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10747A

**Administering System Center 2012  
Configuration Manager**

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# Module 1

## Overview of System Center 2012 Configuration Manager

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## Lesson 1

# Introduction to System Center 2012 Configuration Manager

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# Question and Answers

## Overview of the System Center 2012 Family of Products

**Question:** Which of the System Center 2012 products, including the previous versions, are you using in your organization?

**Answer:** Answers will vary, and may include Configuration Manager 2012 and Operations Manager, which many organizations have deployed. Answers may also include Data Protection Manager and Virtual Machine Manager, which have been adopted by an increasingly large number of organizations.

## Overview of Configuration Manager 2012

**Question:** Summarize the functionality of Configuration Manager 2012.

**Answer:** Configuration Manager 2012 provides asset management, automated deployment, compliance management and protection for the managed clients. It also provides integrated reporting and monitoring.

## Discussion: Deploying Configuration Manager in Your Organization

**Question:** What process are you currently using for Asset Management?

**Answer:** Answers will vary; possible answers range from using a spreadsheet to earlier versions of Configuration manager.

**Question:** What process are you currently using for Application Management?

**Answer:** Answers will vary; possible answers range from manual installations to earlier versions of Configuration manager.

**Question:** What process are you currently using to ensure system configuration compliance and license compliance?

**Answer:** Answers will vary; possible answers range from using a spreadsheet to earlier versions of Configuration manager.

**Question:** What process are you currently using to manage software updates?

**Answer:** Answers will vary; possible answers range from using automatic updates to using WSUS or earlier versions of Configuration manager.

**Question:** What process are you currently using to deploy or upgrade operating systems?

**Answer:** Answers will vary; possible answers range from manually deploying, using third party products, or earlier versions of Configuration manager.

## Additional Reading

### Overview of the System Center 2012 Family of Products

- [Microsoft System Center](#)
- [Microsoft Operations Framework 4.0](#)
- [Microsoft System Center Advisor](#)

### Overview of Configuration Manager 2012

- [Configuration Manager](#)

### Benefits of Implementing System Center 2012 Configuration Manager in an Organization

- [Microsoft System Center Configuration Manager 2012](#)

## Lesson 2

# Overview of System Center 2012 Configuration Manager Architecture

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# Question and Answers

## Overview of the Configuration Manager 2012 Hierarchy

**Question:** What factors do you think will affect the design of your hierarchy? If your hierarchy has already been planned, what factors were used to determine the plan?

**Answer:** Answers will vary but should include the number of locations, the number of client systems to be managed, the reliability and availability of bandwidth between locations.

## What Is a Central Administration Site?

**Question:** How many central administration sites can you have in your hierarchy?

**Answer:** A hierarchy can have only one central administration site.

## What Is a Primary Site?

**Question:** How many primary site servers have you deployed or anticipate deploying?

**Answer:** Answers will vary.

## What Is a Secondary Site?

**Question:** How many secondary sites can you place beneath a single primary site?

**Answer:** You can place more than one secondary site under a primary site up to the limit of a max of 250 secondary sites per primary.

## Configuration Manager Site System Roles

**Question:** Can you place just a distribution point in remote site that is connected to the primary site with a low-bandwidth connection?

**Answer:** Yes, most communications between a client and its primary site are small. Package delivery to a distribution point can be controlled.

## Additional Reading

### Overview of the Configuration Manager 2012 Hierarchy

- [Planning for Sites and Hierarchies in Configuration Manager 2012](#)

### What Is a Central Administration Site?

- [Planning for Sites and Hierarchies in Configuration Manager 2012](#)

### What Is a Primary Site?

- [Planning for Sites and Hierarchies in Configuration Manager 2012](#)

### What Is a Secondary Site?

- [Planning for Sites and Hierarchies in Configuration Manager 2012](#)

### Configuration Manager Site System Roles

- [Planning for Site Systems in Configuration Manager 2012](#)

### How Data Flows and Replicates in a Hierarchy

- [Planning for Communications in Configuration Manager 2012](#)
- [Technical Reference for Site Communications in Configuration Manager 2012](#)

## Lesson 3

# Overview of the Configuration Manager Console

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## Additional Reading

### The Configuration Manager Console Panes

- [SCCM2012 Console GUI Overview](#).

