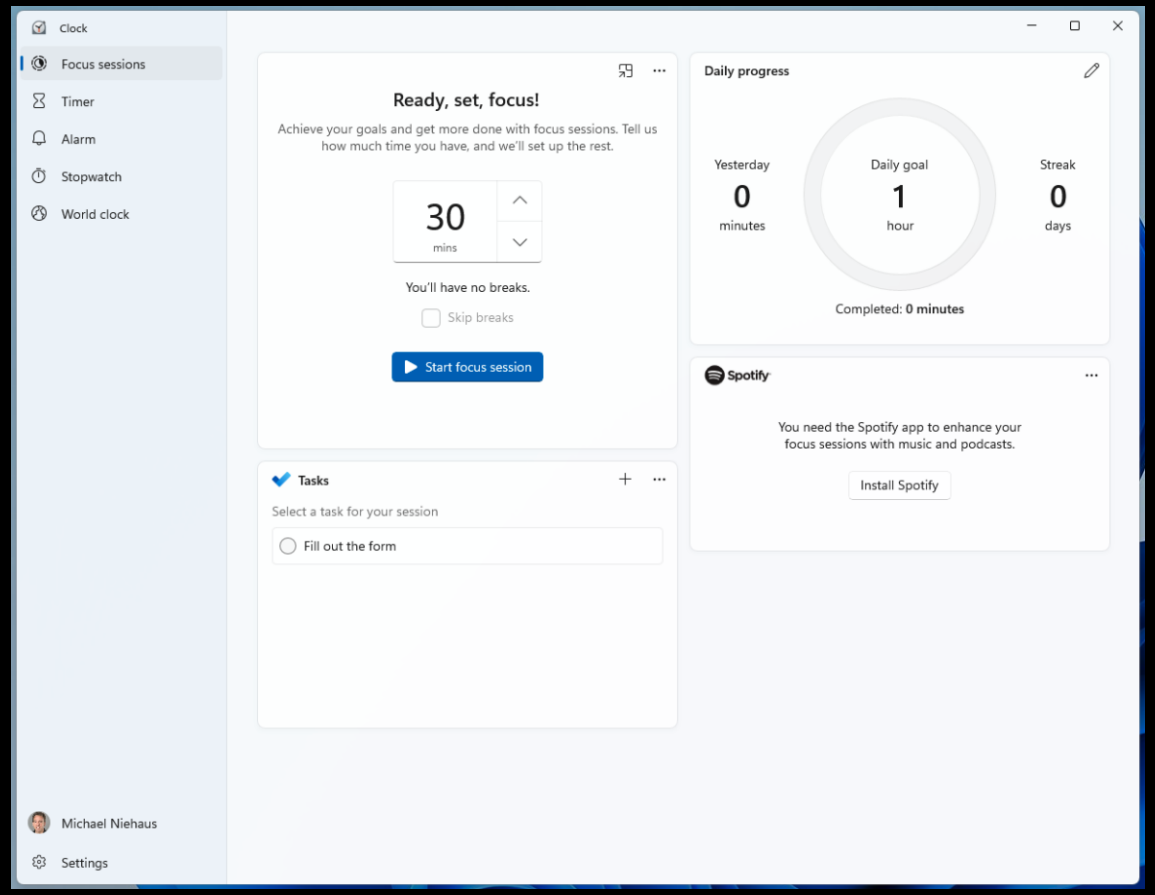


- Robotic process automation app
  - Launch an app or web page
  - Click on UI elements
  - Build a flow to automate otherwise-manual tasks
- Watch out:



