Windows Server 2012

Windows Server 2012 , codenamed " Windows Server 8 " , is the sixth release of Windows Server . It is the server version of Windows 8 and succeeds Windows Server 2008 R2 . Two pre @-@ release versions , a developer preview and a beta version , were released during development . The software was generally available to customers starting on September 4 , 2012 .

Unlike its predecessor , Windows Server 2012 has no support for Itanium @-@ based computers , and has four editions . Various features were added or improved over Windows Server 2008 R2 (with many placing an emphasis on cloud computing) , such as an updated version of Hyper @-@ V , an IP address management role , a new version of Windows Task Manager , and ReFS , a new file system . Windows Server 2012 received generally good reviews in spite of having included the same controversial Metro @-@ based user interface seen in Windows 8 .

The successor to Windows Server 2012 , called Windows Server 2012 R2 , was released along with Windows 8 @.@ 1 in October 2013 . A service pack , formally designated Windows Server 2012 R2 Update , was released in April 2014 .

History

Windows Server 2012 , codenamed " Windows Server 8 " , is the sixth release of Windows Server family of operating systems developed concurrently with Windows 8 . It was not until April 17 , 2012 that the company announced that the final product name would be " Windows Server 2012 " .

Microsoft introduced Windows Server 2012 and its developer preview in the BUILD 2011 conference on September 9 , 2011 . However , unlike Windows 8 , the developer preview of Windows Server 2012 was only made available to MSDN subscribers . It included a graphical user interface (GUI) based on Metro design language and a new Server Manager , a graphical application used for server management . On February 16 , 2012 , Microsoft released an update for developer preview build that extended its expiry date from April 8 , 2012 to January 15 , 2013 .

Before Windows Server 2012 was finalized , two test builds were made public . A public beta version of Windows Server 2012 was released along with the Windows 8 Consumer Preview on February 29 , 2012 . The release candidate of Windows Server 2012 was released on May 31 , 2012 , along with the Windows 8 Release Preview .

The product was released to manufacturing on August 1 , 2012 and became generally available on September 4 , 2012 . However , not all editions of Windows Server 2012 were released at the same time . Windows Server 2012 Essentials was released to manufacturing on October 9 , 2012 and was made generally available on November 1 , 2012 . As of September 23 , 2012 , all students subscribed to DreamSpark program can download Windows Server 2012 Standard or Datacenter free of charge .

Features

Installation options

Unlike its predecessor , Windows Server 2012 can switch between " Server Core " and " Server with a GUI " installation options without a full reinstallation . Server Core - an option with a command @-@ line interface only - is now the recommended configuration . There is also a third installation option that allows some GUI elements such as MMC and Server Manager to run , but without the normal desktop , shell or default programs like File Explorer .

User interface

Server Manager has been redesigned with an emphasis on easing management of multiple servers . The operating system , like Windows 8 , uses the Metro @-@ based user interface unless installed

in Server Core mode . Windows Store is available in this version of Windows but is not installed by default . Windows PowerShell in this version has over 2300 commandlets , compared to around 200 in Windows Server 2008 R2 .

Task Manager

Windows Server 2012 includes a new version of Windows Task Manager together with the old version . In the new version the tabs are hidden by default , showing applications only . In the new Processes tab , the processes are displayed in varying shades of yellow , with darker shades representing heavier resource use . It lists application names and status , as well as CPU , memory , hard disk and network utilization . The process information found in the older versions are now moved to the new Details tab . The Performance tab shows " CPU " , " Memory " , " Disk " , " Wi @-@ Fi " and " Ethernet " graphs . The CPU tab no longer displays individual graphs for every logical processor on the system by default , although that remains an option . Additionally , it can display data for each non @-@ uniform memory access (NUMA) node . When displaying data for each logical processor for machines with more than 64 logical processors , the CPU tab now displays simple utilization percentages on heat @-@ mapping tiles . The color used for these heat maps is blue , with darker shades again indicating heavier utilization . Hovering the cursor over any logical processor 's data now shows the NUMA node of that processor and its ID , if applicable . Additionally , a new Startup tab has been added that lists startup applications , however this tab does not exist in Windows Server 2012 . The new task manager recognizes when a Windows Store app has the " Suspended " status .

IP address management (IPAM)

Windows Server 2012 has an IP address management role for discovering , monitoring , auditing , and managing the IP address space used on a corporate network . The IPAM is used for the management and monitoring of Domain Name System (DNS) and Dynamic Host Configuration Protocol (DHCP) servers . Both IPv4 and IPv6 are fully supported .

Active Directory

Windows Server 2012 has a number of changes to Active Directory from the version shipped with Windows Server 2008 R2 . The Active Directory Domain Services installation wizard has been replaced by a new section in Server Manager , and a GUI has been added to the Active Directory Recycle Bin . Multiple password policies can be set in the same domain . Active Directory in Windows Server 2012 is now aware of any changes resulting from virtualization , and virtualized domain controllers can be safely cloned . Upgrades of the domain functional level to Windows Server 2012 are simplified ; it can be performed entirely in Server Manager . Active Directory Federation Services is no longer required to be downloaded when installed as a role , and claims which can be used by the Active Directory Federation Services have been introduced into the Kerberos token . Windows Powershell commands used by Active Directory Administrative Center can be viewed in a " Powershell History Viewer " .