## Lesson 4

# Tools for Monitoring and Troubleshooting a Configuration Manager Site

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## Question and Answers

### Monitoring Site and Component Status

**Question:** Which is the first place you would look for help with resolution if you experience an issue with Configuration Manager?

**Answer:** Status Messages can provide a great deal of information for troubleshooting problems.

### Demonstration: Modifying Status Summarizers and Status Filter Rules

**Question:** When would you want to modify the Status Summarizers?

**Answer:** Answers will vary.

**Question:** When would you want to create a Status Filter Rule?

**Answer:** Answers will vary.

### Overview of Status Message Queries

**Question:** What custom status message queries would you want to create in your work environment?

**Answer:** Answers will vary.

### Viewing Log files with the Configuration Manager Trace Log Tool

**Question:** Can you use the Configuration Manager Trace Log tool to view log files from other products?

**Answer:** Yes. Configuration Manager Trace Log tool will open any text-based log files and allows you to examine them.

# Detailed Demonstration Steps

## Demonstration: Modifying Status Summarizers and Status Filter Rules

### Detailed demonstration steps

#### Demonstration Steps

**Note** Virtual machines 10747A-NYC-DC1-A and 10747A-NYC-CFG-A are required to complete this demonstration. Log on to the virtual machines as **Contoso\Administrator** with the password **Pa\$\$w0rd**.

#### Modify a System Status Summarizer

1. Log on to **NYC-CFG** as **Contoso\Administrator** with a password of **Pa\$\$w0rd**.
2. Click **Start**, click **All Programs**, click **Microsoft System Center 2012**, click **Configuration Manager** and then click **Configuration Manager Console**.
3. Click the **Administration** workspace and then expand the **Site Configuration** folder.
4. Click the **Sites** node.
5. In the **Results** pane, right click **S01 – Contoso New York Site**, and then click **Status Summarizers** to display the **Status Summarizers** dialog box.
6. Click **Component Status Summarizer** and then click **Edit**.
7. Review the **General** tab and then click the **Thresholds** tab.
8. Click the **Message Type** dropdown arrow. Note that you can configure thresholds for each type of message individually. Click **Error status messages**.
9. Scroll through the list of components. Note that you can set the Warning or Critical thresholds based on the number of messages created but not the content of the messages, and double click **SMS\_AD\_SYSTEM\_DISCOVERY\_AGENT**.
10. Change the Status Threshold for Warning to **2**.
11. Click **OK**. Note the change in the display.
12. Click **OK** in all dialog boxes to close them.

#### Modify a Status Filter Rule

13. In the **Results** pane, right click **S01 – Contoso New York Site**, and then click **Status Filter Rules** to display the **Status Filter Rules** dialog box.
14. Review the **Status Filter Rules** dialog box.
15. Double-click **Write audit messages to the site database and specify the period...**
16. Review the **General tab** and then click the **Actions** tab.
17. Review the **Actions** tab and then change the **Allow the user to delete messages after how many days:** value to **190**.
18. Click **OK** in all dialog boxes to close them.

## Demonstration: Using Reports to View Site Information

### Detailed demonstration steps

**Note** Virtual machines 10747A-NYC-DC1-A and 10747A-NYC-CFG-A are required to complete this demonstration. Log on to the virtual machines as **Contoso\Administrator** with the password **Pa\$\$w0rd**.

#### View a report in the Configuration Manager console

1. Log on to **NYC-CFG** as **Contoso\Administrator** with a password of **Pa\$\$w0rd**.
2. Click **Start**, and then click **All Programs**, click **Microsoft System Center 2012**, click **Configuration Manager** and then click **Configuration Manager Console**.
3. Click the **Monitoring** workspace and then expand the **Reporting** folder.
4. Expand the **Reports** node, and then click the **Administrative Security** folder.
5. In the **Results** pane, right click **Security roles summary** and then click **Run** to display the **Security roles summary** report.
6. Review the report, and then close the **Security roles summary** report.

