

MICROSOFT OFFICIAL COURSE

## Module 10

# Optimizing and Maintaining Windows 7 Client Computers

## Module Overview

- Maintaining Performance by Using the Windows 7 Performance Tools
- Maintaining Reliability by Using the Windows 7 Diagnostic Tools
- Backing Up and Restoring Data by Using Windows Backup
- Restoring a Windows 7 System by Using System Restore Points
- Configuring Windows Update

# Lesson 1: Maintaining Performance by the Using Windows 7 Performance Tools

- Discussion: What Are Performance and Reliability Problems?
- Performance Information and Tools
- Performance Monitor and Data Collector Sets
- Demonstration: Using the Resource Monitor
- Demonstration: Analyzing System Performance by Using Data Collector Sets and Performance Monitor
- Considerations for Monitoring System Performance in Windows 7

# Discussion: What Are Performance and Reliability Problems?

## Performance

Measures how quickly the computer completes a task

## Reliability

Is the measure of how a system conforms to expected behavior

**How can you identify whether a problem relates to Performance or Reliability?**



10 min



# Performance Information and Tools

Performance Information and Tools provides access to:

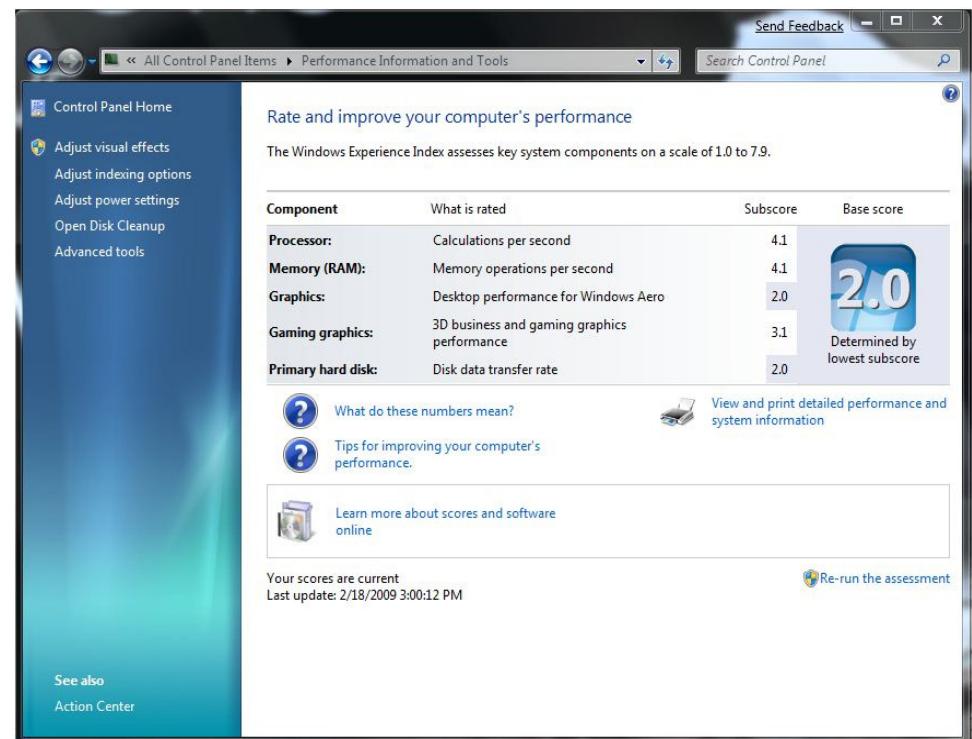
- Windows Experience Index
- Performance-Related tools

## Windows Experience Index

Determines the computer's overall hardware capability by calculating its WEI base score

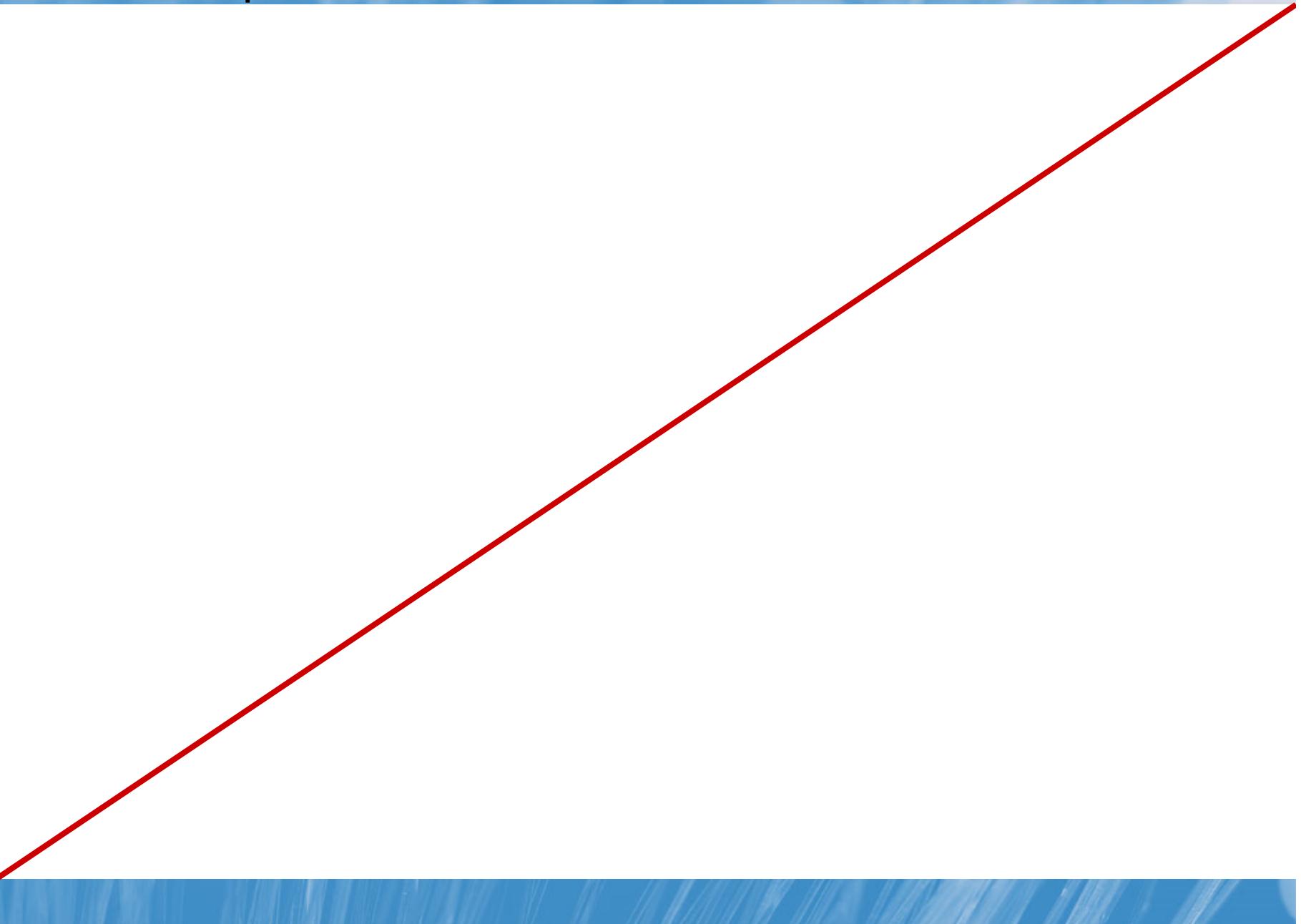
## Performance-related tools

- Performance-related events in Event log
- Performance Monitor
- Reliability Monitor

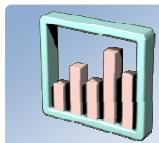


Access the Performance Information and Tools from the Control Panel

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# Performance Monitor and Data Collector Sets



