

Who really knows Windows 8.1?



[olivnie](#) 28 Nov 2013 4:08 AM

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Windows 8.1 is FAR more than simply a new and/or improved UI

Windows 8.1 "under the covers"

Picking out the differences between Windows XP and Windows 8.1 or even between Windows 8 and Windows 8.1, improvements have been enormous and have remained unnoticed by a lot of people. So here's a glimpse of new features that are all in Windows 8.1. In sum, the following three unsorted (net even complete) lists of new features give an impressive insight into the innovation thrusts of the different versions starting with Windows Vista to Windows 8.1. Naturally, the list would be much longer - especially if we considered Windows Servers as well, which we won't in this article. Windows Server 2012 R2 on its own provides so many new features that an own list would even be more extensive than the ones provided herein.

It is definitely worth to have a look on the documentation since Windows is simply and even more unbeatable regarding security, manageability, automation, feature richness and customization.

New features within Windows Vista

User Account Control	User Interface Privilege Isolation	Live Icons
Restart Manager	Session 0 Isolation	Quick Search
Aero	Credential Providers	Cancelable I/O
Sidebar	Secure Startup	WPF
Network Access Protection	Windows Feedback Services	Presentation Settings
Sync Center	MMC 3.0	Windows Imaging Format (WIM)
Protected Mode IE	Parental Control	High Resolution/High DPI
Mandatory Integrity Control	IPv6 Dual Stack	Desktop Hardware Acceleration
Resource Exhaustion Diagnostics	Shell Property System	Peer Name Resolution Protocol
Stacks	Crypto Next Generation	Search Folders
Single Binary	Glass	Workflow Foundation

Power Management	Windows Display Driver Model	Flip3d
Windows Service Hardening	Transactional Registry	Windows Defender
SuperFetch	Windows Desktop Manager	Windows Filtering Platform
New Explorers	WCF	Writeable SIDs
Winlogon Rearchitecture	Registry/File Virtualization	Bitlocker and MBAM
Monad Scripting Shell	XAML and Segoe UI Font	Enhanced Group Policy Scenarios
Ink Analysis	Info Card	Enhanced Reliability Monitor
Windows Sideshow	Startup Repair Toolkit	Internet Explorer 7-9
Windows Resource Protection	RSS Platform	IE Hardware Acceleration (IE 9)
Ad-hoc Meeting Networks	New Event Viewer	Java-Script native code Jit-Compilation (IE9)
WS-Management	Eventing and Instrumentation	Process Elevation
Windows Installer 4.0/4.5	XML Paper Specification	Protected Processes
Function Discovery API	.Net Framework 3.0	Hidden Per-User-COM (Elevated Processes)
New Open/Save Dialog	Process Dump in Taskmanager	Improved Compiler Defenses (GS, ASLR, DEP, SAFESEH, robust, etc.)
User Mode Driver Framework	Open Package Specification	UI Access Application
Windows Disk Diagnostic	Wizard Framework	TrustInfo - Application Manifest
New Direct Access	New Security Model	> 320 Shims
Directory Junctions	NTFS English language	Separation of OS and MUI
Automatic Compat. Mitigations (>5.500 Applications)	New Firewall (Profiles, etc.)	New Security Center

HotStart	Speech Recognition	New Accessibility Features
IIS 7.0	Data Protection API	ACT 5.0

New features within Windows 7

User Account Control Slider	New Explorers	Enhanced MBAM
New Taskbar	Scenic Ribbon Control	BuiltIn Touch Platform
Taskbar Thumbnails	Process Cloning for Debugging	BranchCache [™]
Pinned Icons	Display Driver Model (WDM 1.1)	DirectAccess [™]
Thumbnail Buttons	Customized Troubleshooting	AppLocker [™]
Thumbnail Preview,	Sensors and Locations	Sensors and Locations
Thumbnail Jumplists	Desktop Gadgets	New, Richer Support Tools
Thumbnail Overlay Icons	Memory Diagnostics	Shell Rearchitecture – Search, Explorer, CMD-Shell
Preview Pane	Network Location Awareness	Windows Installer 5
Reading Pane	Network Connection Timeout Event	Customized Troubleshooting
Folder/Document Library	VPN Reconnect	Internet Explorer 8-9
Metadata Pane	Bitlocker to go	IE Hardware Acceleration (IE 9)
People Near Me	Powershell BuiltIn	Java-Script native code Jit-Compilation (IE9)
Search Providers	.Net Framework 3.5	Improved Compiler Defenses (GS, ASLR, DEP, SAFESEH, robust, etc.)
Aero Snap / Shaking	IE 9 Smart Screen and Tracking Protection	Event Viewer Tracing capabilities