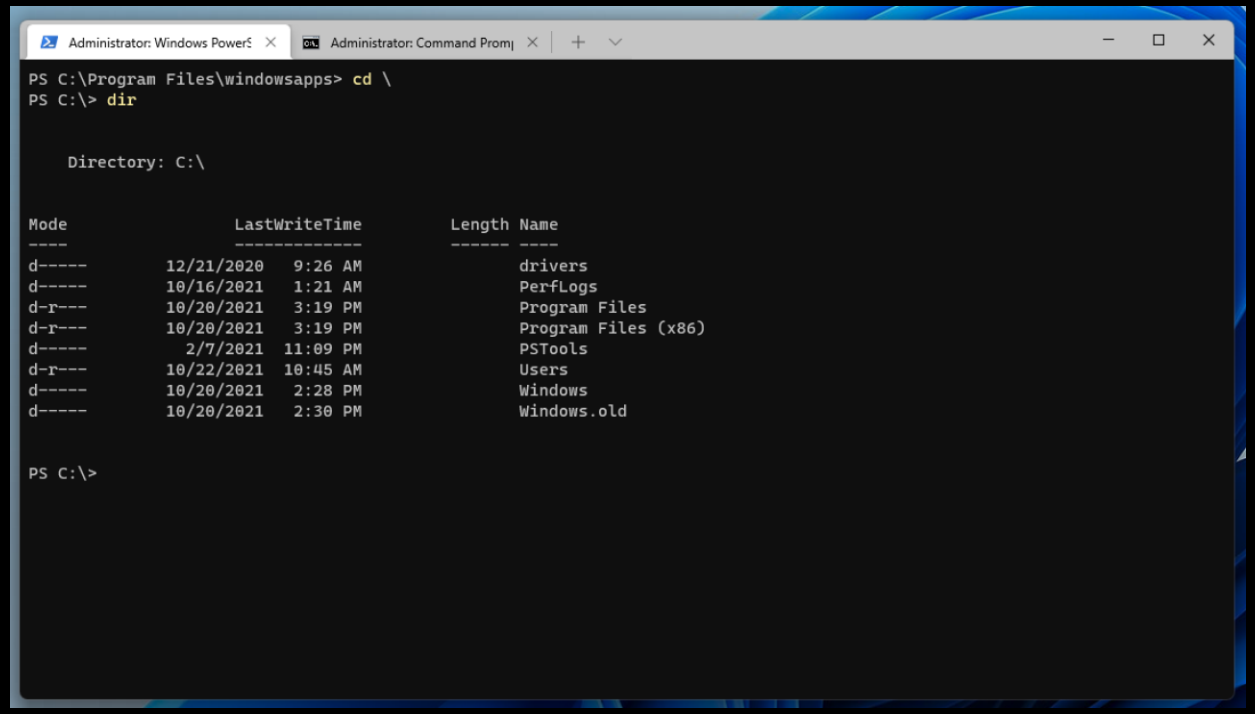


CLOCK



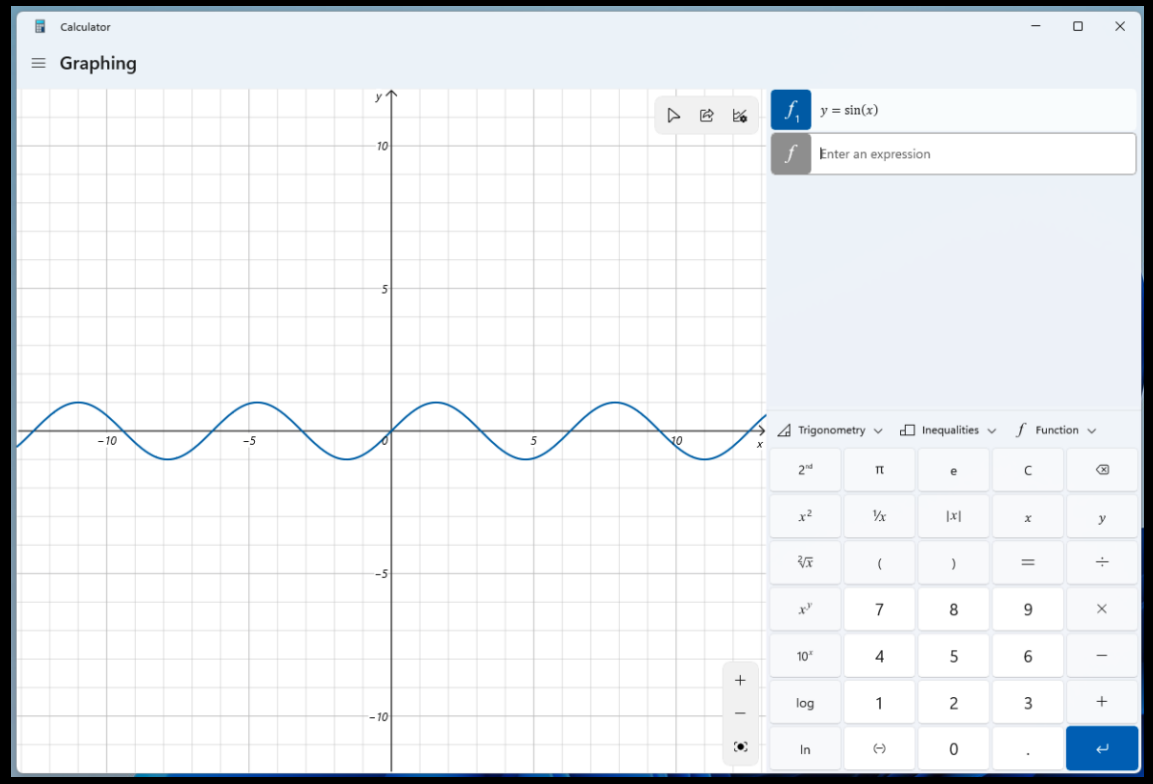
- Is it possible to overdo a clock app? Yes.
  - When first launched, it wants you to sign in so you can see your tasks.
  - Want to focus? Set a timer with the clock app, have it launch Spotify to listen to music while you work
  - Just want to see the time? Click on World clock