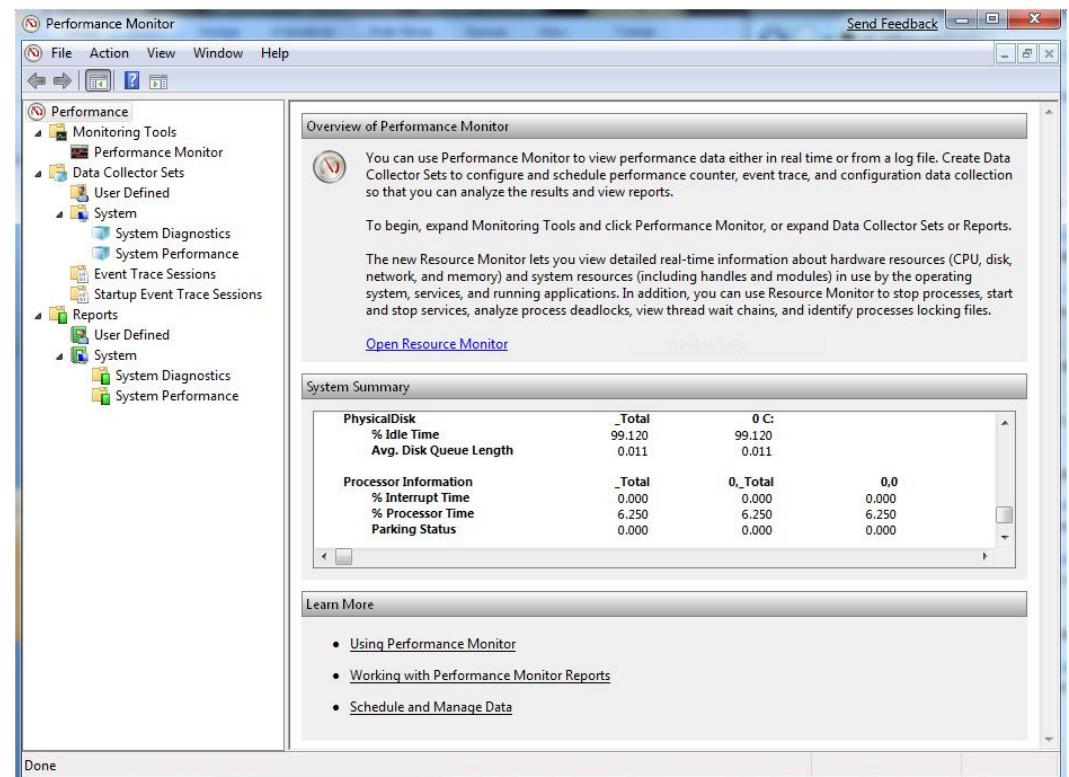
## Monitoring Tools



## Data Collector Sets

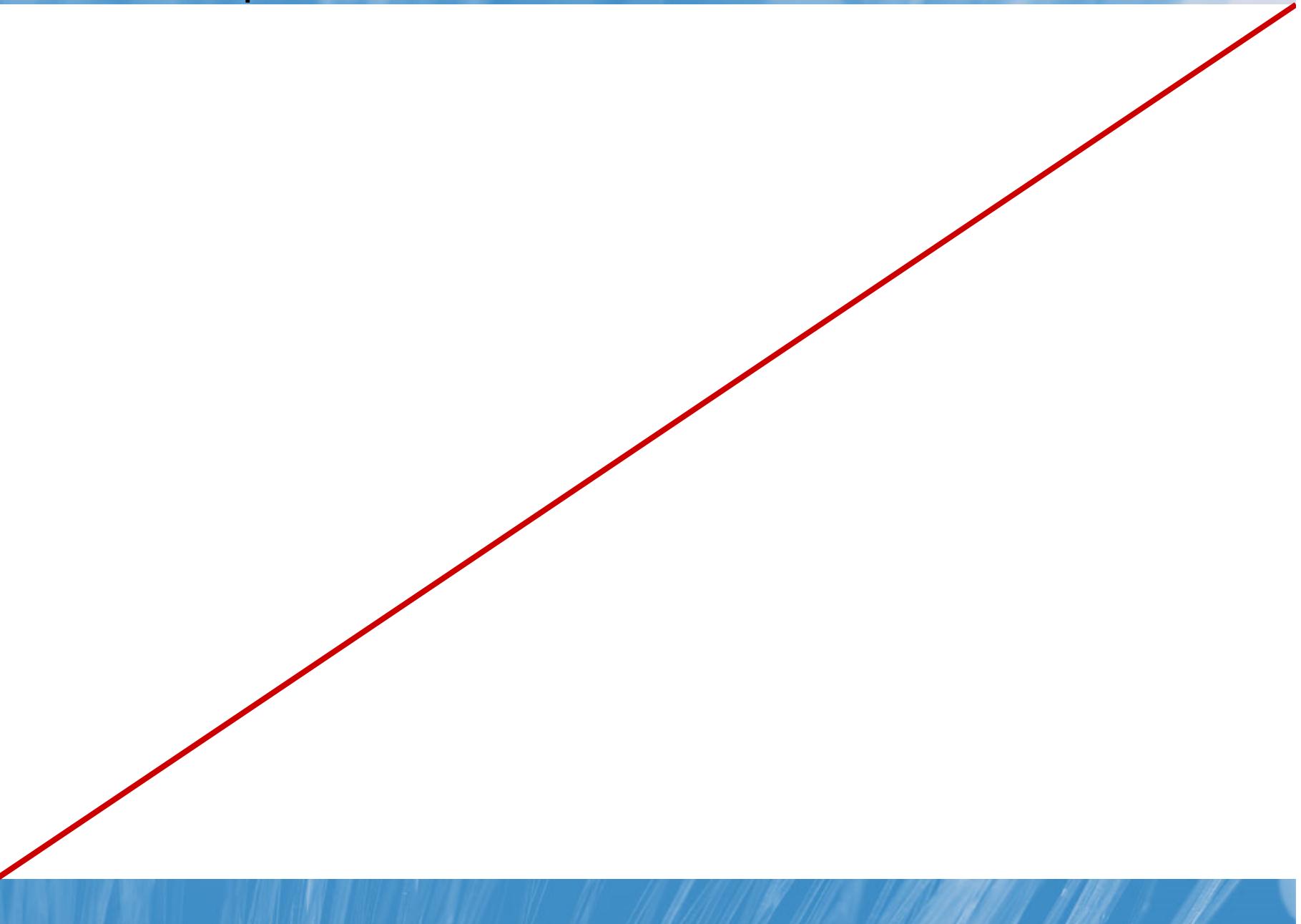


## Reports

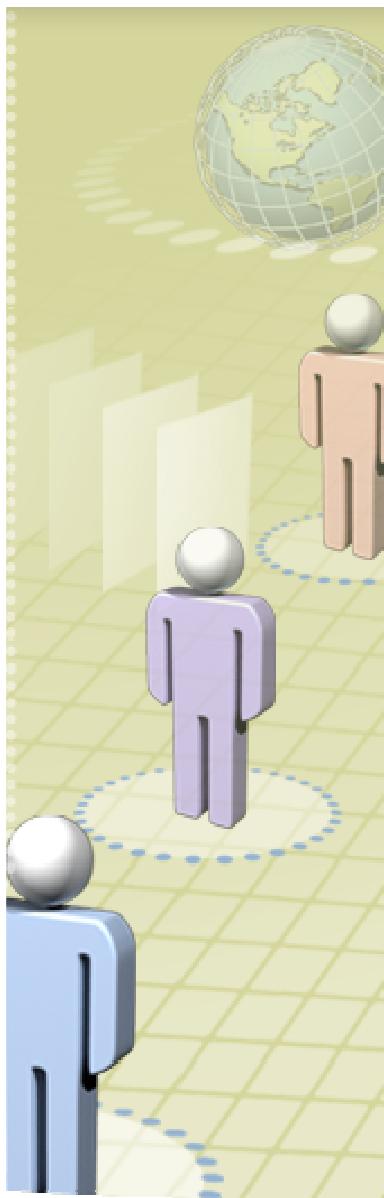


Access the Performance Monitor, from the Performance information and Tools > Advanced Tools

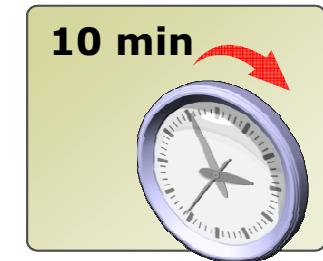
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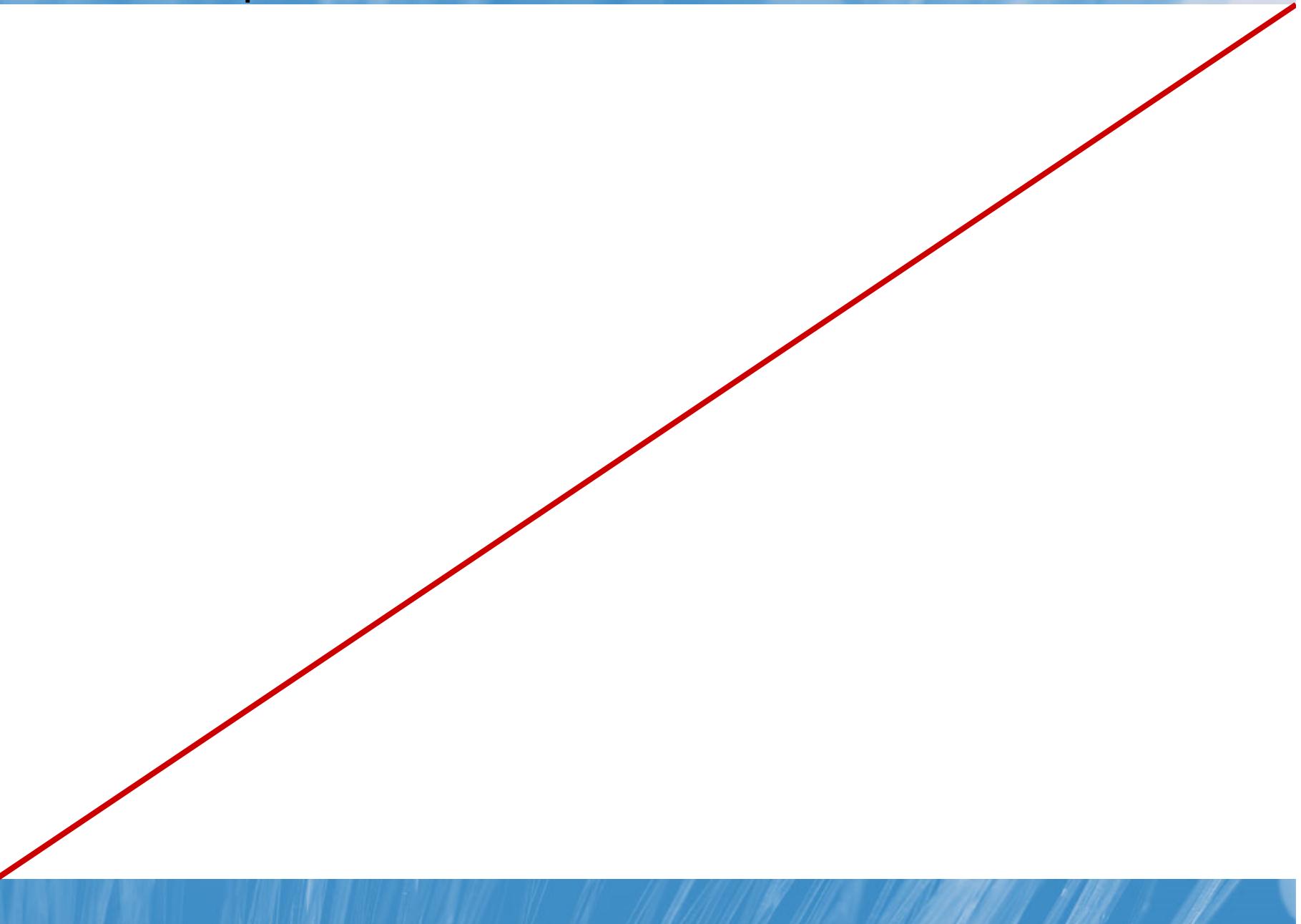
# Demonstration: Using the Resource Monitor



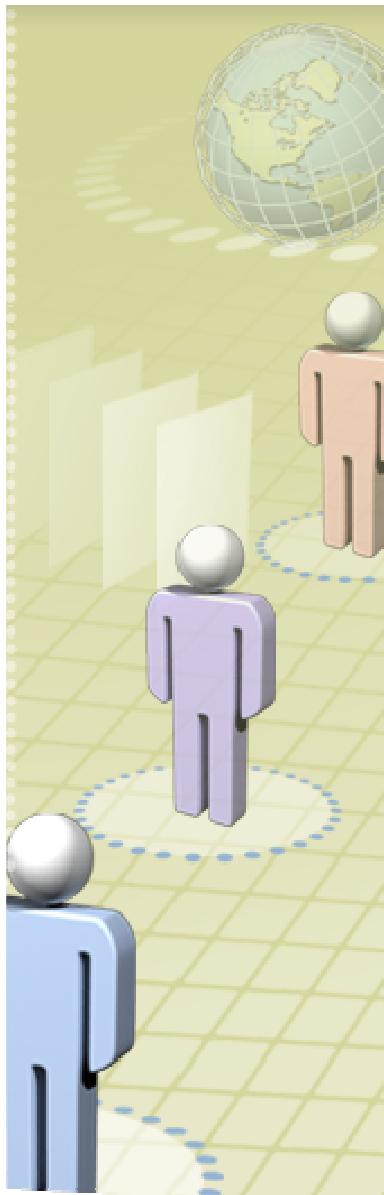
In this demonstration, you will see how to use Resource Monitor.



