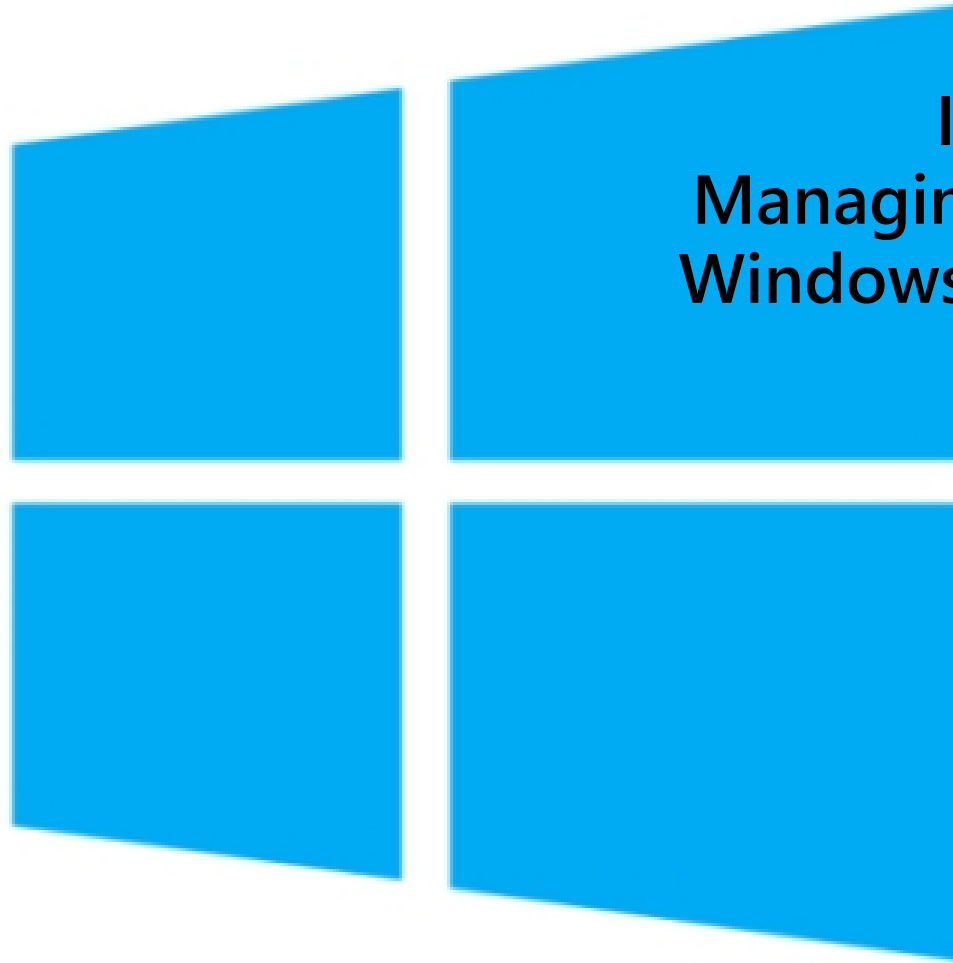Module 2

Introduction to Managing Microsoft® Windows Server® 2016 Environment

Windows Server 2016

Module Overview

- Server Roles

- Overview of Active Directory

- Using Microsoft Windows Server 2008 Administrative Tools

- Using Remote Desktop for Administration

Lesson 1: Server Roles

- Windows Server 2016 Editions

- What Are Server Roles?

- What Are the Windows Infrastructure Services Roles?

- What Are the Windows Application Platform Services Roles?

- What Are the Active Directory Server Roles?

- AD DS Integration with Other Active Directory Server Roles

- What Are Server Features?

- What Is Server Core?