Compatibility - Application Manifest (OS Switch Points)	Direct Access	RPC changes, Asynchronous I/O changes
Start Menu Search	New Search Engine	New Logo Certification
DaRT 7.0	NUMA	New Task Scheduler
Concurrency Runtime	Background Services	WERR
CPU Multi Processing and Core Parking	Task Parallel Library (TPL)	New Windows Update - Less Reboots
>360 Shims	Automatic Compat. Mitigations (>6.500 Applications)	Visibility of Firewall Port configuration in Resource Monitor
Compatibility Assistant	Boot Performance Improvements	Kernel Changes for Flexibility and Extensibility
New Firewall	New BITS service	Server RemoteFx Support
VHD Boot	XP Mode	Windows Backup
New RDP	Action Center	WERR - Third Party App Update
IIS 7.5	ACT 5.6	New MDT and WAIK
Credential Manager	Security Compliance Manager	High Contrast Mode

New features within Windows 8

User Account Control changes	Hyper-V on Client (almost the same as Server 2012 Hyper-V)	CHKDSK improvements with zero downtime (NTFS health)
Internet Explorer 10 with Enhanced Protected Mode	Virtual Network Switch	Powershell v3 In-Box, Powershell Intellisense, Powershell API Help- and Command Generator, New Powershell ISE
Virtual Fibre Channel	SMB 3.0 Attached Storage	Explorer VHD/ISO mount

Guest NUMA Direct	Direct Attached FC HBA	Dynamic Memory
64 TB Dynamic Virtual Disk	64 Logical CPU	VM 10-finger Touch
Extensible Virtual Switch	New Performance Tools	Fast and Fluid UI
Low Power Busses	VM NIC VMQ	VM NIC Teaming
OS BuiltIn Smart Screen Filter (Has blocked >1.5B malware and >150M phishing attacks)	New Explorer with Ribbon	IIS 8.0
Do Not Track (DNT) capability	SmartScreen Filter protects third-party browsers	IE10 ASLR Support for none-ASLR aware AddIns
Secure Boot	New Task Manager	Powershell Web Interface
Trusted Boot	Windows to go	New MDT, WAIK, MDOP
Measured Boot	Offline Domain Join	WMI 2.0
Remote Attestation Service	New Activation Model	New App Certification
Remote Applications	Connected Standby	Virtual Smartcards
Windows RT (Windows on ARM)	BuiltIn USB 3.0 Support	Direct Access improvements
TPM 2.0	BuiltIn Bluetooth 4.0 Support	Branch Cache Improvements
UEFI 2.3.1	New Driver Model (WDM 1.2)	DaRT 8.0
Storage Spaces – Thin/Thick Provisioning	Hunderte neuer Powershell CMDLets (z.B. 162 für Hyper-V)	New VDI
New Windows Defender (Forefront Scan Engine)	New Firewall with Packet Filtering	Internet Explorer 10 64-Bit with 32-Bit Support
Fast Boot	PS ISE integrated CMD List	.Net Framework 4.5 SP1
Hybrid Shutdown	Improved, comprehensive Compiler Defenses (GS, ASLR, DEP, SAFESEH, SEHOP, Heap Spray, robust, etc.)	Async APIs (85% of WinRT APIs and included in .Net 4.5)

High Contrast mode changes

SINCE 2013 RT (WORD, EXCEL, PowerPoint, OneNote included in Windows RT edition)

WINDOWS RT API IS AND NEW RT API Services

(e.g. Background Tasks, Suspended Apps)

Maintenance Tasks

Suspended Desktop Application (Windows RT)

Suspended Apps

Shared Kernel – Phone, Tablet, Notebook, PC

Offloaded File/Folder Operation (ODX Protocol)