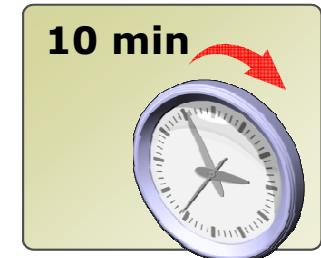
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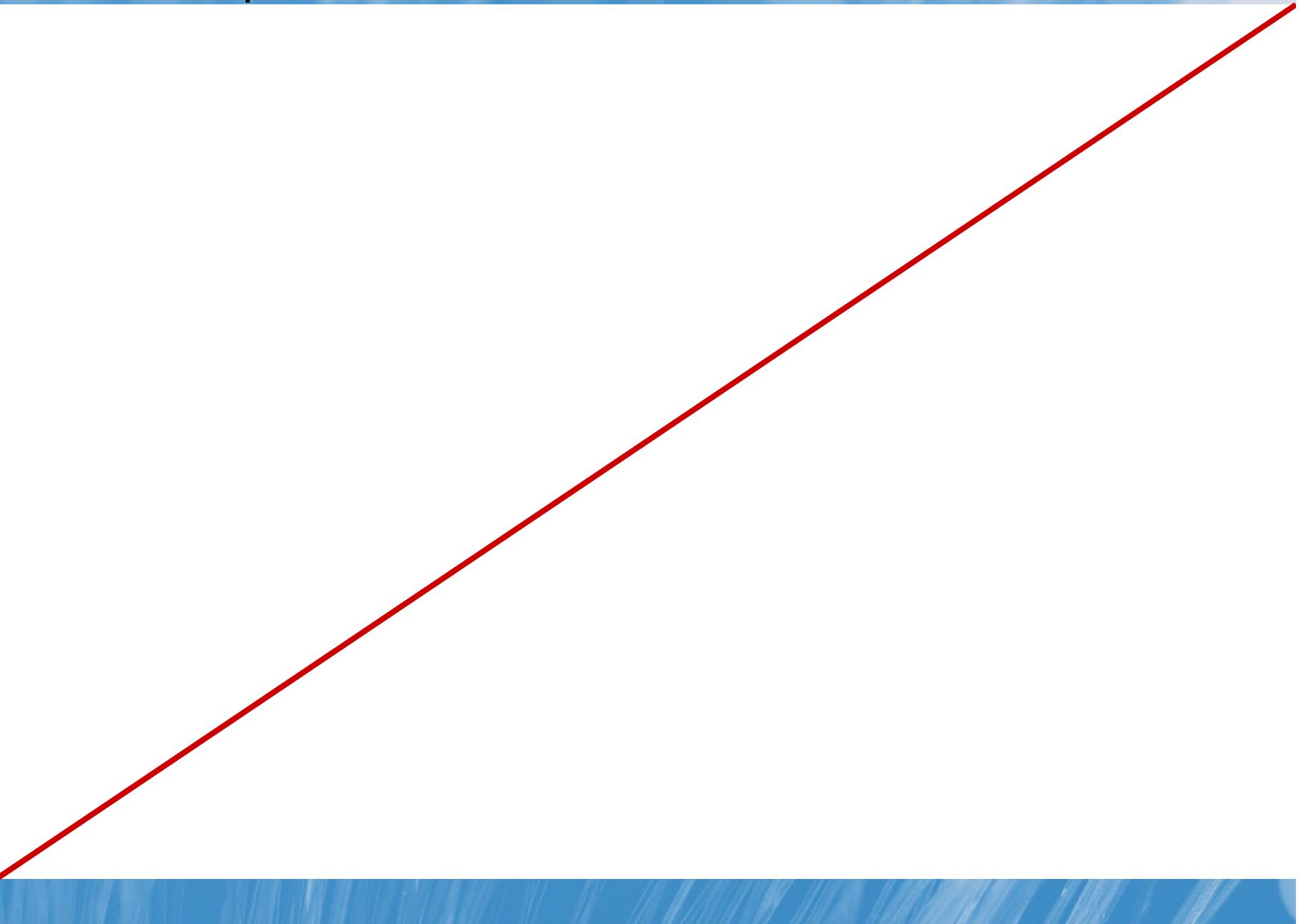
# Demonstration: Analyzing System Performance by Using Data Collector Sets and Performance Monitor



In this demonstration, you will see how to analyze system performance by using data collector sets and performance monitor.



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# Considerations for Monitoring System Performance in Windows 7



**Use the Resource Monitor to get a visual data view for all the resources**



**Set a performance baseline to compare the usage on the computer**



**Plan monitoring carefully so that system performance is not affected**

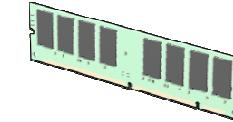
## Lesson 2: Maintaining Reliability by the Using Windows 7 Diagnostic Tools

- Problems That Windows Diagnostic Tools Can Help Solve
- Windows Memory Diagnostics Tool
- Windows Network Diagnostics Tool
- Reliability Monitor and Problems Reports and Solutions Tool
- Windows Startup and Recovery
- Demonstration: Resolving Startup Related Problems

# Problems That Windows Diagnostic Tools Can Help Solve

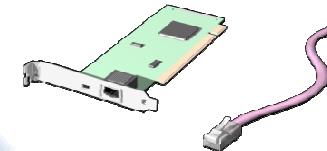
## Memory

- Application failures
- Operating system faults
- Stop errors



## Network

- Interfaces not configured properly
- Incorrect IP addresses
- Hardware failures
- Host of other problems



## Startup

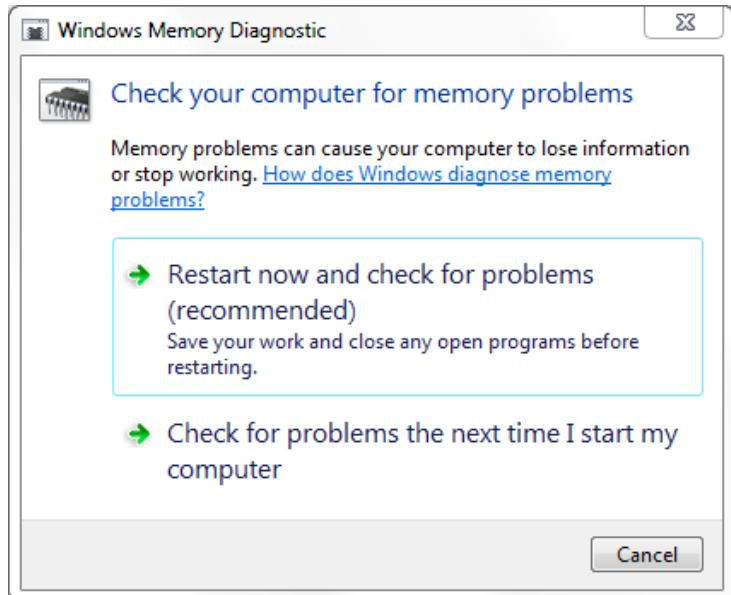
- Malfunctioning memory
- Incompatible design
- Corrupted device drivers
- Missing or corrupt startup files
- Corrupt disk data



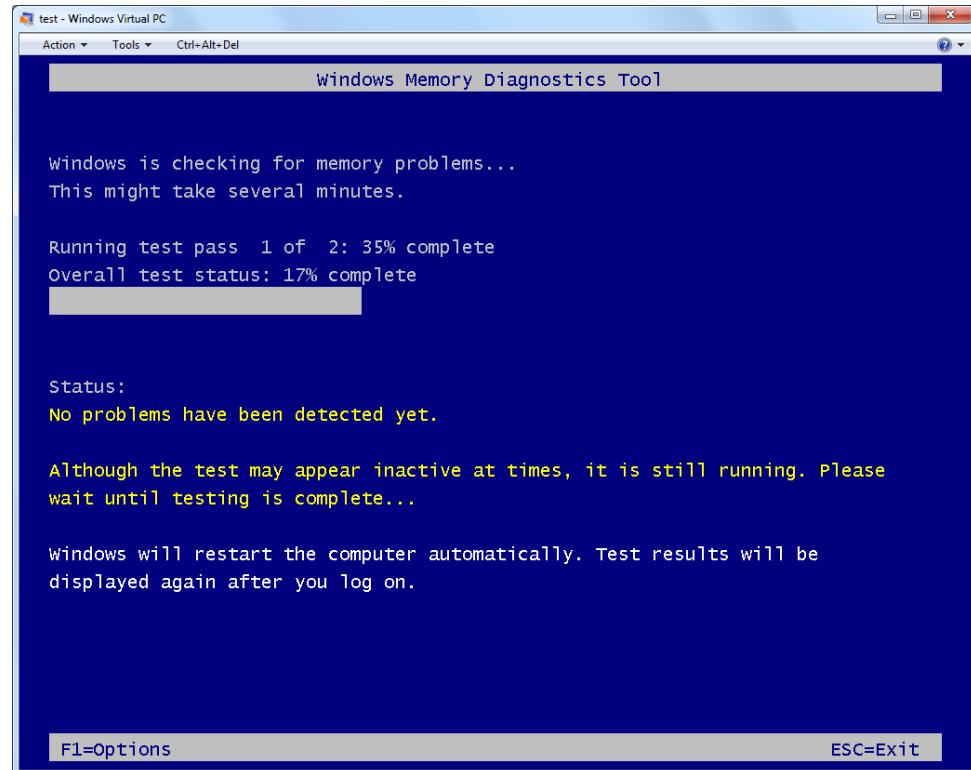
# Windows Memory Diagnostics Tool

## Checks for symptoms of defective computer memory

- Runs automatically or can be started from Administrative Tools in Control Panel
- Notifies the user on Memory problems and logs the details
- Presents the solution on the problem when the computer restarts