The Windows Server 2016 editions are:

Windows Server 2016 editions

Editions	Description	Licensing model	CAL requirements
Windows Server 2016 Datacenter	For highly virtualized datacenter and cloud environments	Core based	WS CAL
Windows Server 2016 Standard	For physical or minimally virtualized environments	Core based	WS CAL
Windows Server 2016 Essentials	For small businesses with up to 25 users and 50 devices	Processor based	No CAL required
Windows Server 2016 MultiPoint Premium Server	For Volume Licensing customers in Academic segments only	Processor based	WS CAL+RDS CAL
Windows Storage Server 2016	Standard and Workgroup editions available in the OEM channel only	Processor based	No CAL required
Microsoft Hyper-V Server 2016	Free hypervisor download	NA	NA

Windows Server 2008 Editions

The Windows Server 2016 editions are:

Feature Differentiation: Datacenter and Standard Editions		
Feature	**Datacenter Edition**	**Standard Edition**
Core functionality of Windows Server	●	●
OSEs / Hyper-V Containers	Unlimited	2
Windows Server containers	Unlimited	Unlimited
Host Guardian Service	●	●
Nano Server*	●	●
Storage features including Storage Spaces Direct and Storage Replica	●	
Shielded Virtual Machines	●	
Networking stack	●	
Core-based pricing**	$6,155	$882

What Are Server Roles?

Server roles describe the primary server function

Active Directory Domain Services

DNS Server

File Services

Print Services

Web Server IIS

What Are the Windows Infrastructure Services Roles?

Windows Infrastructures Services roles include:

- Active Directory Certificate Services

- Active Directory Rights Management Services

- DHCP Server

- DNS Server

- Fax Server

- File Services

- Hyper-V

- Network Policy and Access Services

- Print Services

- Terminal Services

- Windows Deployment Services

# What Are the Windows Application Platform Services Roles?

Windows Application Platform Services roles include:

- Application Server

- UDDI Services

- Web Server (IIS)

What Are the Active Directory Server Roles?

Server Role	Description
Active Directory Domain Services (AD DS)	A centralized directory for user and computer management and authentication for a Windows Server 2016 network
Active Directory Lightweight Directory Services (AD LDS)	An LDAP directory service that provides data storage and retrieval support for directory-enabled applications, without the requirement to deploy domains or domain controllers
Active Directory Certificate Services (AD CS)	A solution used to protect information stored in documents, e-mail messages, and Web sites from unauthorized viewing, modification, or use
Active Directory Rights Management Services (AD RMS)	An information-protection technology that works with AD RMS-enabled applications to help safeguard digital information from unauthorized use
Active Directory Federation Services (AD FS)	A server role in Windows Server 2016 that provides Web SSO technologies to authenticate a user to multiple Web applications over the life of a single online session