TERMINAL

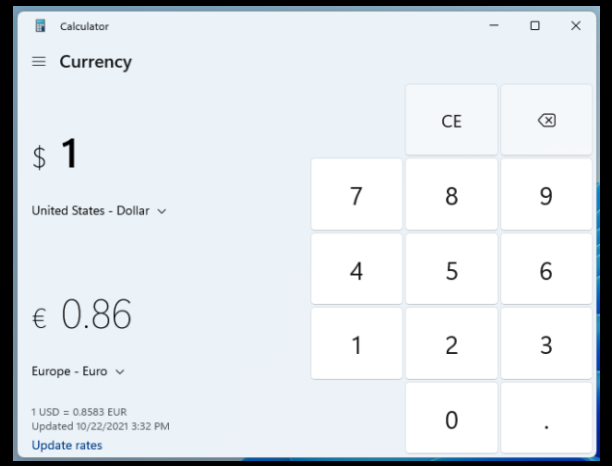


- Highly recommended
  - Supports PowerShell 5.1, Command Prompt (cmd.exe), and Azure Cloud Shell out of the box
  - Add PowerShell 7, Linux shell (with WSL)
  - Extremely customizable

CALCULATOR

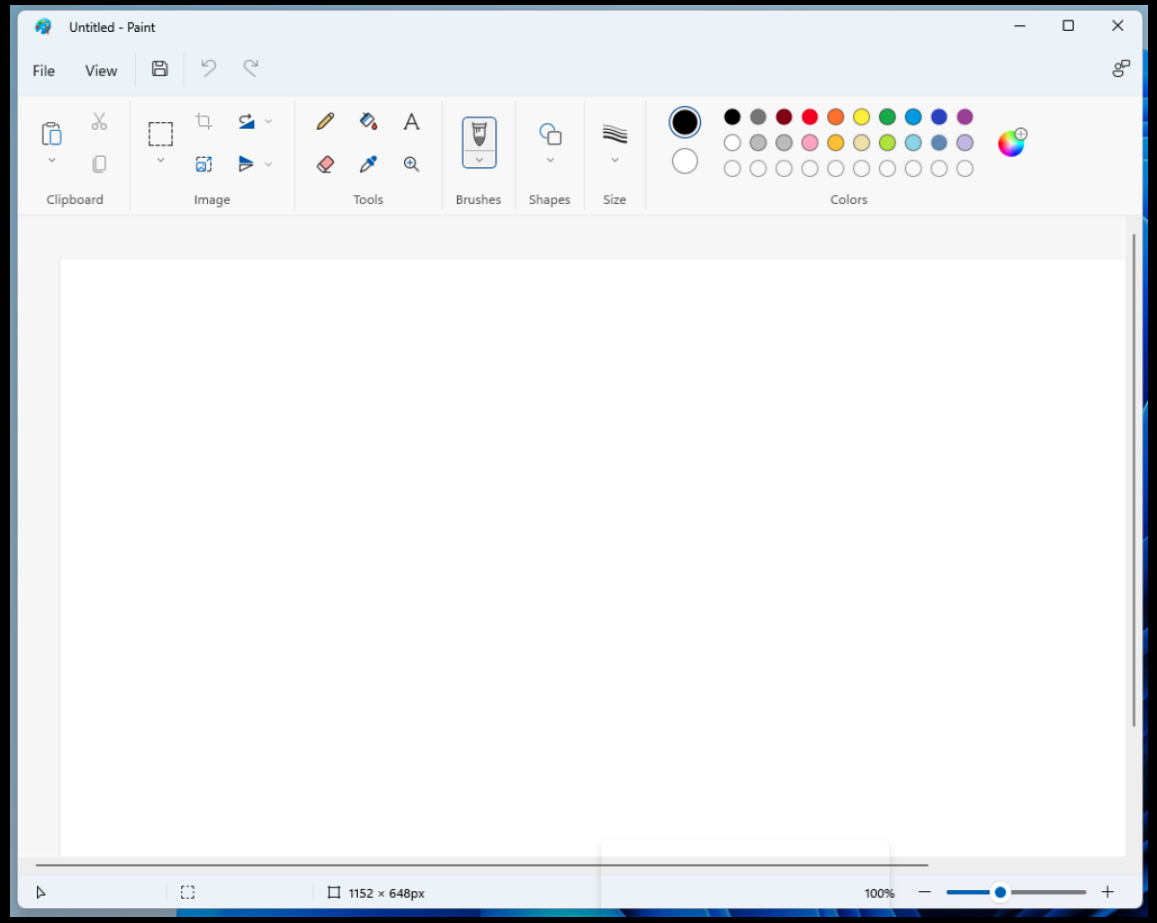


- So much functionality:
  - New graphic capabilities
  - Existing unit and currency conversion capabilities



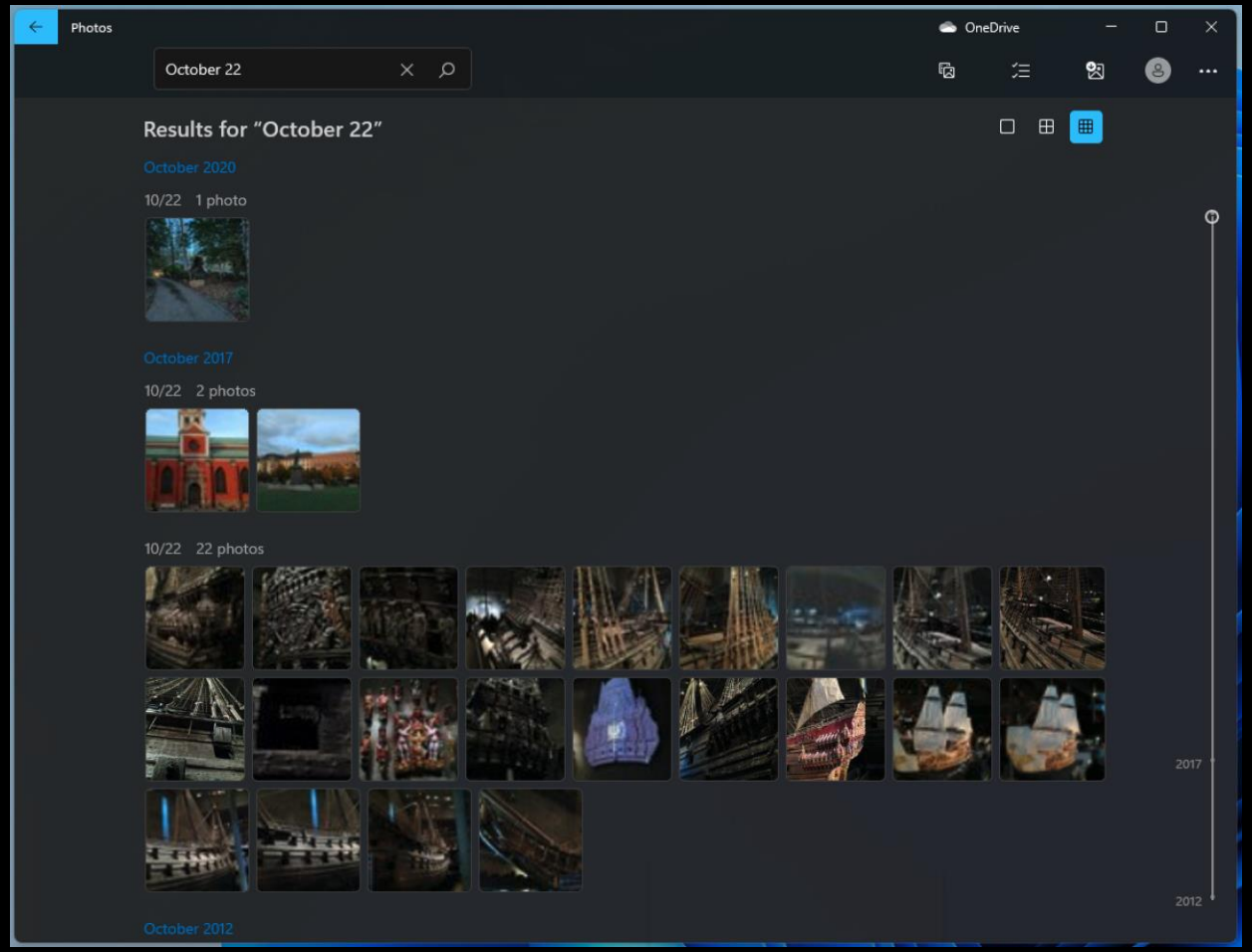
  - Rewritten in C# and on GitHub at https://aka.ms/calculator