Hyper @-@ V

Windows Server 2012 , along with Windows 8 , includes a new version of Hyper @-@ V , as presented at the Microsoft BUILD event . Many new features have been added to Hyper @-@ V , including network virtualization , multi @-@ tenancy , storage resource pools , cross @-@ premises connectivity , and cloud backup . Additionally , many of the former restrictions on resource consumption have been greatly lifted . Each virtual machine in this version of Hyper @-@ V can access up to 64 virtual processors , up to 1 terabyte of memory , and up to 64 terabytes of virtual disk space per virtual hard disk (using a new .vhdx format) . Up to 1024 virtual machines can be

active per host , and up to 8000 can be active per failover cluster . SLAT is a required processor feature for Hyper @-@ V on Windows 8 , while for Windows Server 2012 it is only required for the supplementary RemoteFX role .

= = = ReFS = = =

Resilient File System (ReFS) , codenamed " Protogon " , is a new file system in Windows Server 2012 initially intended for file servers that improves on NTFS in some respects . Major new features of ReFS include :
Improved reliability for on @-@ disk structures
ReFS uses B + trees for all on @-@ disk structures including metadata and file data . Metadata and file data are organized into tables similar to a relational database . The file size , number of files in a folder , total volume size and number of folders in a volume are limited by 64 @-@ bit numbers ; as a result ReFS supports a maximum file size of 16 Exabytes , a maximum of 18 @.@ 4 × 1018 folders and a maximum volume size of 1 Yottabyte (with 64 KB clusters) which allows large scalability with no practical limits on file and folder size (hardware restrictions still apply) . Free space is counted by a hierarchical allocator which includes three separate tables for large , medium , and small chunks . File names and file paths are each limited to a 32 KB Unicode text string .
Built @-@ in resilience
ReFS employs an allocation @-@ on @-@ write update strategy for metadata , which allocates new chunks for every update transaction and uses large IO batches . All ReFS metadata has built @-@ in 64 @-@ bit checksums which are stored independently . The file data can have an optional checksum in a separate " integrity stream " , in which case the file update strategy also implements allocation @-@ on @-@ write ; this is controlled by a new " integrity " attribute applicable to both files and directories . If nevertheless file data or metadata becomes corrupt , the file can be deleted without taking the whole volume offline . As a result of built @-@ in resiliency , administrators do not need to periodically run error @-@ checking tools such as CHKDSK when using ReFS .
Compatibility with existing APIs and technologies
ReFS does not require new system APIs and most file system filters continue to work with ReFS volumes . ReFS supports many existing Windows and NTFS features such as BitLocker encryption , Access Control Lists , USN Journal , change notifications , symbolic links , junction points , mount points , reparse points , volume snapshots , file IDs , and oplock . ReFS seamlessly integrates with Storage Spaces , a storage virtualization layer that allows data mirroring and striping , as well as sharing storage pools between machines . ReFS resiliency features enhance the mirroring feature provided by Storage Spaces and can detect whether any mirrored copies of files become corrupt using background data scrubbing process , which periodically reads all mirror copies and verifies their checksums then replaces bad copies with good ones .
Some NTFS features are not supported in ReFS , including named streams , object IDs , short names , file compression , file level encryption (EFS) , user data transactions , hard links , extended attributes , and disk quotas . Sparse files are supported . ReFS does not itself offer data deduplication . Dynamic disks with mirrored or striped volumes are replaced with mirrored or striped storage pools provided by Storage Spaces . However , in Windows Server 2012 , automated error @-@ correction is only supported on mirrored spaces , and booting from ReFS is not supported either .

= = = IIS 8 @.@ 0 = = =

Windows Server 2012 includes version 8 @.@ 0 of Internet Information Services (IIS) . The new version contains new features such as SNI , CPU usage caps for particular websites , centralized management of SSL certificates , WebSocket support and improved support for NUMA , but few other substantial changes were made .

= = = Scalability = = =

Windows Server 2012 supports the following maximum hardware specifications . Windows Server 2012 improves over its predecessor Windows Server 2008 R2 :

= = System requirements = =

Windows Server 2012 runs only on x64 processors . Unlike its predecessor , Windows Server 2012 does not support Itanium .
 Upgrades from Windows Server 2008 and Windows Server 2008 R2 are supported , although upgrades from prior releases are not .

= = Editions = =

Windows Server 2012 has four editions : Foundation , Essentials , Standard and Datacenter .