AD DS Integration with Other Active Directory Server Roles

AD FS

AD RMS

AD CS
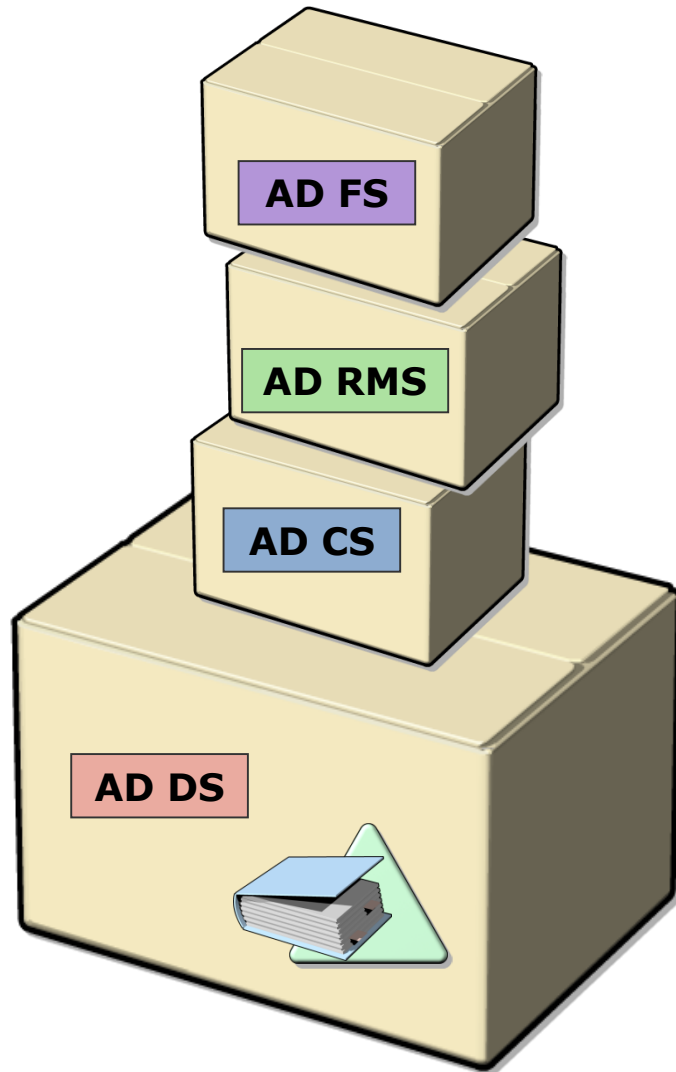
AD DS

- **AD DS is the foundation for a functional network**

- **Most server roles depend on AD DS to provide user and resource information for the other server roles**

- **AD DS also provides authentication and authorization services**

What Are Server Features?

Server features are supporting services that can be installed

Examples of server features:

- **.NET Framework 5.0**
- **BitLocker™ Drive Encryption**
- **Network Load Balancing**
- **Failover Clustering**
- **Desktop Experience**
- **Windows PowerShell™**

What Is Server Nano?

A Server Nano is an installation of Windows Server 2016 that:

- Has minimal services

- Has no graphical interface neither the possibility to logon locally

- Increases security

- Can be configured in a limited number of roles

Lesson 2: Overview of Active Directory

- What Is Active Directory?

- Benefits of Active Directory

- What Is a Domain?

- What Is an Organizational Unit?

- What Is a Forest?

- What Is a Domain Controller?

- What is a Read-Only Domain Controller?

- Read-Only Domain Controller Features

What Is Active Directory?

Active Directory:

- Is a central repository of network information

- Is organized into domains, trees, and forests

- Has multiple partitions:

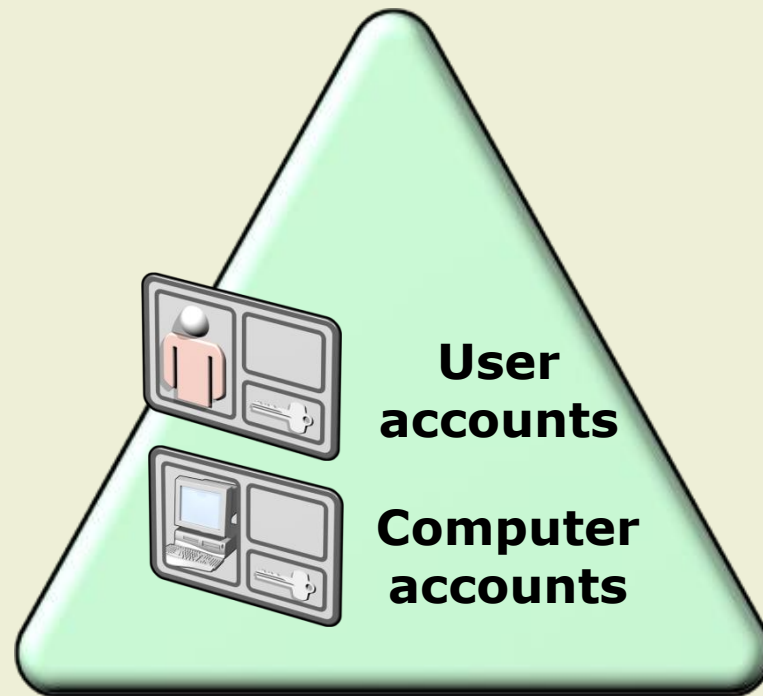 - Domain

  - Configuration

  - Schema

Benefits of Active Directory

Compared to a workgroup, the benefits of Active Directory include:

- Simplified security management

- Redundant storage of security information

- Group Policy

- Extensibility

- Delegation of administration
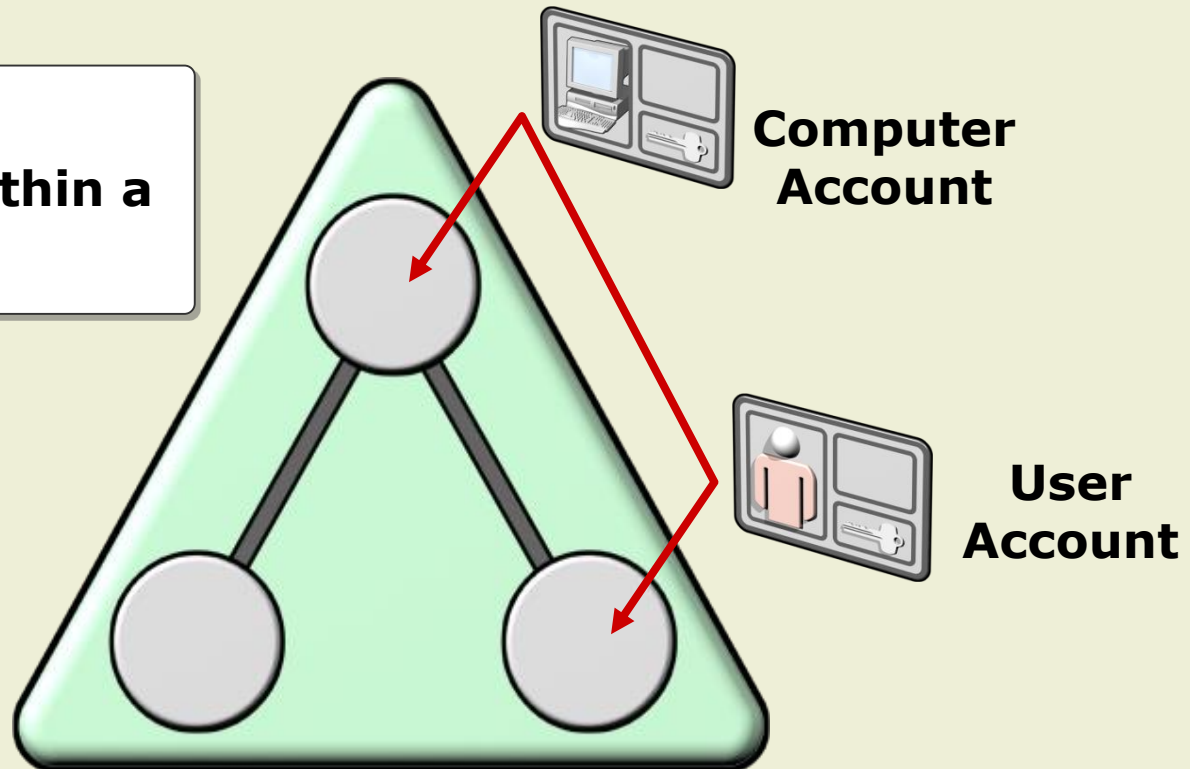
What Is a Domain?

A domain is a logical grouping of objects such as computer and user accounts

User accounts

Computer accounts

Organizational units in a domain

An OU is a container within a domain

Computer Account

User Account

What Is a Forest?