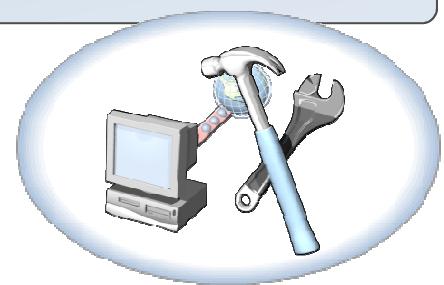
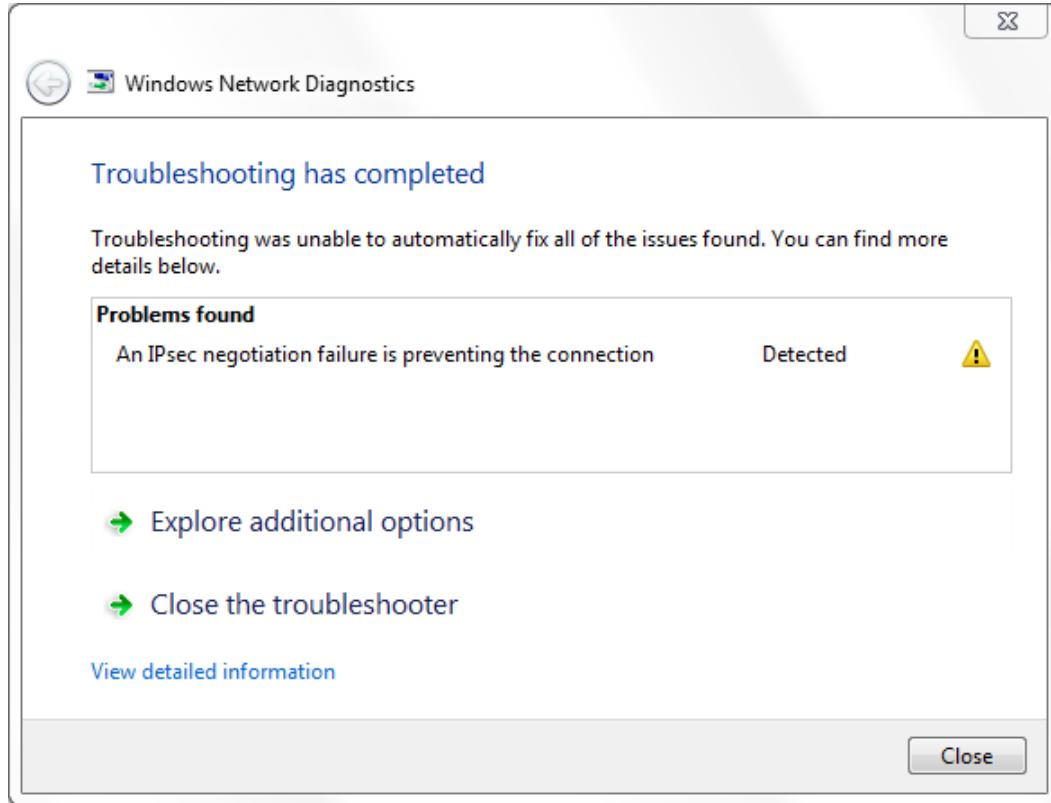
Access the Windows Memory Diagnostics Tool from the Control Panel > System and Security > Administrative Tools



# Windows Network Diagnostics Tool

## Provides assistance in resolving network-related issues

- Diagnoses network problems
- Repairs issues automatically
- Directs the user to perform simple steps to correct the problem without calling for support



Access the Windows Network Diagnostic Tool from the Network and Sharing Center  
> Troubleshoot problems > Fix a Network Problem

# Reliability Monitor and Problems Reports and Solutions Tool

## **Reliability Monitor:**

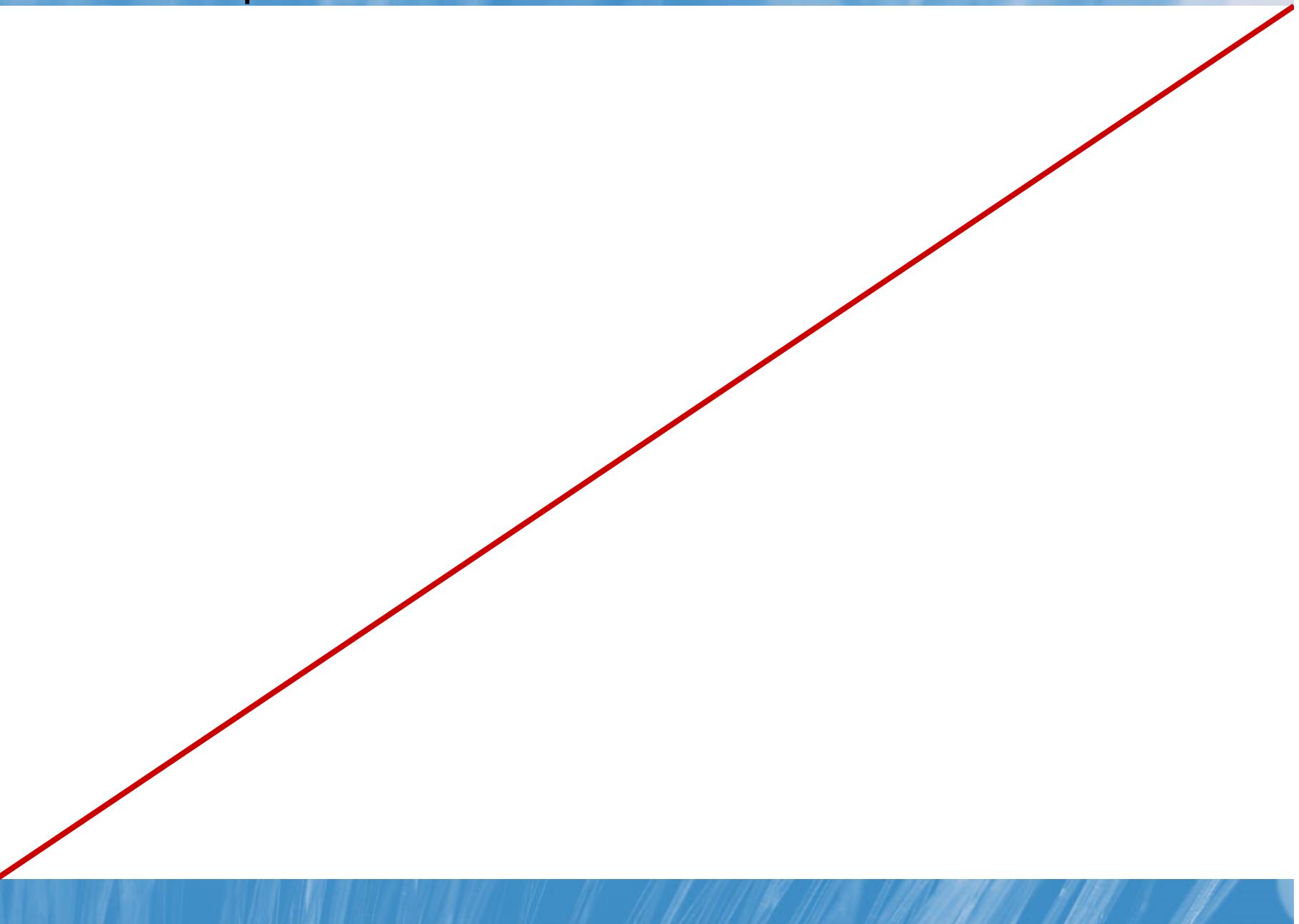
- Provides a timeline of system changes and reliability
- Provides a System Stability Chart
- Reports on software installations and software and hardware failures

## **Problem Reports and Solutions Tool:**

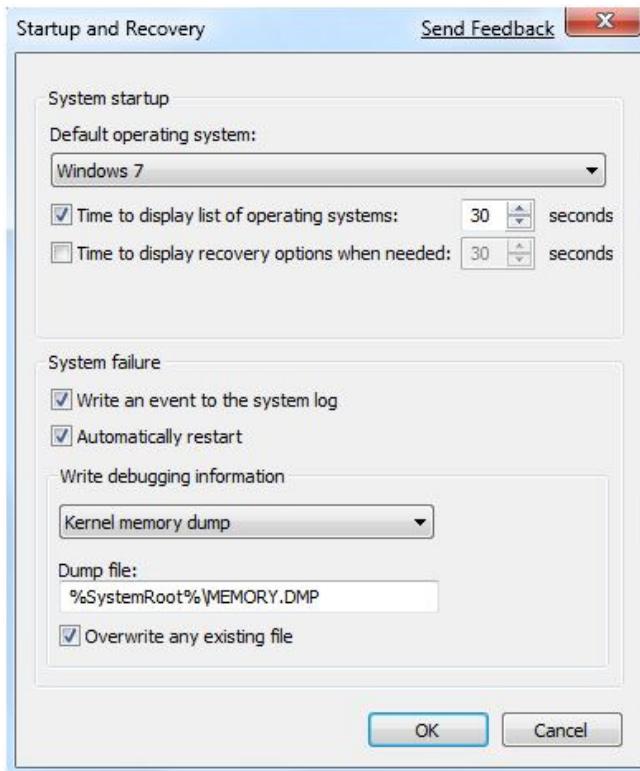
- Use after the Windows Memory Diagnostics Tool or the Windows Network Diagnostics Tool
- View a history of attempts to diagnose a problem
- Rerun a check for a problem
- See the problem report details