#### View a report in the web browser

1. Click **Start**, and then click **All Programs**, and then click **Internet Explorer**.
2. In the Internet Explorer address bar type <http://nyc-cfg/reports> and then press Enter.
3. On the **SQL Server Reporting Services Home** page, click **ConfigMgr\_S01**.
4. On the **SQL Server Reporting Services Home > ConfigMgr\_S01** page, click **Administrative Security**.
5. On the **SQL Server Reporting Services Home > Administrative Security** page, click the **Administrative users security assignments** report.
6. Review the report and then close Internet Explorer.

## Additional Reading

### Monitoring Site and Component Status

- [Configure the Status System for Configuration Manager 2012](#)

### Managing Components by Using Configuration Manager Service Manager

- [Using Configuration Manager Service Manager](#)

### What Are Configuration Manager Log Files?

- [List of Log Files in Configuration Manager 2007](#)

# Module Reviews and Takeaways

## Review questions

**Question:** What System Center product would you use for alerts when a service stops working on a critical server?

**Answer:** You can use System Center Operations Manager for monitoring devices and services.

**Question** When would you use a secondary site?

**Answer:** Answers will vary. One possible answer is: that you would use a secondary site for a remote location with low bandwidth.

**Question** In which workspace can you find the controls for adding a site system role to a site server?

**Answer:** You can find the controls for adding a site system role to a site server in the Administration Workspace, Site Configuration folder, "Servers and Site Systems" node.

**Question** Which tool would you use to determine whether a deployment was completed successfully to all targets successfully?

**Answer:** Answers will vary. One possible answer is: Status Message Queries.

**Question** What is the difference between status messages and log files?

**Answer:** Status messages are milestones that record significant events during a particular process, whereas log files continuously record detailed events throughout the time a process runs.

## Tools

Tool	Use to	Where to find it
Configuration Manager Trace Log Tool	Viewing log files	<Installation Media>\TOOLS

## Lab Review Questions and Answers

### Lab A: Exploring the Configuration Manager Console

**Question:** Where would you find the node for managing Collections?

**Answer:** Collections are contained in the "Assets and Compliance" workspace.

**Question:** When would you use a local search?

**Answer:** Answers will vary; one possible answer is: to find a single or related group of devices inside a collection.

**Question:** What is the benefit of saving a search?

**Answer:** Answers will vary; one possible answer is: When you conduct a complex search, the results of which you intend to use frequently. In such cases, you do not have to recreate the search each time.

### Lab B: Monitoring and Troubleshooting a Configuration Manager Site

**Question:** What is the difference between Site Status Messages and Component Status Messages?

**Answer:** Site Status Messages include all the status messages related to a particular role, which would include the status messages from all the components involved. Component Status Messages contain only the status messages for that component.

**Question:** When would you modify the Status Summarizers?

**Answer:** Answers will vary; one possible answer is: if you feel that the status of a component is changing too frequently.

**Question:** Why were some of the components in a stopped state?

**Answer:** Some components, such as the site backup, run only when they have work to perform.

**Question:** Why were there so many more entries between the milestones in the log file and the same milestones in the status messages?

**Answer:** Status messages are generated only for significant events, such as milestones and errors, while the log files record every event including the milestones and errors.

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*Companion Content*

# Module 2

## Discovering and Organizing Resources

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## Lesson 1

# Configuring Resource Discovery

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# Question and Answers

## Overview of Discovery Methods

**Question:** Which discovery method do you think would work best in your environment and why?

**Answer:** Answers will vary but should include at least Active Directory Forest Discovery and Active Directory System Discovery. At the end of this course, students will also understand the importance of Active Directory User Discovery as it relates to application deployment.

## Demonstration: Configuring Active Directory Discovery Methods

**Question:** How did TOR-CL1 come to be discovered?

**Answer:** TOR-CL1 was discovered by using the SMS\_AD\_SYSTEM\_DISCOVERY\_AGENT.

**Question:** What is the purpose of the Recursively search Active Directory child containers and Discover Active Directory objects within groups search options?