PAINT



- Refreshed UI, but little to no change in functionality

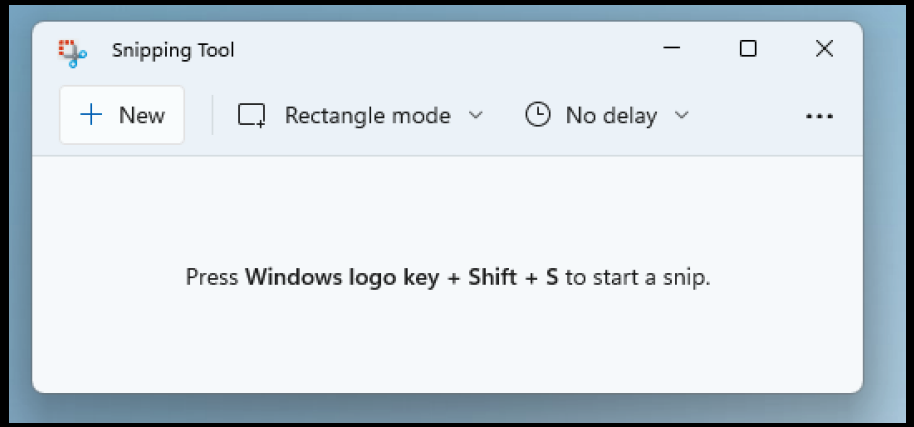
PHOTOS



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

SNIPPING TOOL

- Snipping Tool -> Snip & Sketch -> Snipping Tool
  - ”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:

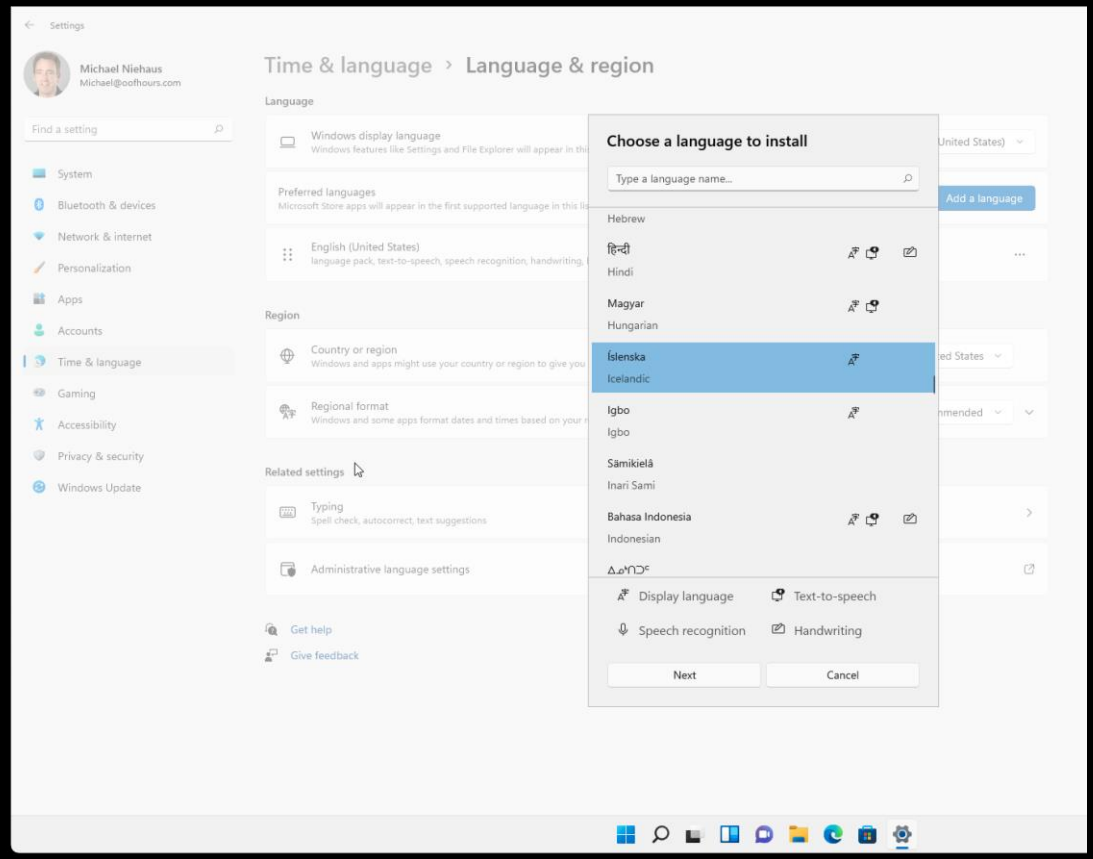
```
ROBOCOPY \\server\disks$ c:\disks /COMPRESS
XCOPY c:\hypervdisks\*.vhdx \\server\disks$\ /COMPRESS
```