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# Windows Startup and Recovery



Access Startup and Recovery from  
System Properties > Advanced tab

## Boot options for troubleshooting startup problems:

- Repair your computer
- Safe Mode
- Boot logging
- Last known good configuration
- Disable auto restart on system failure
- Disable driver signature enforcement

## The Startup Repair tool fixes problems that are preventing Windows from starting

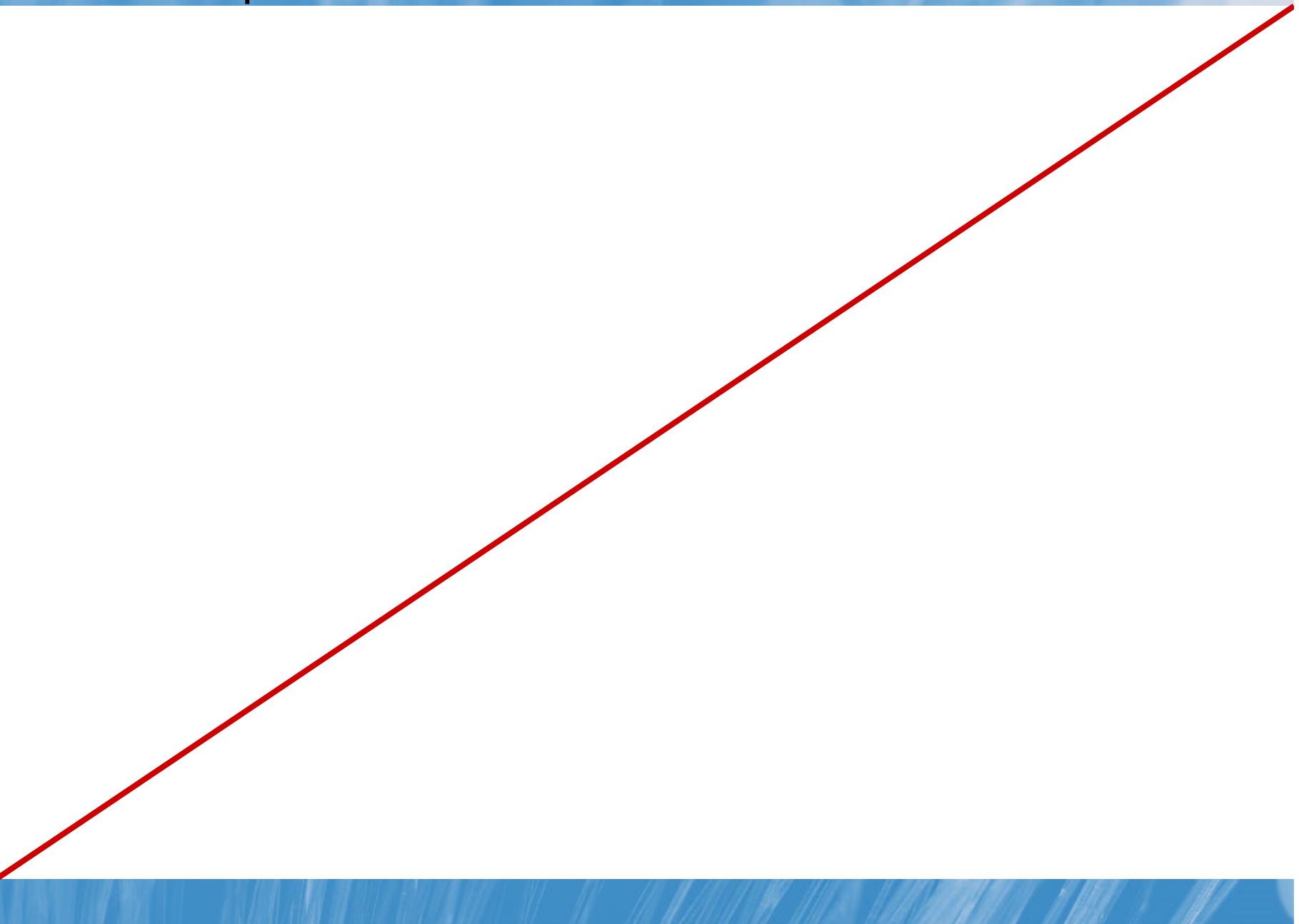
- Incompatible drivers
- Missing or corrupted startup-configuration settings
- Corrupted disk metadata

After the Startup Repair tool repairs the operating system, Windows 7:

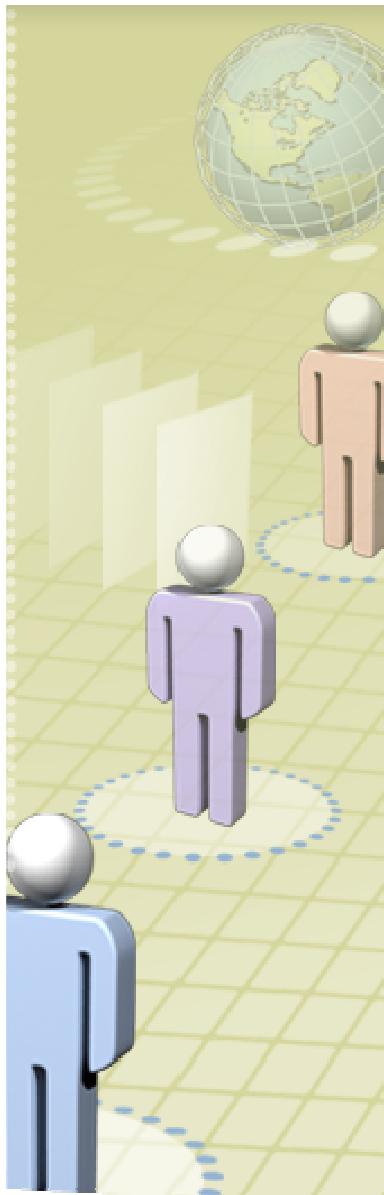
- Notifies you of the repairs
- Provides a detailed log of the steps performed by the tool



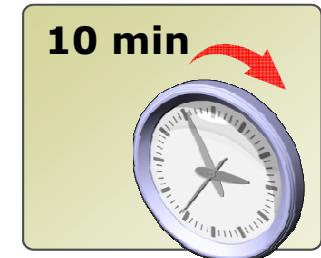
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# Demonstration: Resolving Startup Related Problems



In this demonstration, you will see how to resolve startup related problems.

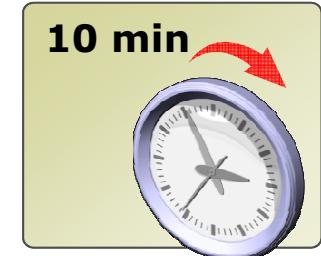


## Lesson 3: Backing Up and Restoring Data by Using Windows Backup

- Discussion: Need for Backing Up data
- Backup and Restore Tool
- Demonstration: Performing a Backup
- Demonstration: Restoring Data

## Discussion: Need for Backing Up Data

- 1. Why do you need to back up data?**
- 2. How can you restore data that is lost?**



# Backup and Restore Tool

## Create a backup

Make copies of data files

## Restore a backup

Restore a backup of lost, damaged, or changed data files

## Create a system image

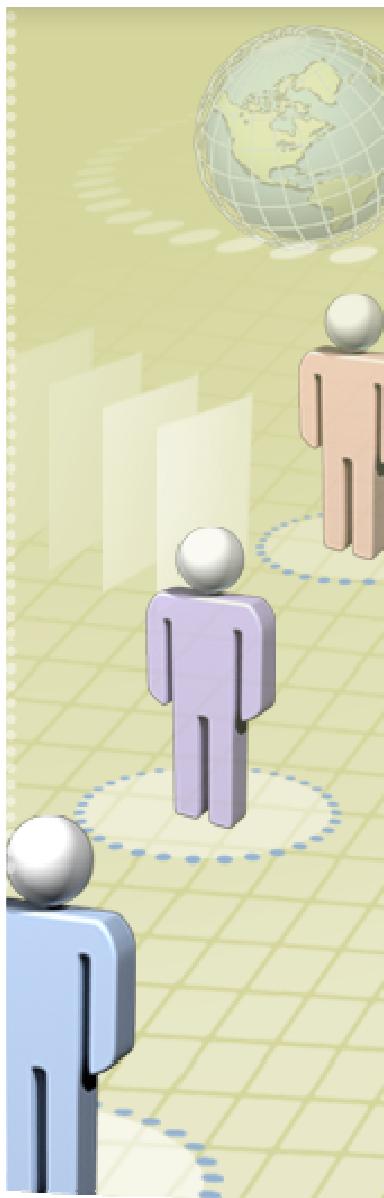
A copy of all drives required for Windows to run

## Create a system repair disc

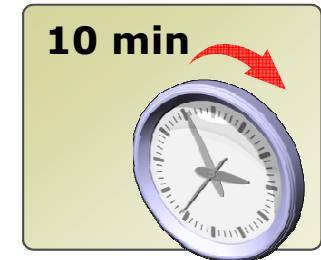
A backup of the System Image when restoring the entire computer

Access the Backup and Restore Tool from the Control Panel > System and Security > Backup and Restore