**Answer:** You can use the Recursively search Active Directory child containers option to enable the discovery method to search the child containers of a specific Active Directory container. You can use the Discover Active Directory objects within groups option to enable the discovery method for including or excluding objects within groups in its search of a specific Active Directory container.

## What Is Heartbeat Discovery?

**Question:** Why should you not disable Heartbeat Discovery?

**Answer:** Heartbeat Discovery ensures that resource records do not get aged out of the Configuration Manager database accidentally.

**Question:** How is Heartbeat Discovery different from all other discovery methods?

**Answer:** Heartbeat Discovery is enabled by default and does not create new DDRs. You use it to ensure that resources are not accidentally deleted from the site database.

# Detailed Demonstration Steps

## Demonstration: Configuring Active Directory Discovery Methods

### Detailed demonstration steps

Virtual machines 10747A-NYC-DC1-A and 10747A-NYC-CFG-A are required to complete this demonstration. Log on to the virtual machines as **Contoso\Administrator** with the password **Pa\$\$w0rd**.

#### Configure and run Active Directory Forest Discovery

1. On NYC-CFG, in the System Center 2012 Configuration Manager console, click the **Administration** workspace, and then expand **Hierarchy Configuration**.
2. Click the **Discovery Methods** node, and then double-click **Active Directory Forest Discovery**.
3. In the **Active Directory Forest Discovery Properties** dialog box, select the **Enable Active Directory Forest Discovery** check box.
4. Select the **Automatically create Active Directory site boundaries when they are discovered** check box. Notice that you can also have the discovery process automatically create IP address range boundaries if the option is selected.
5. Verify that the Schedule is configured to run every week, and then click **OK**.
6. At the Configuration Manager message box, to run full discovery as soon as possible, click **Yes**.
7. In the **Administration** workspace, expand **Hierarchy Configuration**, and then click the **Active Directory Forests** node.
8. In the results pane, right-click **Contoso.com** and then click **Properties**.
9. Verify that the **Discover sites and subnets in the Active Directory forest** check box is selected.
10. Click the **Publishing** tab, and then under **Select the sites that will be published to this forest**, verify that **S01-Contoso New York Site** is selected. Click **OK**.

#### Examine the discovered forest resources

1. In the **Administration** workspace, expand **Hierarchy Configuration**, and then click the **Active Directory Forests** node.
2. In the preview pane, click the **Domains** tab. Notice that there is only one domain discovered.
3. In the preview pane, click the **Discovery Status** tab, and then click the **Publishing Status** tab. Notice that both discovery and publishing status has succeeded.
4. In the results pane, right-click **Contoso.com** and then click **Show Active Directory Sites**. Notice that two sites are discovered: the **ContosoHQ** site and the **Toronto** site.
5. In the navigation pane, click the **Active Directory Forests** node.
6. Right-click **Contoso.com** and then click **Show IP Subnets**. Notice that two IP subnets are discovered.

#### Configure and run Active Directory System Discovery

1. On NYC-CFG, in the System Center 2012 Configuration Manager console, click the **Administration** workspace, and then expand **Hierarchy Configuration**.

2. Click the **Discovery Methods** node, and then double-click **Active Directory System Discovery**.
3. In the **Active Directory System Discovery Properties** dialog box, verify that the **Enable Active Directory System Discovery** check box is selected.
4. Click the New ( ) button. Note the available options.
5. Click **Browse**.
6. In the **Select New Container** dialog box, click the **Toronto Clients** container, and then click **OK**.
7. Verify that the **Recursively search Active Directory child containers** check box is selected, and then click **OK**. Note that if you have objects in child OUs that you do not want to discover, you would not want to enable this option.
8. On the **Polling Schedule** tab, click **Schedule**, configure the recurrence to take place every **5 days**, and then click **OK**.
9. Verify that the **Enable delta discovery check box** is selected with an interval of 5 minutes.
10. On the **Active Directory Attributes** tab, verify the Active Directory Attributes that will be discovered by default.
11. On the **Option** tab, take note of the options used to discover computers based upon time since last logged on and time since last password update has taken place. Click **OK**.
12. Right-click **Active Directory System Discovery** and then click **Run Full Discovery Now**.
13. At the Configuration Manager message box, to run full discovery as soon as possible, click **Yes**.