A forest is a collection of domains that trust each other

Global Catalog

nwtrader.msft

contoso.msft

eu.nwtrader.msft

Tree

sales.contoso.msft

na.nwtrader.msft
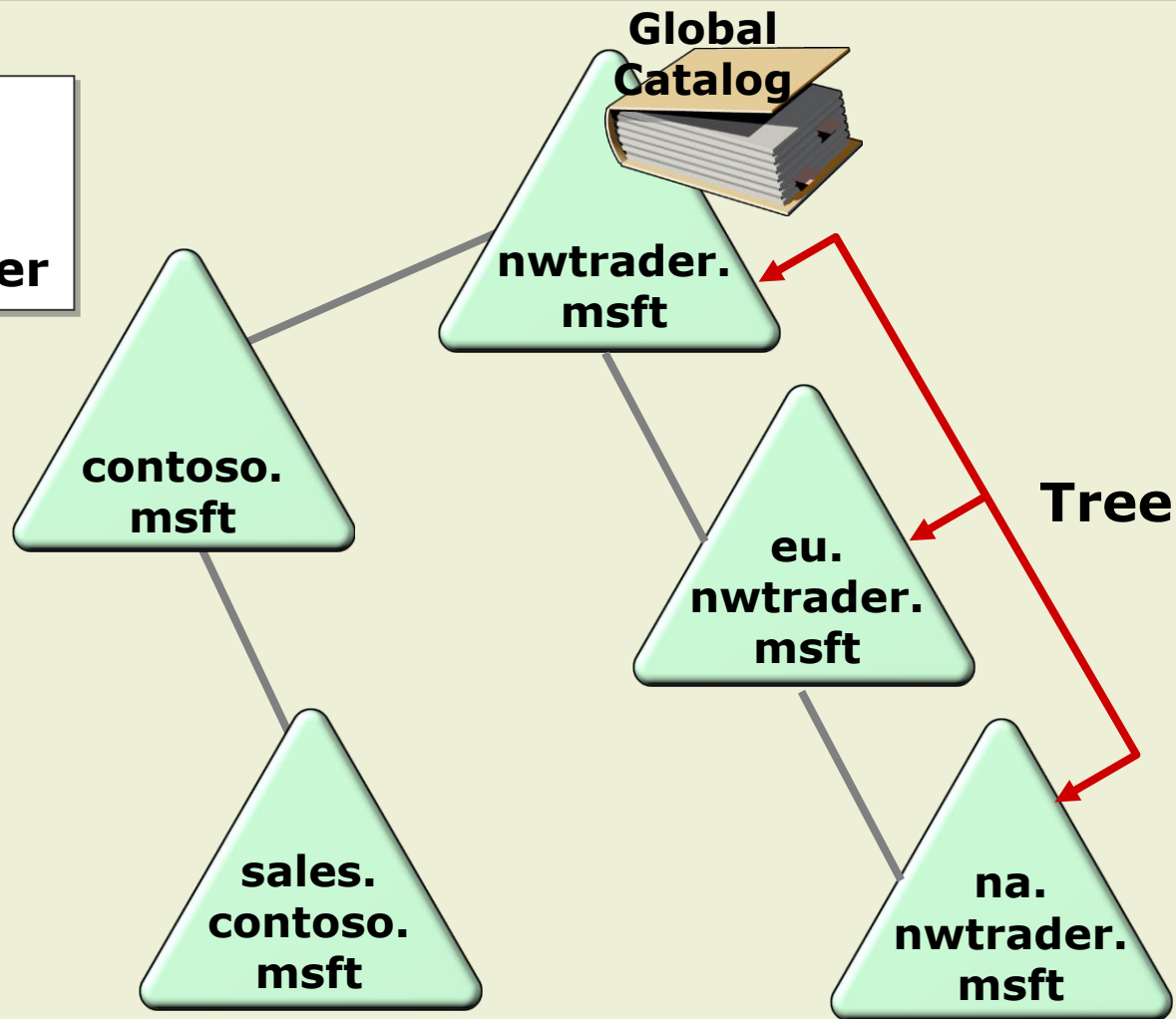
What Is a Domain Controller?

A domain controller:

- Holds a copy of Active Directory

- Responds to requests for Active Directory information

- Authenticates users to the network

- Is located by querying DNS

- Takes part in multi-master replication throughout the domain and forest

What Is a Read-Only Domain Controller?