New Application Model – Platform neutral (Intel/AMD/ARM)

Windows to go parse-through VM

Windows Store App Resource Protection

OPP Brokered API Isolation

Live Tiles

App Contracts – Secure App Data exchange (Search, Share, FilePicker, PlayTo)

Office 2013 Student (Windows RT)

RICH Touch Support

Secure Device Access – App Capabilities

Process Isolation – Low Integrity App container

10-finger Touch Support

VM 3D graphic support

Sidebar Removal

HTML 5 Support

Search throughout apps

New Windows 8 OS Switch Point via App Manifest

StartScreen Mouse- and Keyboard Support

File History

Windows Refresh / Reset

Windows 7 Backup included but deprecated

Optical Disk Power Management

Windows Store App Forward Compatibility

Flat Desktop Design and Improvements

Windows Store (Link to certified Desktop Apps possible)

Windows Store Apps using JavaScript and HTML

Device Encryption and Bitlocker

Windows Store Installer

Sideloaded Installation

Windows Intune Support

WACK, WADK, WSDK, WDK

ACT 6.0

New Compatibility Assistant

New Windows Update – Less Reboots

Startup Application Diagnostics

Enhanced Cloud Integration – Linked Microsoft Account

Surface RT Ports for HDMI, USB, Bluetooth 4.0, SDCard

Convertible Devices Support

Support for almost infinite number of Hardware Formfactors

> 385 Shims	Automatic Compat. Mitigations (>7.500 Applications)	PowerShell Web Service Interface
Remote Attestation Service	Settings Roaming	Huge number of different Device- Formfactors
Web Setup (ESD)	No Installation without NX (DEP)	Silent (automatic) Activation
UEFI CSM Boot (Class 2)	Connected Account	Automatic Startup Repair UI
Assessment Execution Engine	Compression API	Data Deduplication API
App Packaging and Deployment	DirectComposition	Direct Manipulation
DirectXMath	Help API	iSCSI Software Target API
Operation Recorder	Steps Recorder Changes	SMB Management API
User Access Logging	User State Management API	Web Socket Protocol Component API
Windows Connection Manager	Windows Storage Management API	XAudio2
XInput	Event Tracing	IP Helper changes
MIB changes	Native Wifi changes	Network Management changes
UEFI CSM Boot (Class 2)	Connected Account	Automatic Startup Repair UI
Direct2D changes	DirectWrite changes	Printing changes
UI Automation changes	Windows Sockets changes	Software Input Panel
Assessment Execution Engine	Compression API	Data Deduplication API
Surface Pro with ultra thin digitizer	New Accessibility Features	On-Touch Keyboard, New Magnifier, Narrator
Start Button replaced by link to new Start-Screen	Technical Start Menu	Windows Style UI – New Start Screen

New features within Windows 8.1

Internet Explorer 11 with Enhanced Protected Mode ON by default	Internet Explorer 11 – automatic AddOn-Handling with Process Isolation	IE11 with better touch performance, faster page load times and several other new features
Remote Business Data Removal (Selective Wipe)	Internet Explorer 11 antimalware solution integration	Windows Store in-place upgrade (Click-Click-Done)
3D Printing Support (built-in)	Biometrics Support (built-in)	Biometrics liveliness Detection
Biometrics modern reader support (swipe, touch)	Biometrics usage with UAC, Windows Store, Modern UI Apps and more	Common fingerprint enrollment
Workplace Join	Work Folders	Open MDM for BYOD
Mobile Device Management	Web Application Proxy	RDS Enhancements - enhanced VDI
Wi-Fi Direct Printing	NFC Tap-to-pair Printing	Native Miracast Wireless Display
Broadband Tethering	Pervasive Device Encryption	Malware Resistance – Defender with network behavior monitoring and ActiveX support
Device Lockdown	Assigned Access	New Credential Theft Defenses (New local Groups, LSASS Protected Process, Account Policy Silos)
New local Groups for hardening capabilities	Hundreds of new Win32 APIs	New Windows Surface 2 RT with new Keyboards
New Windows Surface 2 Pro with new Keyboards	Boot Performance improvements	Network performance improvements
Remote-Apps with faster reconnects and improved compression and multiple monitors support	Touch-to-buy Biometrics	Apps can automatically trigger VPN connections
Embedded wireless radio	Windows To Go - Windows Store enabled by default	Touch to Buy with Biometrics
High DPI improvements	Dynamic DPI Changes	Per-Monitor DPI-Aware Applications
New GPOs (e.g. Start Screen)	New or improved Development Tools	New or improved Deployment and Management Tools

