

Acronyms	
ACPI	Advanced Configuration and Power Interface
AD CS	Active Directory Certificate Services
AD DS	Active Directory Domain Services
API	Application Programming Interface
AD LDS	Active Directory Lightweight Directory Services
AMP-V	AMD Virtualization Technology
BPA	Best Practices Analyzer
BITS	Background Intelligent Transfer Service
CSV	Cluster Shared Volumes
DFS	Distributed File System
DHCP	Dynamic Host Configuration Protocol
DNS	Domain Name System
ESP	Encapsulating Security Payload
FCI	File Classification Infrastructure
FSRM	File Server Resource Manager
FTP	File Transfer Protocol
HTTP	Hypertext Transfer Protocol
HTTPS	Hypertext Transfer Protocol Secure
IIS	Internet Information Services
Intel VT	Intel Virtualization Technology
IPsec	Internet Protocol Security
IIS	Internet Information Services
LAN	Local Area Network
MSA	Managed Service Account
NAP	Network Access Protection
RDS	Remote Desktop Services
RDCB	Remote Desktop Connection Broker
RDSH	Remote Desktop Session Host
RDVH	Remote Desktop Virtualization Host
RDP	Remote Desktop Protocol
RSAT	Remote Server Administration Tools
SAN	Storage Area Network
SCVMM	System Center Virtual Machine Manager
SPN	Service Principal Name
SMB	Server Message Block
SSL	Secure Sockets Layer
UI	User Interface
VDI	Virtual Desktop Infrastructure
VHD	Virtual Hard Disk
VBUS	Virtual Machine Bus
VM	Virtualization Infrastructure Driver
VMW	Virtual Machine Manager
VMWP	Virtual Machine Worker Processor
YSC	Virtualization Service Client
VSP	Virtualization Service Provider
WAN	Wide Area Network
WMI	Windows Management Instrumentation
XML	eXtensible Markup Language

Windows Server 2008 R2 Active Directory Domain Services

Windows Server 2008 R2 supports several new Active Directory features including Active Directory Recycle Bin, Managed Service Accounts, offline domain join, and the Active Directory Administrative Center.

Active Directory Recycle Bin

The Active Directory Recycle Bin feature restores objects in their entirety to the same consistent logical state that they were in before deletion.

Active Directory Recycle Bin Requirements

- The forest functional level is Windows Server 2008 R2.
- Active Directory Recycle Bin must be enabled with the Enable-ADOptionalFeature cmdlet.

Recovering Deleted Objects

- Active Directory Recycle Bin allows objects to be restored using Windows PowerShell cmdlets.
- This feature works for both AD DS and AD LDS objects.
- Using Active Directory Recycle Bin
 - Identify objects that were deleted.
 - Locate deleted objects in the Deleted Object container using Get-ADObject with IncludeDeletedObjects parameter.
 - Restore deleted object using the Restore-ADObject cmdlet.
 - Restore objects to a live container.

Managed Service Accounts

Managed Service Accounts (MSAs) provide automatic password management of service accounts and simplified SPN management.

Offline Domain Join

Offline domain join allows computers running Windows 7 and Windows Server 2008 R2 to join a domain without connecting to a domain controller.

Active Directory Administrative Center

Built on Windows PowerShell 2.0, the Active Directory Administrative Center provides the ability to manage AD DS data through data-driven and task-driven navigation.

Windows Server 2008 R2 Remote Desktop Services

Remote Desktop Services provides a virtualization platform for accelerating and extending desktop and application deployments from the data center to any device. It provides an extensible platform for a Virtual Desktop Infrastructure.

Enumerating Application & Desktops for User

- Client queries and enumerates RemoteApp programs and virtual desktops available for end user.
- Remote Desktop Web Access queries for RemoteApp programs, Session Desktops, and virtual desktops from Connection Broker.
- Virtual machine per user assignment is verified through AD DS (personal virtual desktop).
- RemoteApp programs, session-based desktops and virtual desktops are aggregated from multiple Remote Desktop Session Host servers.
- Icons are presented on the Start menu for RemoteApp programs, session-based desktops and virtual desktops available to end user - available from RD Web Access (pre-Windows 7) or RemoteApp and Desktop Connection (Windows 7).

Connecting to RemoteApp Programs or Session-based Remote Desktops

- Client connects to RemoteApp programs or session-based remote desktops.
- User requests connection to virtual desktop (pooled or personal).
- RDP connection request is routed through RD Gateway to RD Redirector.
- Redirector informs broker that virtual machine is needed and waits for IP address of virtual machine.
- RD Connection Broker orchestrates virtual machine and return to connection information to redirector.
- Client receives IP address of virtual machine and connection information via redirection packet.
- Client connects to virtual desktop. Any disconnected virtual machines will automatically be saved within 5 minutes.

Full-Fidelity User Experience

- Bi-directional audio
- High Quality Windows Media Player Redirection
- Enhanced Bitmap Acceleration
- Multiple Monitor Support

Windows Server 2008 R2 Hyper-V

The Windows Server 2008 R2 Hyper-V role enables live migration, increased logical processor support, dynamic virtual machine storage (hot-add/remove), processor compatibility mode, and virtual hard disk (VHD) performance improvements.