RODCs host read-only partitions of the AD DS database, only accept replicated changes to Active Directory, and never initiate replication
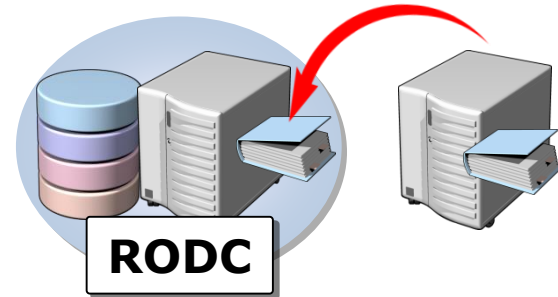
RODC

RODCs provide:

- Additional security for branch office with limited physical security

- Additional security if applications must run on a domain controller

RODCs:

- Cannot hold operation master roles or be configured as replication bridgehead servers

- Can be deployed on servers running Windows Server 2008 Server core for additional security

Read-Only Domain Controller Features

RODCs provide:

- **Unidirectional replication**

- **Credential caching**

- **Administrative role separation**

- **Read-only DNS**

- **RODC filtered attribute set**
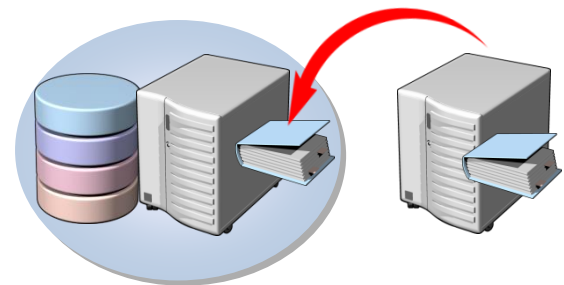
Lesson 3: Using Windows Server 2008 Administrative Tools

- Microsoft Management Console

- Server Manager

- Computer Management

- Device Manager

- Problem Reports and Solutions

- Common Administration Tasks

Microsoft Management Console

Console1 - [Console Root]

File   Action   View   Favorites   Window   Help

Console Root	Name		Actions
	There are no items to show in this view.		**Console Root** ▲
			More Actions ▶

The Microsoft Management Console (MMC):
- Is a framework for developing administrative tools
- Uses snap-ins to provide functionality
- Allows you to create custom consoles
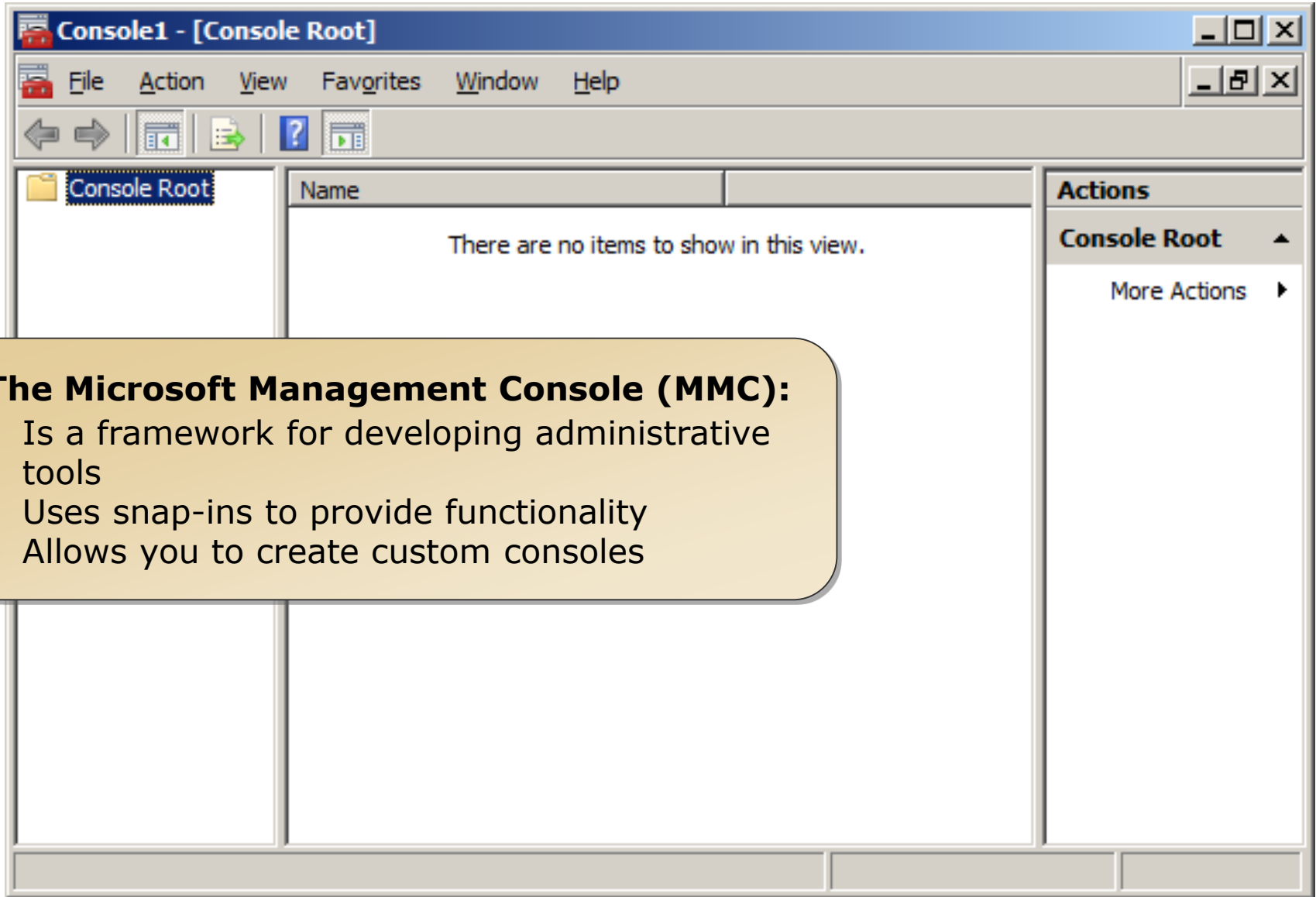
Server Manager