		Management Tools
Text to Speak capabilities	In-app commerce support	Automatic App Updates
Hyper-V improvements	New Shims and Compatibility Modes	New Windows SwitchPoint for backward compatibility
Developers: New App Packaging	Developers: New scheduler API for Asynchronous Programming	Developers: Lots of new HTML and JavaScript controls
Developers: Lots of new XAML controls	Developers: New Device APIs (USB, Bluetooth, 3D Printing, Biometrics , Point of Service "POS", Human Interface "HID")	Developers: New DirectX 11.2 support with hundreds of new features
Developers: Enhanced support for in-app file management	Developers: New ways to capture and process media (playback controls, native support for Encrypted Media Extensions (EME) for HTML5 playback.	Developers: Removal of GetVersionEx()
Developers: New HTTP APIs	Developers: New Networking APIs	Developers: Latest authentication techniques support
New Windows Store	Better Mouse and Keyboard Options	Modern UI App Kiosk Mode
Enhanced Device Sync capabilities	Picture Slide Show on Lock Screen	New On-Touch Keyboard
Explorer SkyDrive integration	Redesigned Photo, Camera apps and more	Cloud connectivity enhancements (SkyDrive, etc.)
Improved All Apps List	Start Screen configuration by GPO	Start Screen Corporate Identity configuration
Improved Personalization	Variable, Continuous Size of Snap Views	Backgrounds with motions
Two more Live Tile sizes	Improved Search (Web, Bing, SkyDrive, Documents, Apps, etc.)	More colors and backgrounds for Start Screen
High entropy ASLR (HEASLR)	Outlook on Windows 8.1 RT	Redesigned Mail App
New Local Security Groups for New Rights Assignments	Windows 8.1 RT - New 3rd Party VPN Clients	
New Start Button	Boot to desktop	Modern UI Improvements – New Start Screen look and feel

By the way, Windows 8.1 now has a new Start Button which references to the new Start Screen. If you counted the number of required clicks or keystrokes to start a program in Windows 7, you will see you won't need more rather less clicks when using Windows 8.1. Despite, the Start Button is back most people don't miss it anymore as the Start Screen and the underlying application list became so beautiful, meaningful and useable.

Incidentally, the most important technical features are still accessible in the "Technical Start Menu" with a right mouse click on the new Start Button. This is a massive improvement for Virtual Machine users because on Windows 8 finding the bottom left corner in those machines was a little bit tricky some times.

Just looking at the touch ability of Windows 8.1 in the new Start Screen and in the new Windows Store applications is impressive and for this I'm likely adapting on a new operation system, which is in my opinion to learn easily within a few minutes. On Windows 8.1 a new user will see some useful hints (one time) while navigating through the Start Screen the first time.

In addition, the new type of handling opened an unprecedented comfort. Here a quote of a colleague, who appreciates the new Start Screen as much as I do:

"My personal highlight is the ability to interact in totally new ways compared to other operation systems.

I simply enter a term and Windows 8 lets me know all possible alternatives for it. So it shows you the results Windows 8 finds for the term in "Apps", "Files" and "Settings". What is even more interesting is that Windows 8 tries to process across apps. "Tie" for example is being looked for in Bing and eventually you might see what different types of ties and knots exist. Using an app might lead me to a shop where I find offers. Otherwise I can just search through an auction app for auctions. The "Share" function is just amazing: I may easily share the found ties with my wife and find out, whether she likes the tie as well."

Looking at how many powerful features inside Windows 8.1 are we can definitely call it an impressive operating system which hadn't been seen by the world before. It's the most feature rich client operating system so far (Windows Server 2012 R2 has much more than the client).