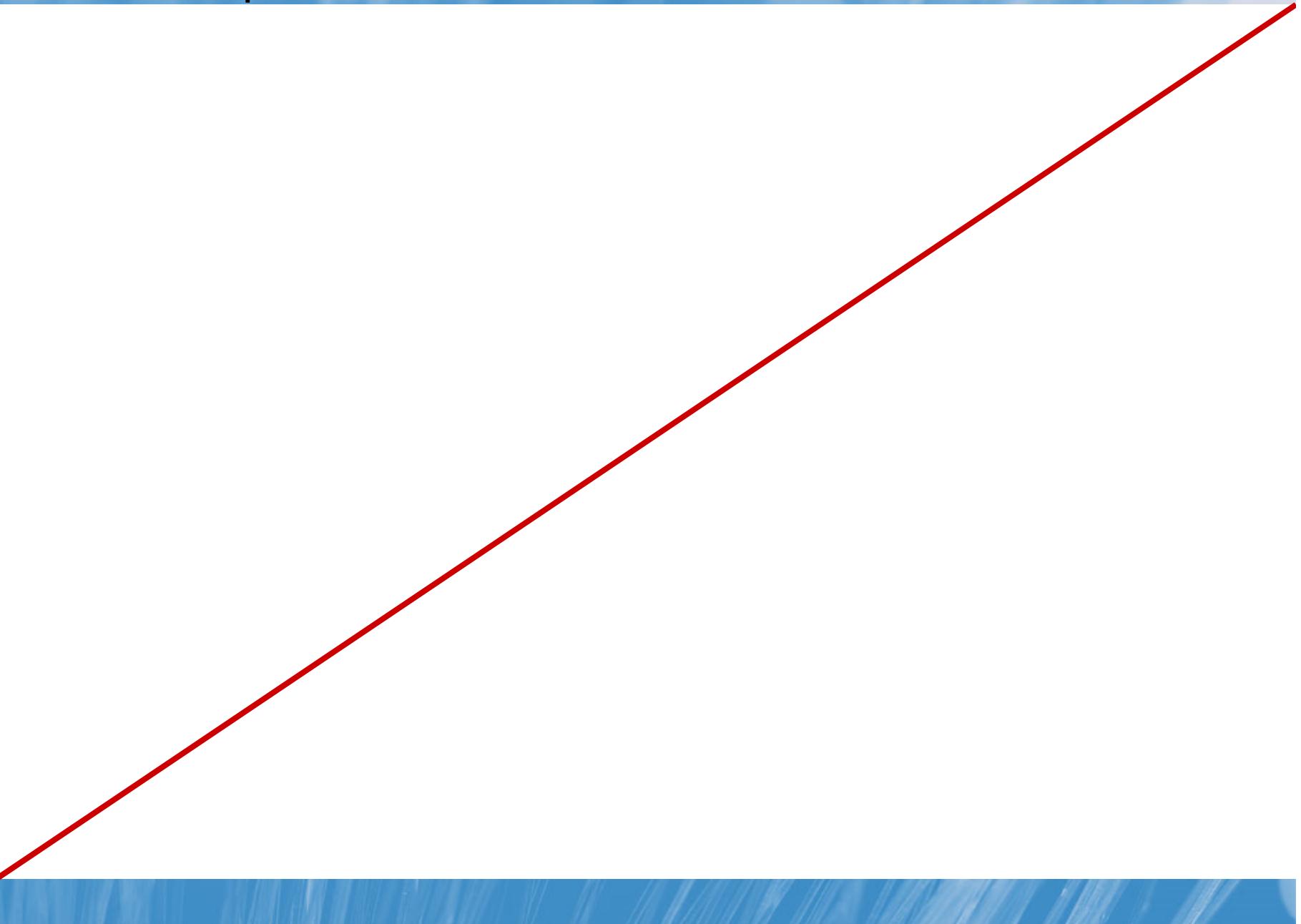
## Demonstration: Perform a Backup



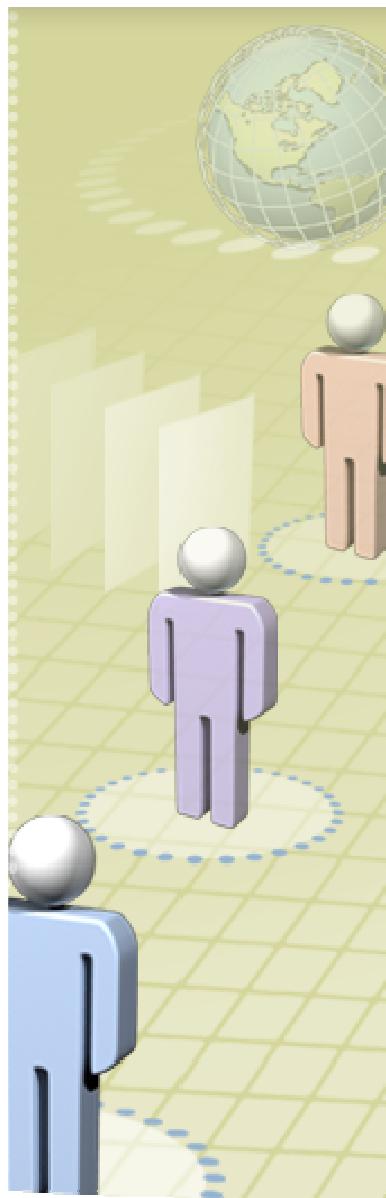
In this demonstration, you will see how to perform a backup.



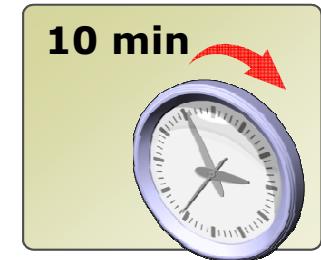
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## Demonstration: Restoring Data



In this demonstration, you will see how to restore data from a backup.



## Lesson 4: Restoring a Windows 7 System by Using System Restore Points

- How System Restore Works
- What Are Previous Versions of Files?
- Configuring System Protection Settings
- Demonstration: Restoring a System

# How System Restore Works

**A Windows 7 feature that helps restore your computer's system files to an earlier version**

## **System Restore Points:**

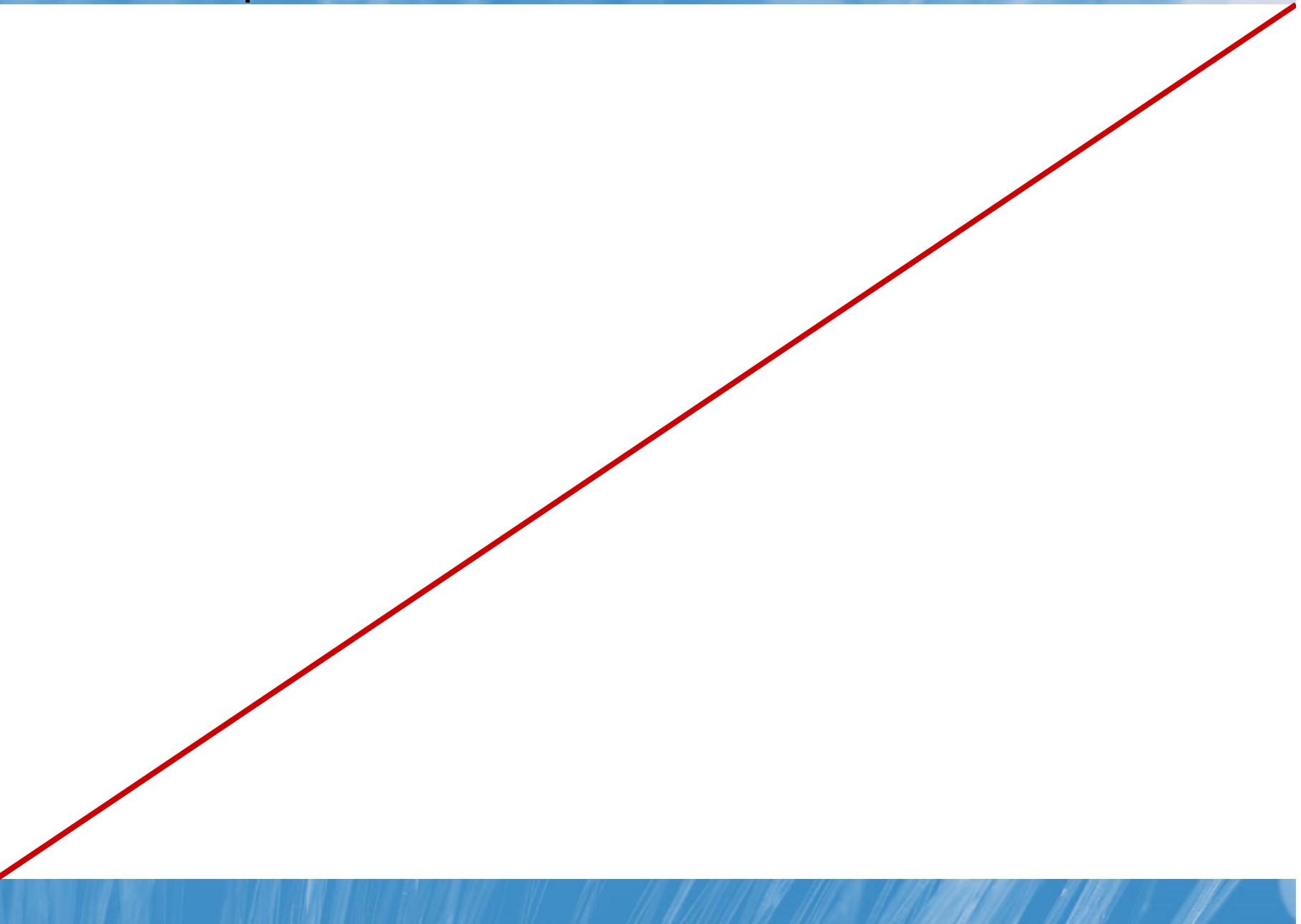
- Restores system files back to the version captured at the prior system restore point
- Restores system changes without affecting any personal files

## **System Restore backs up the following components:**

- Registry
- Dllcache folder
- User profile
- COM+ and WMI information
- IIS metabase
- Certain monitored system files

Access the System Restore Tool from the Control Panel > All Control Panel Items > Recovery

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# What Are Previous Versions of Files?