#### **Configure and run Active Directory User Discovery**

1. On NYC-CFG, in the System Center 2012 Configuration Manager console, click the **Administration** workspace, and then expand **Hierarchy Configuration**.
2. Click the **Discovery Methods** node, and then double-click **Active Directory User Discovery**.
3. In the **Active Directory User Discovery Properties** dialog box, verify that the **Enable Active Directory User Discovery** check box has been selected.
4. Click the New ( ) button. Note the available options.
5. Click **Browse**.
6. In the **Select New Container** dialog box, click the **Contoso** container, and then click **OK**.
7. Verify that the **Recursively search Active Directory child containers check box** is selected, and then click **OK**.
8. On the **Polling Schedule** tab, click **Schedule**, configure the recurrence to take place every three days, and then click **OK**.
9. Verify that the **Enable delta discovery check box** is selected with an interval of 5 minutes.
10. On the **Active Directory Attributes** tab, note the default attributes that are discovered by default, and then click **OK**.
11. With **Active Directory User Discovery** selected, on the ribbon, click **Run Full Discovery Now**.
12. At the Configuration Manager message box, to run full discovery as soon as possible, click **Yes**.

**Examine the discovered system and user resources**

1. Click the **Assets and Compliance** workspace.
2. In the **Assets and Compliance** workspace, click the **Devices** node. Notice that several devices are listed. The TOR-CL1 device is from the Toronto Clients OU.
3. In the results pane, right-click **TOR-CL1** and then click **Properties**. Notice that the client was discovered by using the SMS\_AD\_SYSTEM\_DISCOVERY\_AGENT.
4. Click **Close**.
5. In the **Assets and Compliance** workspace, click the **Users** node. Notice the users that have been discovered in the Contoso domain.

## Additional Reading

### What Is Resource Discovery?

- [Planning for Discovery in Configuration Manager](#)

## Lesson 2

# Configuring Boundaries and Boundary Groups

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## Question and Answers

### Demonstration: Configuring a Boundary and a Boundary Group

**Question:** When the virtual private network (VPN) boundary group was configured, why was the Site assignment option not selected?

**Answer:** The Site assignment option was not selected because the VPN boundary is used for site assignment. Use this boundary only to specify which distribution point to use when connecting over the VPN.



# Detailed Demonstration Steps

## Demonstration: Configuring a Boundary and a Boundary Group

### Detailed demonstration steps

Virtual machines 10747A-NYC-DC1-A and 10747A-NYC-CFG-A are required to complete this demonstration. Log on to the virtual machines as **Contoso\Administrator** with the password **Pa\$\$w0rd**.

#### Configure a boundary

1. On NYC-CFG, open the System Center 2012 Configuration Manager console, click the **Administration** workspace, and then expand **Hierarchy Configuration**.
2. Click the **Boundaries** node. Notice the two boundaries that are automatically created using Active Directory Forest Discovery.
3. To manually create a boundary, right-click the **Boundaries** node and then click **Create Boundary**.
4. In the **Create Boundary** dialog box, in the **Description** box, type **VPN boundary**
5. In the **Type** list, click the drop down menu. Notice the four boundary types in the **Type** list.
6. Select **IP subnet**, fill in the following information, and then click **OK**:
  - Network: **10.10.3.0**
  - Subnet mask: **255.255.255.0**

#### Configure a boundary group

1. In the **Administration** workspace, click the **Boundary Groups** node. Notice the New York boundary group in the results pane. This is configured for the labs in this course.
2. Right-click **New York** and then click **Properties**. Notice that the **ContosoHQ** boundary is a member of this group.
3. Click the **References** tab, and notice that this boundary group is used for site assignment for all clients that are part of the ContosoHQ boundary. NYC-CFG is also configured to provide content location services for all boundary members.
4. Click **OK** to close the **New York Properties** dialog box.
5. Right-click **Boundary Groups** and then click **Create Boundary Group**.
6. Fill in the following information, and then click **OK**:
  - Name: VPN Boundary Group
  - Boundaries: 10.10.3.0
  - Use this boundary group for site assignment: Not selected
  - Site system servers: NYC-CFG (Fast Connection)