- Can be forced on or off via registry:

```
[HKLM\System\CurrentControlSet\Services\LanManWorkstation\Parame
ters]
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 LP.CAB 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

- Finally 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: - NewsAndInterests/AllowNewsAndInterests - Experiences/ConfigureChatIcon - Start/ConfigureStartPins - Virtualizationbasedtechnology/HypervisorEnforcedCodeIntegrity - Virtualizationbasedtechnology/RequireUEFIMemoryAttributesTable
DMClient CSP	Updated the description of the following node: - Provider/ProviderID/ConfigLock/Lock - Provider/ProviderID/ConfigLock/UnlockDuration - Provider/ProviderID/ConfigLock/SecuredCore

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

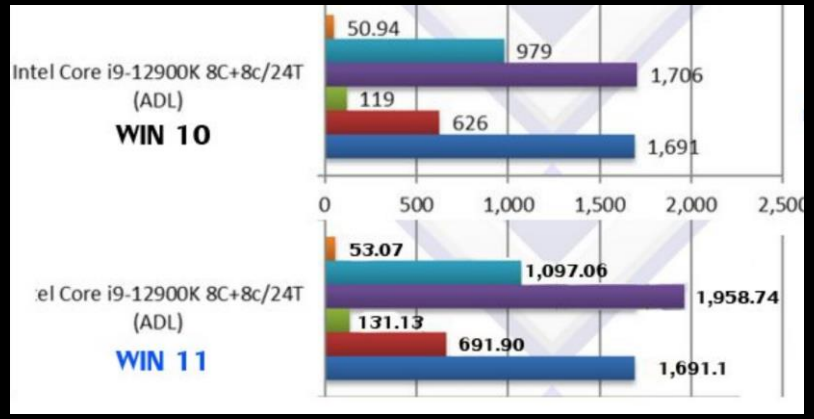
- Windows 10:
  - New feature updates twice per year
  - Home, Pro: 18 months support
  - Enterprise, Education: 18 months for spring releases, 30 months for fall releases
  - LTSC releases: now with only 5 years of support
- Windows 11:
  - New feature updates once per year, in the fall
  - Home, Pro: 24 months of support
  - Enterprise, Education: 36 months of support
  - 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 12th 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



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

STILL TO COME

- Android app support, in preview
- Global mute, in Insider
- New Mail & Calendar replacement app (Project Monarch), coming in 2022
- Variable refresh support, waiting for drivers?

- There’s always 22H2…

FEATURES REMOVED

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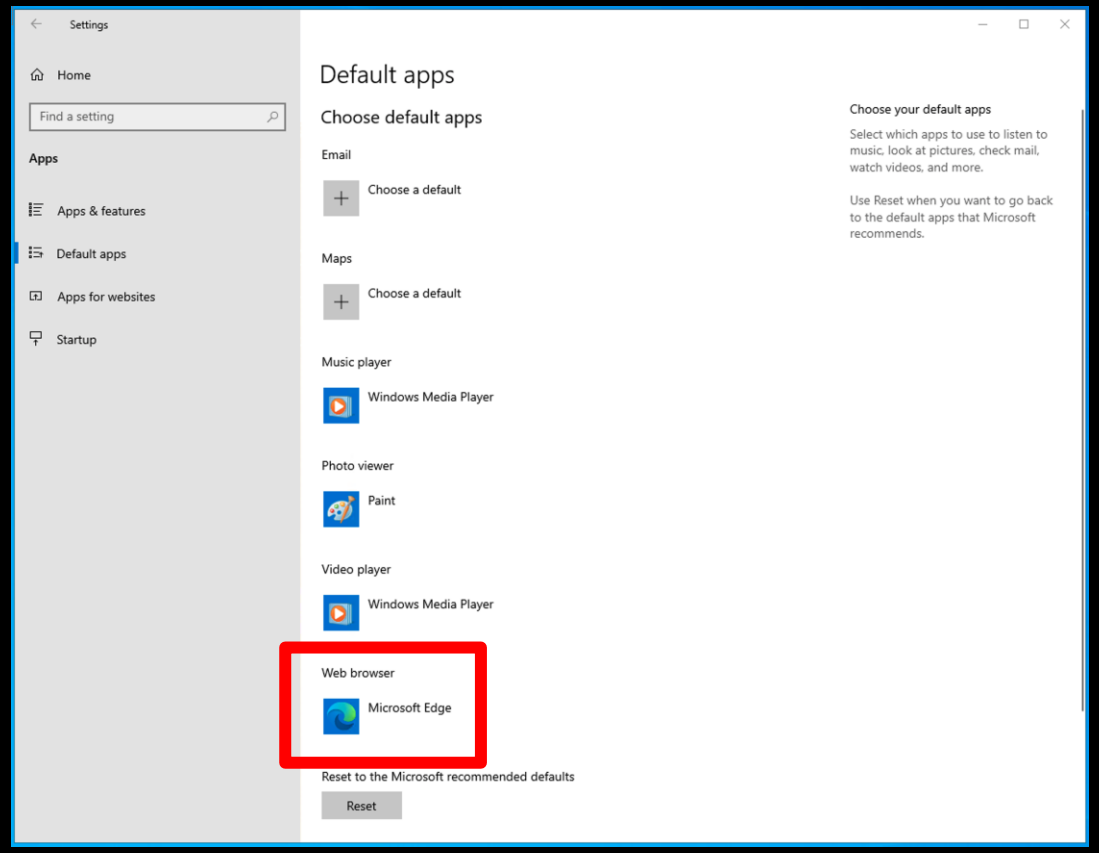