## Recovers data files to an earlier version

### Previous versions are either:

- Copies of files and folders created by Windows Backup
- Copies of files and folders that Windows automatically saves as part of a restore point

### Shadow Copy is created:

- When a restore point is taken
- On a scheduled basis
- When files change

### Restore files and folders that are:

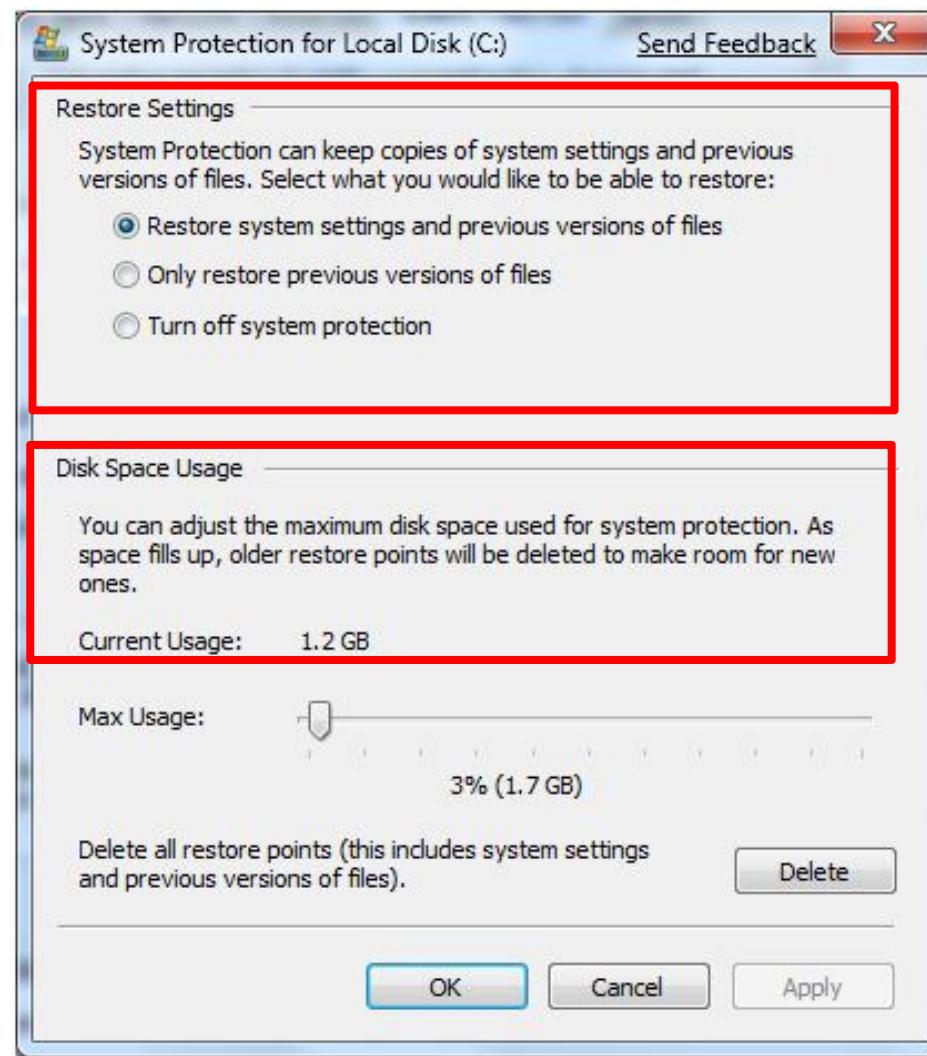
- Accidentally modified
- Accidentally deleted
- Damaged

### Shadow Copy provides files for:

- System Consistency
- Application Consistency

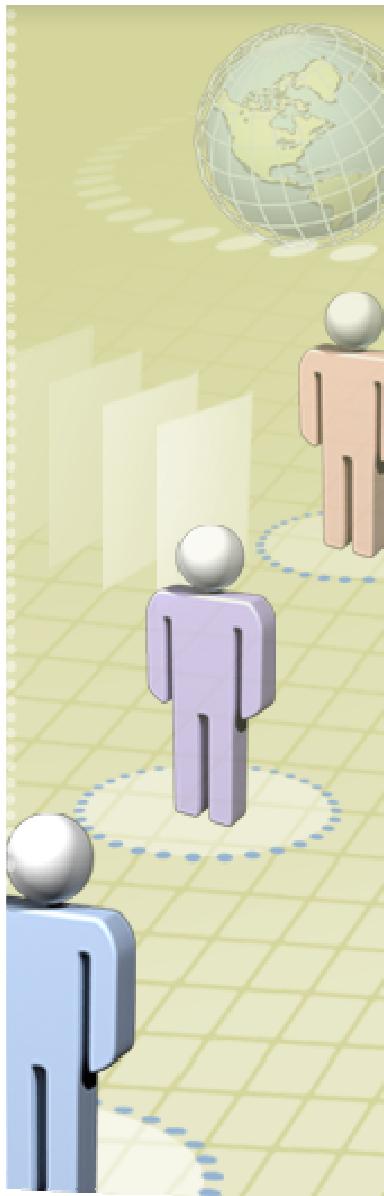
Access Previous versions of files by clicking Control Panel > System and Security > System Properties > System Restore

# Configuring System Protection Settings

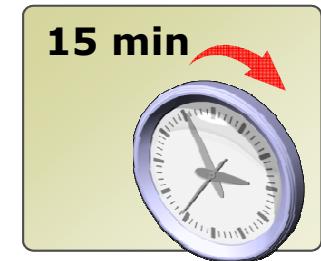


Access System Protection Settings by clicking Control Panel > System and Security > System > System Protection > System Protection tab > Configure

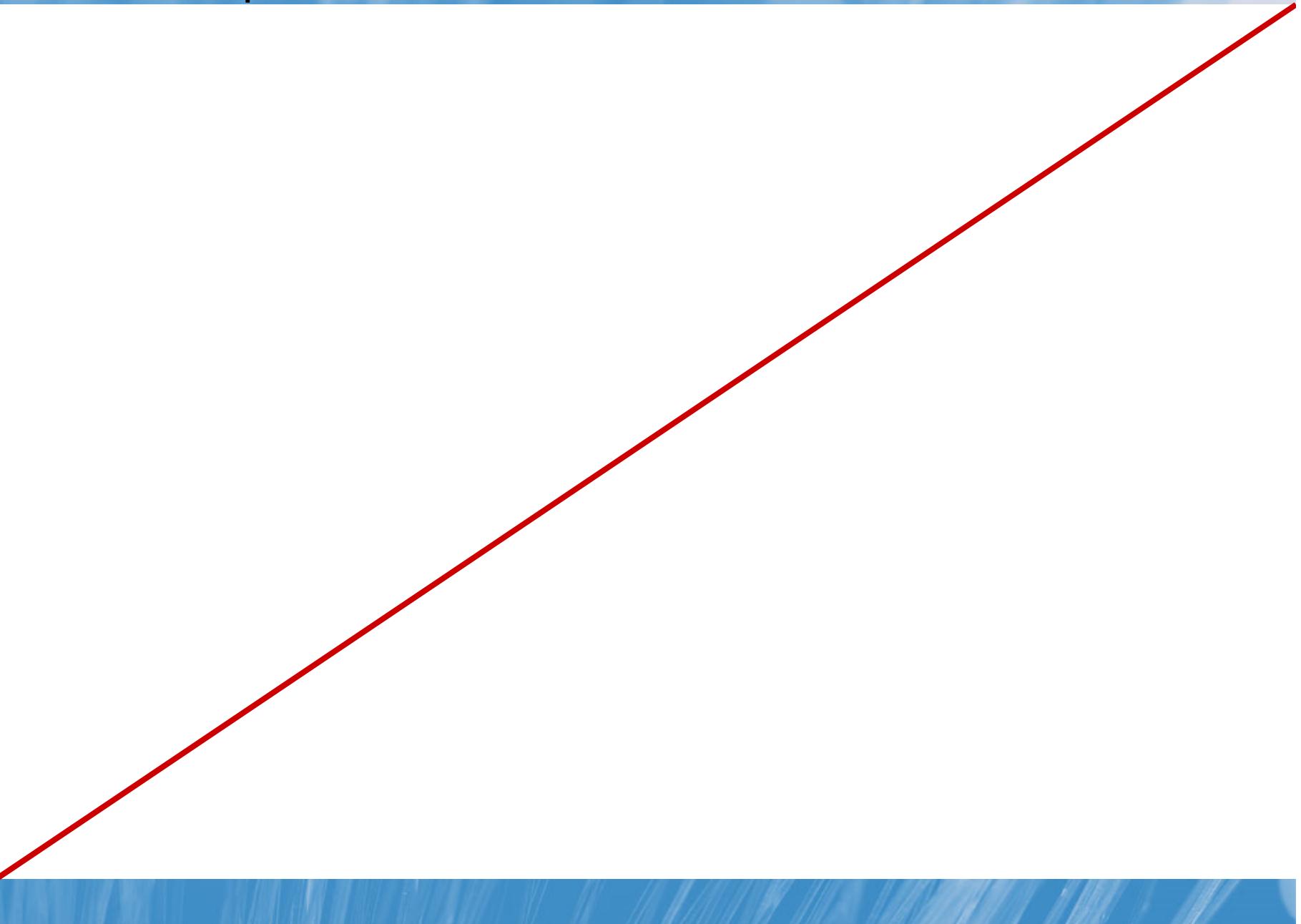
## Demonstration: Restoring a System



In this demonstration, you will see how to restore a system by using a restore point.