Hyper-V Architecture

Hyper-V is a hypervisor-based virtualization role that allows multiple, isolated operating systems to share a single hardware platform.

Hyper-V Live Migration

Live migration moves running virtual machines from 1 computer running Hyper-V to another, without any interruption of service.

Windows Server 2008 R2 Hyper-V Features

- Live migration:** Enables running virtual machines to be migrated from one physical processor to another without interruption of service.
- Increased processor support:** Supports 64 logical processors in the host processor pool.
- Core Parking:** Reduces power costs by placing unused CPUs into a "sleep" state and restoring if workload increases.
- Processor compatibility mode:** Provides support for Hyper-V live migration across different CPUs from the same CPU manufacturer (for example, Intel-to-Intel and AMD-to-AMD).
- Dynamic virtual machine storage:** Allows VHDs/attached physical disks to be hot-added to or removed from a running virtual machine without requiring a restart.
- Enhanced:** Supports Virtual Machine Chimney (TCP Offload) and use of jumbo frames on virtual machines.

Windows Server 2008 R2 BranchCache

BranchCache reduces WAN link utilization and improves application responsiveness for branch office users. This is done by having clients cache content they download within the branch office. The content may be cached across client computers (Distributed Cache mode) or centrally hosted on a server (Hosted Cache mode).

Hosted Cache Mode

In Hosted Cache Mode, clients cache content to a Hosted Cache server. Other clients who need the same content retrieve it directly from the hosted cache.

Distributed Cache Mode

In Distributed Cache Mode, clients cache content locally on their computer after downloading it from the content server (or from other clients). This content is served to other authorized clients when they request the same content from the content server.

Windows Server 2008 R2 File Services

The Windows Server 2008 R2 File Services role provides technologies that help manage storage, enable file replication, manage shared folders, ensure fast file searching, and enable access for Windows-based and non-Windows-based client computers.

Distributed File System

Windows Server 2008 R2 includes DFS improvements:

- Support for Windows Failover Clusters.
- Failover Cluster Manager MMC snap-in.
- System Center VMW 2008 R2 Administration Console.
- WMI or Windows PowerShell script.

File Classification Infrastructure

FCI provides the ability to get insight into your data and manage cost and risk - by defining file classification properties, automatically classify files based on location and content, applying file management tasks, and producing file classification reports. FCI is fully extensible.

File Services

microsoft.com/storage

Windows Server 2008 R2 Management

Windows Server 2008 R2 provides improved management - including advanced scripting capabilities with Windows PowerShell 2.0, improved power efficiency for multicore processors and virtualization scenarios, and an integrated Best Practices Analyzer.

Windows PowerShell 2.0

Windows PowerShell 2.0 is a command-line shell and scripting language that helps automate server administration, configuration, and deployment tasks. It also supports running cmdlets and scripts remotely.

Power Efficiency

Administrators can reduce power consumption for servers without requiring additional configuration.

Remote Management

Server Manager provides a unified management experience for deploying and managing server roles.

Best Practices Analyzer

Windows Server 2008 R2 includes an integrated Best Practices Analyzer for numerous server roles.

Windows Server 2008 R2 Internet Information Services

Windows Server 2008 R2 includes the updated Web Server role, Internet Information Services (IIS) 7.5, and support for .NET on Server Core installations. IIS enables Web administrators to efficiently deploy and manage Web applications and provides increased customization capabilities.

Support and Administration for Web-based Applications

Support for .NET allows ASP.NET Web applications to be run on Server Core installations and enables remote management of computers running Server Core installations from IIS Manager.

Windows PowerShell Integration for IIS

The Windows PowerShell Web Administration module helps automate administrative tasks - with over 70 new IIS cmdlets.

IIS Extensions

IIS 7.5 includes several new extensions:

- FTP Publishing Service:** Windows Server 2008 R2 includes a new version of FTP server services.
- IIS Administration Pack:** IIS administration enhancements enables administrators to:
 - Generate code to automate tasks.
 - Configure FastCGI settings easily.
 - Configure Request Filtering.
 - Configure file more easily.
 - Edit config files more easily.
 - Modify ASP.NET Authorization settings.

IIS Web Site

microsoft.com/iis

Windows Server 2008 R2 DirectAccess

DirectAccess securely extends network services and resources to remote users while providing seamless access to corporate resources, without any user interaction or Virtual Private Network (VPN) client.

DirectAccess Connection Process

- DirectAccess clients connect to a DirectAccess server. They can connect regardless of local connection type.
- Client verifies connection to DirectAccess server.
- First IPsec tunnel connects to infrastructure servers.
- Second IPsec tunnel connects to intranet resources.

DirectAccess Deployment

DirectAccess can be configured to use "end-to-edge" architecture, end-to-end authentication, or end-to-end encryption.

Deployment Requirements

- At least one Active Directory domain is required.
- Workgroups are not supported.
- DirectAccess clients must be domain members.
- The DirectAccess server must have two network adapters (Internet and Intranet).
- At least one domain controller and DNS server are required (Windows Server 2008 SP2/Windows Server 2008 R2).
- PKI is required to issue certificates. External certificates are not required.
- IPsec policies are required to specify protection for traffic.
- A client running Windows 7 is required for DirectAccess.
- Tunneled IP traffic must be allowed to pass through perimeter firewall.