Server Manager is an MMC console with several snap-ins for managing your server

- Add or remove server roles
- Add or remove server features
- Monitor system events
- Manage devices
- Schedule tasks
- Manage local users and groups
- Configure Windows Firewall
- Configure storage
- Perform a backup

Computer Management

Computer Management is an MMC console with several snap-ins for managing your server

Computer Management considerations:

- Does not include roles and features
- Includes many of the same snap-ins as Server Manager
- Can manage Routing and Remote Access
- Can manage shared folders
- Also included in previous version of Windows

Device Manager
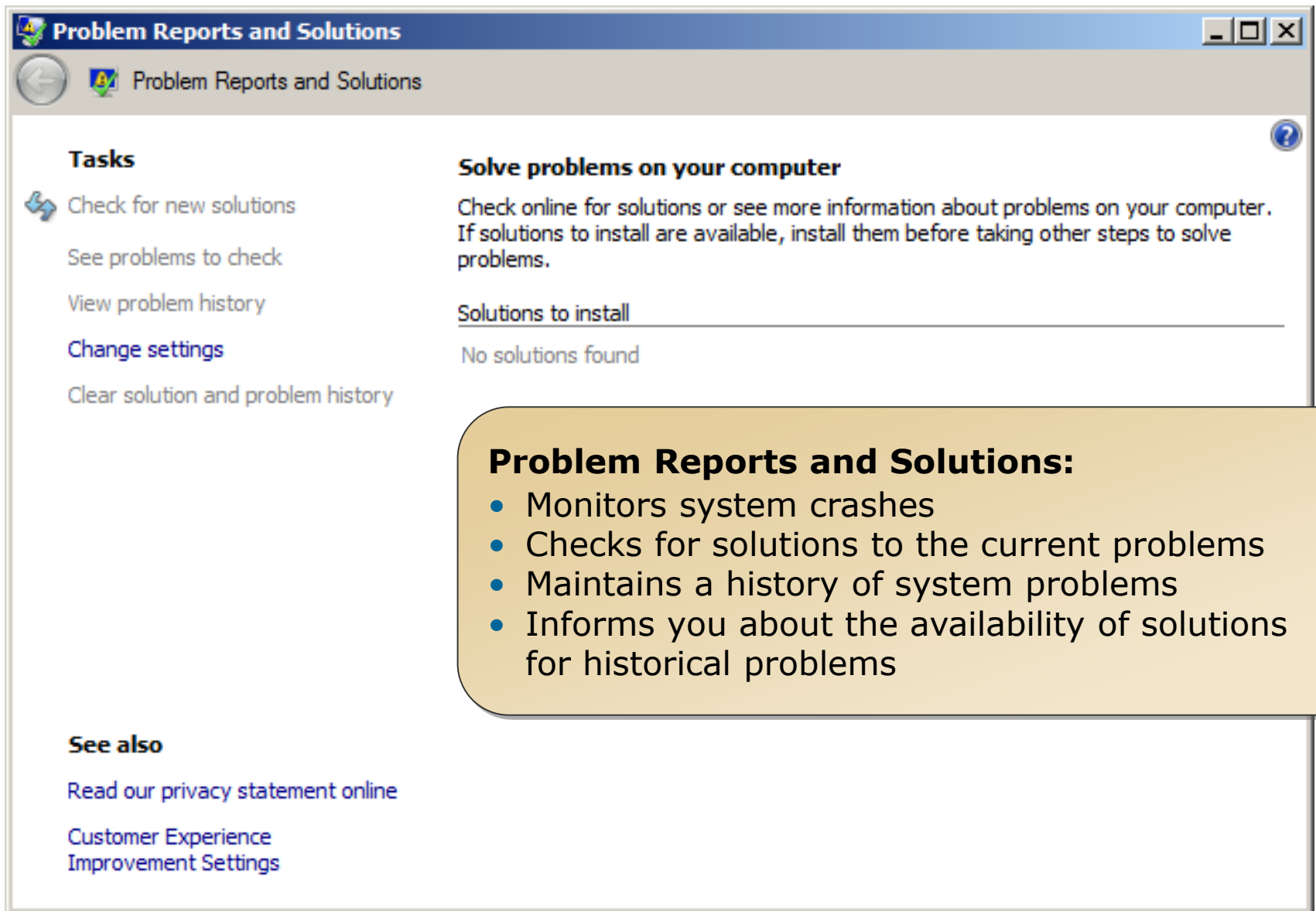
Device Manager is a snap-in that is used to view and manage hardware information

You can:

- View device status and information
- View device resources
- Configure device settings
- Enable and disable devices
- Update driver software

Problem Reports and Solutions

Problem Reports and Solutions   _ □ ✕

🛡️ Problem Reports and Solutions

← 🛡️ Problem Reports and Solutions   ❓

Tasks

⚡ Check for new solutions

See problems to check

View problem history

Change settings

Clear solution and problem history

Solve problems on your computer

Check online for solutions or see more information about problems on your computer.
If solutions to install are available, install them before taking other steps to solve
problems.

Solutions to install

No solutions found

Problem Reports and Solutions:
- Monitors system crashes
- Checks for solutions to the current problems
- Maintains a history of system problems