## Additional Reading

### Overview of Client Assignment

- [How to Assign Client Computers to a Site in Configuration Manager](#)

### What Is a Boundary Group?

- [Planning for Boundaries and Boundary Groups in Configuration Manager](#)

## Lesson 3

# Configuring User and Device Collections

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## Question and Answers

### Demonstration: Creating Collections

**Question:** How can you ensure that new collection members are enumerated as quickly as possible?

**Answer:** You should enable the **Update this collection incrementally (recommended)** check box. This will enumerate new or changed collection members within 10 minutes.

### Applying Maintenance Windows to Collections

**Question:** If a computer is a member of multiple collections with different maintenance windows, which maintenance window applies?

**Answer:** All maintenance windows will apply.

**Question:** If a computer's next hardware inventory cycle is scheduled to occur at 1:00 P.M. today, and if the computer's next maintenance window is configured to occur from 2:00 A.M. to 7:00 A.M. tomorrow, then when will the hardware inventory cycle occur?

**Answer:** The hardware inventory cycle will occur at 1:00 P.M. today. If the computer is not turned on at 1:00 P.M., the hardware inventory cycle will run the next time the computer is started. Maintenance windows have no effect on inventory cycles.

# Detailed Demonstration Steps

## Demonstration: Creating Collections

### Detailed demonstration steps

Virtual machines 10747A-NYC-DC1-A and 10747A-NYC-CFG-A are required to complete this demonstration. Log on to the virtual machines as **Contoso\Administrator** with the password **Pa\$\$w0rd**.

#### Create a collection by using a direct rule

1. On NYC-CFG, open the System Center 2012 Configuration Manager console, click the **Assets and Compliance** workspace, and then click **Devices**.
2. In the results pane, select **NYC-CL1**, hold down the Ctrl key, and then select **NYC-CL2**.
3. Right-click one of the highlighted devices, point to **Add Selected Items**, and then click **Add Selected Items to New Device Collection**. The **Create Device Collection Wizard** appears.
4. On the **General** page, fill in the following information, and then click **Next**:
  - Name: New York Test Collection
  - Limiting collection: All Systems
5. On the **Membership Rules** page, click **Next**.
6. On the **Summary** page, click **Next**, and then click **Close**.
7. In the navigation pane, click **Device Collections**.
8. Double-click **New York Test Collection**. Verify that the two resources, **NYC-CL1** and **NYC-CL2**, are listed as members of **New York Test Collection**.

#### Create a query-based collection

1. In the **Assets and Compliance** workspace, right-click the **Device Collections** node and then click **Create Device Collection**. The **Create Device Collection Wizard** appears.
2. On the **General** page, fill in the following information, and then click **Next**:
  - Name: Windows Servers
  - Limiting collection: All Systems
3. On the **Membership Rules** page, click **Add Rule**, and then click **Query Rule**.
4. In the **Query Rule Properties** dialog box, in the **Name** box, type **Windows Servers**
5. Click **Edit Query Statement**. The **Query Statement Properties** dialog box appears.
6. On the **Criteria** tab, click the New ( ) button.
7. In the **Criterion Properties** dialog box, click **Select**.
  1. In the **Select Attribute** dialog box, fill in the following information, and then click **OK**:
    - Attribute class: **System Resource**
    - Alias as: **<No Alias>**
    - Attribute: **Operating System Name and Version**

2. In the **Operator** field, select **is like**.
3. In the Value field, type Microsoft Windows NT Advanced Server%
4. In the **Criterion Properties** dialog box, click **OK**.
5. In the Query Statement Properties dialog box, click OK.
6. In the **Query Rule Properties** dialog box, click **OK**.
7. On the Membership Rules page, click to select the Use incremental updates for this collection check box.
8. On the **Membership Rules** page, ensure that the **Schedule a full update on this collection** check box is selected, and then click **Next**.
9. On the **Summary** page, click **Next**, and then click **Close**.
10. In the navigation pane, click **Device Collections**.
11. Double-click the **Windows Servers** collection. Verify that all discovered servers are listed as members of the **Windows Servers** collection.