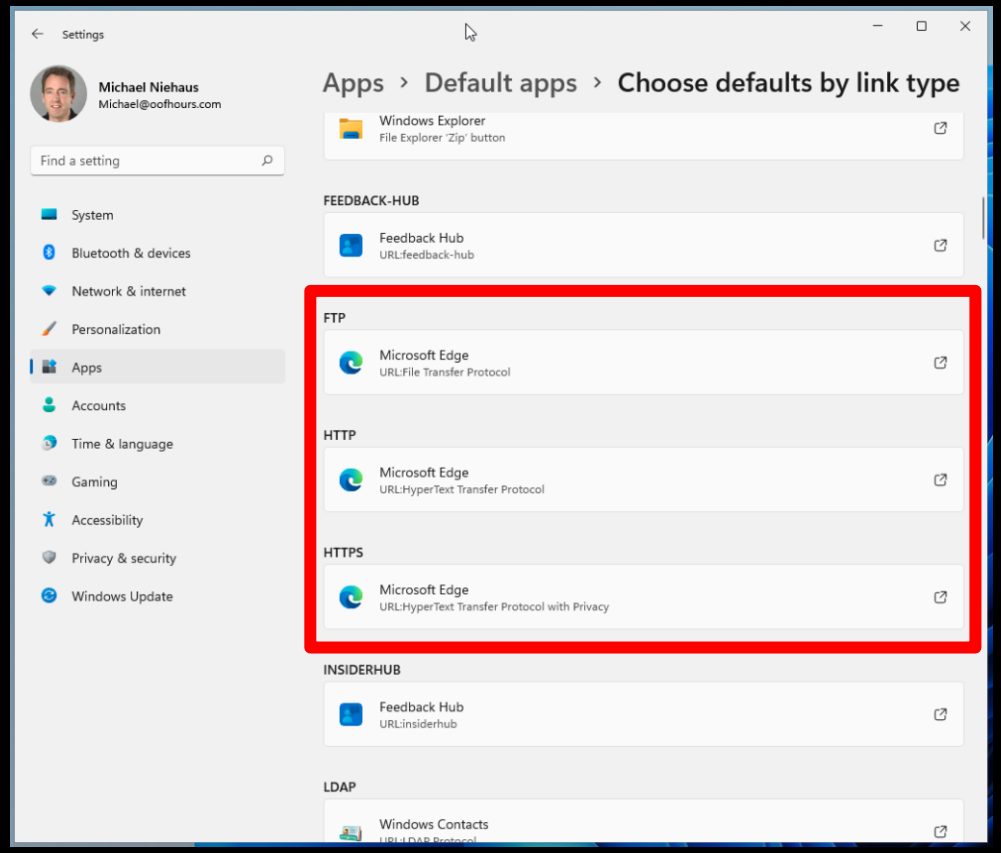
- Roaming wallpaper
- Multi-app kiosk support (coming back in the future)
- Tablet mode
- S mode (except on Home)
- Internet Explorer (sort of)
- Timeline
- Wallet
- Simple default app interface (maybe coming back?)
- WDS: Only supports a custom boot WIM
  - See https://docs.microsoft.com/en-us/windows/deployment/wds-boot-support
  - 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

- Setting default app in Windows 10:



- Setting default app in Windows 11:



HARDWARE REQUIREMENTS

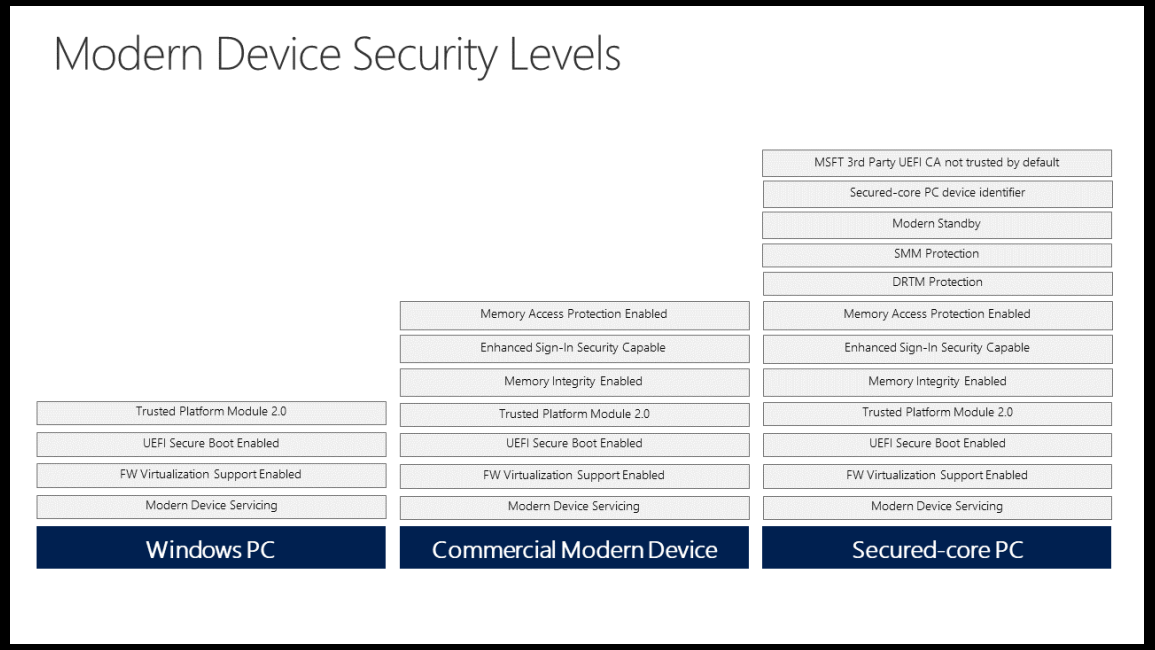
HARDWARE REQUIREMENTS

- Processor: 1GHz or faster, 64-bit only, 2 or more cores, 8th generation or above (with two 7th 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 (6th 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



Extended Q&A