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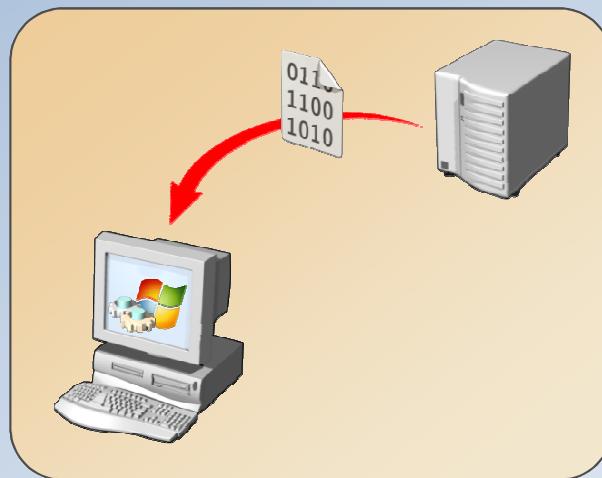
## Lesson 5: Configuring Windows Update

- What Is Windows Update?
- Configuring Windows Update Settings
- Windows Update Group Policy Settings

# What Is Windows Update?

**Windows Update is a service that automatically installs updates for Windows**

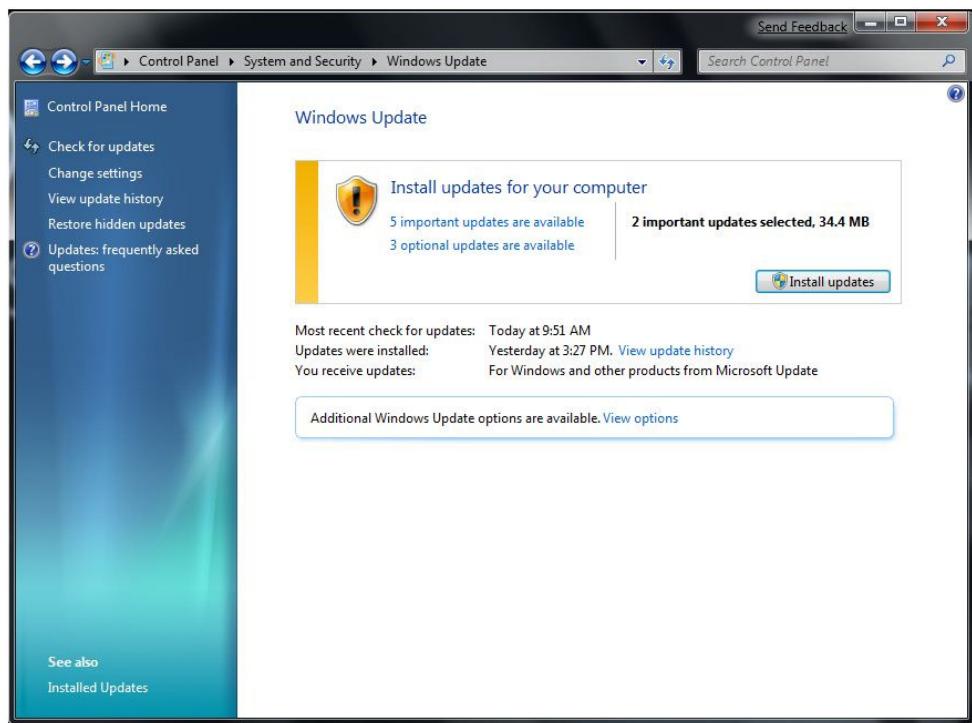
- Improve security and reliability
- Improve how the computer works
- Help enhance computing experience



# Configuring Windows Update Settings

## Windows Update

Lists important and optional updates



## Windows Update Options:

### Change Settings:

Allows you to configure the way you install the updates

### View Update History:

Allows you to view a list of all previous updates

### Restore Hidden Updates:

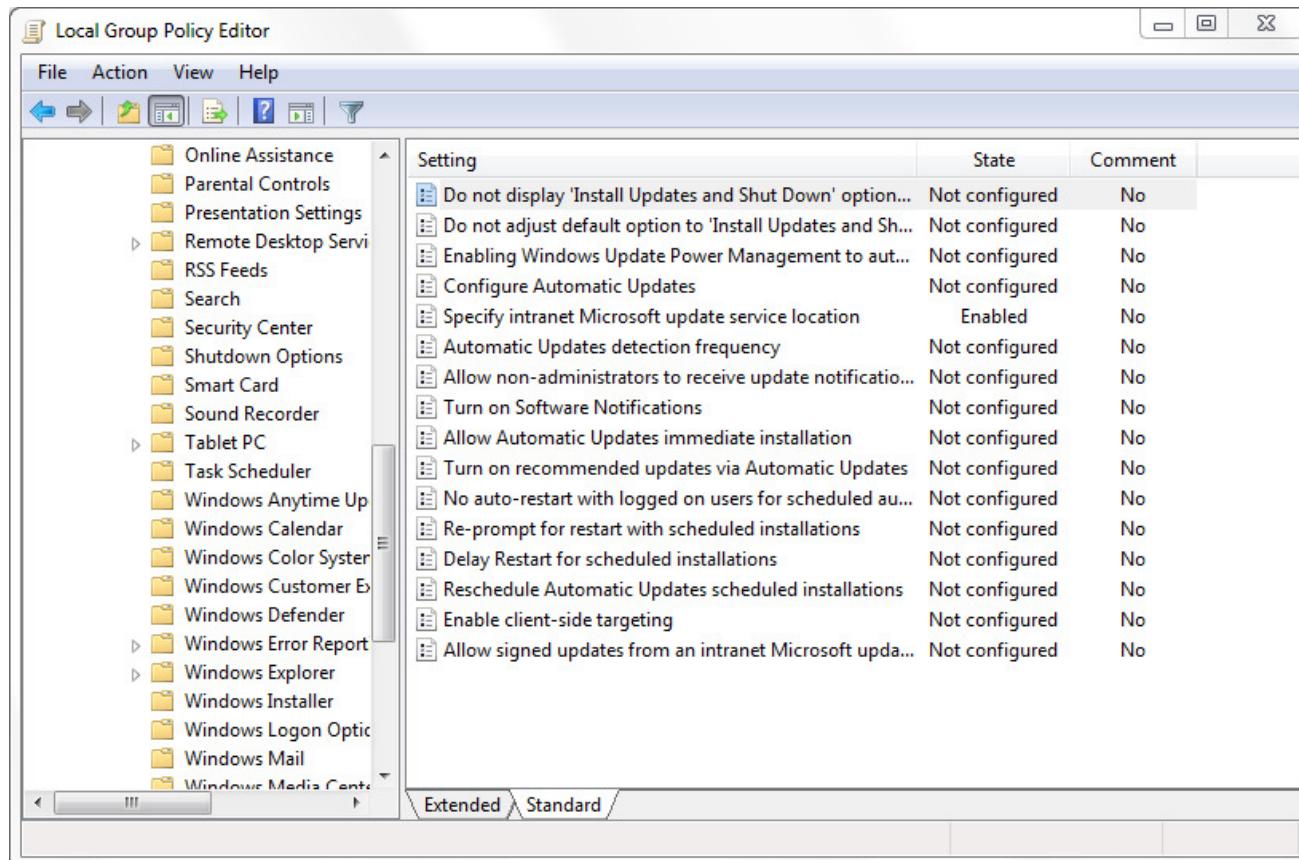
Allows you to reinstall an update

Access Windows Update by clicking Control Panel > System and Security > Windows Update



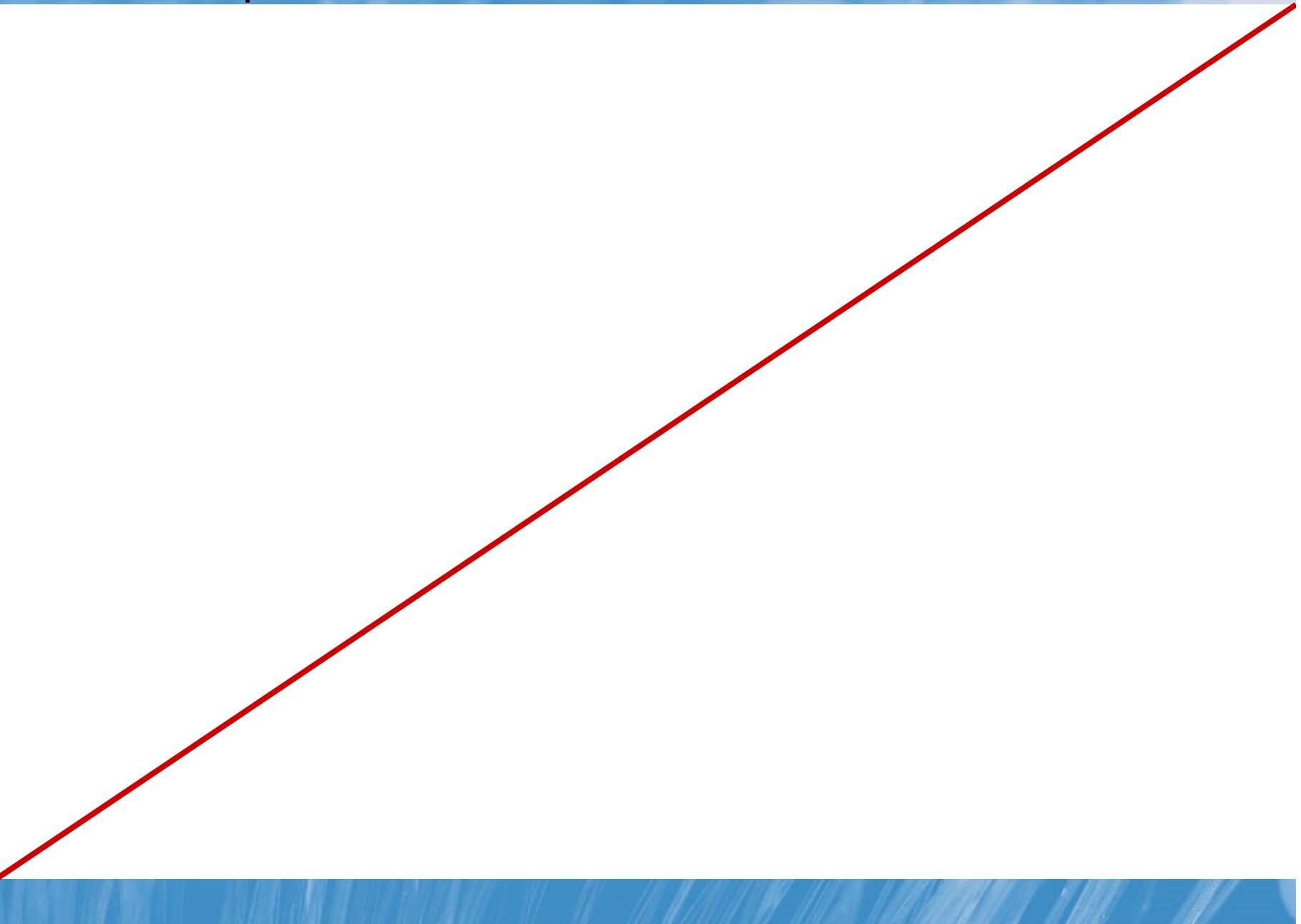
# Windows Update Group Policy Settings

**Windows Update Group Policy is an administrative tool for managing user settings and computer settings across a network**



Access Group Policy Settings by clicking Control Panel > System and Security > Administrative Tools > Edit Group Policy

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## Module Review and Takeaways

- Review Questions
- Tools