First of all, Windows itself benefits from these features and therefore reaches a new dimension concerning security, manageability, usability, performance and much more. Furthermore it is extremely energy saving so even with older hardware battery life has been raised a lot.

Also administrators profit by substantial increases Windows 8.1 had in terms of manageability, automation and security, which results in potential reduction of operating costs.

Additionally, software developer benefit from those features since many of them may directly be addressed or integrated in their own projects and thereby increasing the quality, safety and performance. Also, development costs can substantially be reduced.

Substantially be reduced.

Finally, all users profit from the new features – no matter if they use Windows 8.1 at home or at work. If the operating system and related apps are secure, reliable and fast, users are the ones to really make use of it. Not to mention that many features are of course available to the user – if he is aware of them.

There is one question remaining: "Who really knows Windows at all?"

It would be a pity if the entire discussion about Windows 8.1 would be reduced on a new type of user interface or usability.

Therefore, I to highlight my favorite Top-10 features in Windows 8.1 as a separate blog series.

More Information:

For Developers:

<http://msdn.microsoft.com/en-us/library/windows/apps/dn263113.aspx>

<http://msdn.microsoft.com/library/windows/apps/bg182410>

For Enterprise

<http://technet.microsoft.com/en-US/windows/dn140266.aspx?ocid=wc-bl-sprblog>

<http://blogs.windows.com/windows/b/business/archive/2013/06/03/modern-business-in-mind-windows-8-1-at-teched-2013.aspx>

<http://technet.microsoft.com/en-US/windows/hh974336.aspx?ocid=wc-bl-wfyb>

Oliver Niehus, Microsoft.

Comments



opmet

29 Nov 2013 3:48 AM

thanks for this nice overview!

regarding the UI:

add the "Windows Classic theme" back to windows 8.1 and i'll immediately upgrade.

if not i'll have to stick with windows 7 for the next 10 years.

**Pep**

30 Nov 2013 10:25 AM

Not many know the direction of where Microsoft is going with the OS. The majority of the complainers there minds are shallow and only think of small things. I have read so many people complain and even on 8.1 and it is a great operating system completing windows 8.0. Sure it still need some tweak but over all it's the best OS in my opinion that Microsoft has built, considering the time and release. Windows 7 does not even compare to it. Microsoft is making a cross over and they are aware it's going to be bumpy right but they're trying to make it a smooth transition as possible. I think they doing well but need move fast and quickly address any bug problem in the OS for business and customers.

**Diane B**

30 Nov 2013 11:14 AM

Can you solve the problem of no HDMI sound when laptop is connected to TV? Only sound from computer speakers. Worked fine with Windows 8...gone with upgrade. Nothing I have seen suggested on various sites has worked.

**hasan**

30 Nov 2013 7:15 PM

diane; just exchange HDMI ON THE TV I MEAN TRY OTHER ONE

**Diane B**

1 Dec 2013 6:22 AM

Nope - didn't work. I changed to a different HDMI port no luck. Reversed the HDMI cable no luck. Odd it did work on daughter's TV on Thanksgiving - she has a different brand TV. Does that mean anything? I am stumped. I know this probably isn't the right place to ask the question, but no other site has any answers.

**Chris**

4 Dec 2013 3:26 PM

Sorry we couldn't complete the update to Windows 8.1.

We restored your previous version of Windows to this PC

0xC1900101 - 0x20017

I will stay on windows 7.

I erase the HDD with windows8.

This error it was on clean install system with all updates from Microsoft and no other 3rd software or driver. It's very clear. the upgrade is a mess!

olivnie

30 Jan 2014 7:09 AM

Diane B, Chris:

There are other channels at Microsoft in order get Support. Please note that Software always contains bugs and even Drivers which most are being vendor specific. We do our best to improve and fix.

**olivnie**

30 Jan 2014 7:17 AM

opmet:

Sorry for a direct answer: Are you afraid of changes? The world is changing and even the way People work with Computers. The classic theme is obsolete! Technically, the classic theme runs on the CPU rather than the GPU (graphic processor). For Performance reasons it is much better to use the GPU in order to render the Desktop. This applies to Windows Vista and Windows 7 as well. The new start Screen and modern UI Apps running on the GPU. So, classic theme isnno longer available.