- Informs you about the availability of solutions
  for historical problems

See also

Read our privacy statement online

Customer Experience
Improvement Settings

Common Administration Tasks

Common Task	Associated Tools
User Maintenance	Server Manager
Hardware Maintenance	Server Manager Device Manager
Data Backup and Restore	Microsoft Management Console Server Manager
Operating System Maintenance	Server Manager Device Manager
Troubleshooting	Problem Reports and Solutions Server Manager

Lesson 4: Using Remote Desktop for Administration

- Remote Desktop for Administration

- Benefits of Remote Desktop for Administration

- Securing Remote Desktop for Administration

Remote Desktop for Administration:

- Allows access to the server desktop remotely

- Is limited to two connections

- Sends only screen updates and keystrokes between server and client

- Uses port 3389 by default

Benefits of Remote Desktop for Administration

Remote Desktop for Administration benefits:

- Run server administrative tools without installing them on a workstation

- Run server administrative tools that cannot be installed on a workstation

- Works well over slow links

- May avoid the need to travel to remote locations

- May avoid the need to return to the office after hours

- Manage Server Core installations

Securing Remote Desktop for Administration

Remote Desktop for Administration is secured by:

- Enabling and disabling Remote Desktop for Administration
- Controlling members of the Remote Desktop Users group

RDP security settings:

- Security layer
- Encryption level
- Require authentication before allowing RDP connections to this computer