= = Reception = =

 Reviews of Windows Server 2012 have been generally positive . Simon Bisson of ZDNet described it as " ready for the datacenter , today , " while Tim Anderson of The Register said that " The move towards greater modularity , stronger automation and improved virtualisation makes perfect sense in a world of public and private clouds " but remarked that " That said , the capability of Windows to deliver obscure and time @-@ consuming errors is unchanged " and concluded that " Nevertheless , this is a strong upgrade overall . "
 InfoWorld noted that Server 2012 's use of Windows 8 's panned " Metro " user interface was countered by Microsoft 's increasing emphasis on the Server Core mode , which had been " fleshed out with new depth and ease @-@ of @-@ use features " and increased use of the " practically mandatory " PowerShell . However , Michael Otey of Windows IT Pro expressed dislike with the new Metro interface and the lack of ability to use the older desktop interface alone , saying that most users of Windows Server manage their servers using the graphical user interface rather than PowerShell . The Australian construction company Kennards found the OS stable .
 Paul Ferrill wrote that " Windows Server 2012 Essentials provides all the pieces necessary to provide centralized file storage , client backups , and remote access , " but Tim Anderson contended that " Many businesses that are using SBS2011 and earlier will want to stick with what they have " , citing the absence of Exchange , the lack of ability to synchronize with Active Directory Federation Services and the 25 @-@ user limit , while Paul Thurott wrote " you should choose Foundation only if you have at least some in @-@ company IT staff and / or are comfortable outsourcing management to a Microsoft partner or solution provider " and " Essentials is , in my mind , ideal for any modern startup of just a few people . "

= = Windows Server 2012 R2 = =

 Windows Server 2012 R2 was released on October 18 , 2013 . It was unveiled on June 3 , 2013 at TechEd North America . According to Windows Server 2012 R2 datasheet published on May 31 , 2013 , there are four editions of this operating system : Foundation , Essentials , Standard and Datacenter . As with Windows Server 2012 , the Datacenter and Standard editions are feature identical , varying only based on licensing (particularly licensing of virtual instances) . The Essentials edition has the same features as the Datacenter and Standard products , with some restrictions .
 A further update , formally designated Windows Server 2012 R2 Update , was released in April 2014 , a cumulative set of security updates , critical updates and updates .
 Windows Server 2012 R2 is succeeded by Windows Server 2016 .

= = = Changes from Windows Server 2012 = = =

Microsoft has confirmed the following changes introduced by Windows Server 2012 R2 :
 Automated Tiering : Storage Spaces stores most frequently accessed files on fastest physical media
 Deduplication for VHD : Reduces the storage space for VHD files with largely similar contents by storing the similar contents only once
 Windows PowerShell v4 , which now includes a Desired State Configuration (DSC) feature
 Integrated Office 365 support (Essentials edition)
 User interface changes from Windows 8 @.@ 1 , including visible Start button .
 UEFI @-@ based virtual machines
 Upgrades from driver emulators to synthetic hardware drivers to minimize legacy support
 Faster VM deployment (approximately half the time)
 Internet Information Services 8 @.@ 5 : Support for logging to Event Tracing for Windows and the ability to log any request / response headers . To improve scalability , if IIS is configured with 100 or more web sites , by default it will not automatically start any of them . Alongside this , a new " Idle Worker Process Page @-@ Out " configuration option has been added to application pools to instruct Windows to page @-@ out the process if it has been idle for the idle time @-@ out period (by default , 20 minutes) .
 Server Message Block : Performance and event logging quality improvements , support for Hyper @-@ V Live Migration over SMB , bandwidth prioritization management , and the ability to remove SMB 1 @.@ 0 support
 Windows Deployment Services : Support for managing WDS via PowerShell .
 Windows Defender is available in a Server Core installation , and is installed and enabled by default .
 IP Address Management (IPAM) : Extended to support role @-@ based access control , allowing for fine @-@ grained control over which users can view or change configurations for DHCP reservations , scopes , IP address blocks , DNS resource records , etc . Additionally , IPAM can integrate with System Center Virtual Machine Manager 2012 R2 to have coordinated IP policy across both physical and virtual environments . The IPAM database can be stored in a SQL Server instance instead of Windows Internal Database .
 Group Policy has a new " Policy Cache " setting which allows domain @-@ joined machines to store a copy of the group policy settings on the client machine and , depending on the speed of access to the domain controller , use those at startup time instead of waiting for the policy settings to download . This can improve startup times on machines that are disconnected from the company network . New Group Policy settings have been added to cover new features in Windows 8 @.@ 1 and Internet Explorer 11 , such as enabling / disabling SPDY / 3 support , configuring start screen layouts , and detecting phone numbers in web pages .
 TLS support is extended to support RFC 5077 , " Transport Layer Security (TLS) Session Resumption without Server @-@ Side State " , which improves performance of long @-@ running TLS @-@ secured connections that need to reconnect due to session expiration .
 Hyper @-@ V role and Hyper @-@ V management console are added to the Essentials edition .
 Windows Server Update Services was made available for Windows Server 2012 R2 Essentials edition .