## Additional Reading

### Overview of User and Device Collections

- [Collections in Configuration Manager](#)

### Applying Maintenance Windows to Collections

- [About Maintenance Windows](#)

## Lesson 4

# Configuring Role-Based Administration

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## Question and Answers

### Default Security Roles

**Question:** Which security role are you assigned when you first install Configuration Manager?

**Answer:** The user who installs Configuration Manager will be automatically added to the Full Administrator security role.

### The Process for Adding an Administrative User to Configuration Manager

**Question:** When you add an administrative user, which attributes are required?

**Answer:** When you add an administrative user, you need to provide the user or group name, select appropriate roles, and ensure that the user is assigned to at least one security scope.

### Demonstration: Implementing Role-Based Administration

**Question:** How many collections can Ed view?

**Answer:** Ed can view only the New York Test Collection.

# Detailed Demonstration Steps

## Demonstration: Implementing Role-Based Administration

### Detailed demonstration steps

Virtual machines 10747A-NYC-DC1-A and 10747A-NYC-CFG-A are required to complete this demonstration. Log on to the virtual machines as **Contoso\Administrator** with the password **Pa\$\$w0rd**. You must also ensure that all previous demonstrations are completed.

#### View security roles

1. On NYC-CFG, open the System Center 2012 Configuration Manager console, click the **Administration** workspace, expand the **Security** node, and then click **Security Roles**. Notice the 14 default security roles in this page.
2. In the results pane, double-click **Operations Administrator**.
3. In the **Operations Administrator Properties** box, click and view the **General**, **Administrative Users**, and **Permissions** tabs.
4. In the **Operations Administrator Properties** box, click **OK**.

#### Create security scopes

1. In the **Administration** workspace, expand the **Security** node, and then click **Security Scopes**. Notice the built-in security scopes in this page.
2. Right-click **Security Scopes** and then click **Create Security Scope**.
3. In the **Create Security Scope** dialog box, fill in the following information, and then click **OK**:
4. Security scope name: **Desktop Administration Scope**
5. Description: **Scope for Desktop related objects**
6. Right-click **Security Scopes** and then click **Create Security Scope**.
7. In the **Create Security Scope** dialog box, fill in the following information, and then click **OK**:
8. Security scope name: **Server Administration Scope**
9. Description: **Scope for Server related objects**

#### Assign securable objects to security scopes

1. In the System Center 2012 Configuration Manager console, click the **Software Library** workspace, expand the **Application Management** node, and then click **Applications**. Notice that there is an application named XML Notepad listed in the results pane. This will be assigned to the Server Administration Scope.
2. Right-click **XML Notepad** and then click **Set Security Scopes**.
3. In the **Set Security Scopes** dialog box, click to clear the **Default** check box, select the **Server Administration Scope** check box, and then click **OK**.

4. Under the **Application Management** node, click **Packages**. Notice the application package named **Configuration Manager Client Package**. This package will be assigned to the Desktop Administration Scope.
5. Right-click **Configuration Manager Client Package** and then click **Set Security Scopes**.
6. In the **Set Security Scopes** dialog box, click to clear the **Default** check box, select the **Desktop Administration Scope** check box, and then click **OK**.

#### **Add an administrative user**

1. In the System Center 2012 Configuration Manager console, click the **Administration** workspace, expand the **Security** node, and then click **Administrative Users**. Notice that the initial administrative user is the user that installed the Configuration Manager site.
2. Right-click **Administrative Users** and then click **Add User or Group**.
3. In the **Add User or Group** dialog box, fill in the following information, and then click **OK**:
4. User or group name: Browse to **Desktop Admins**
5. Assigned security roles: **Operations Administrator**
6. Security scopes or collections: **Desktop Administration Scope** and the **New York Test Collection**. Remove all other Collections and the Default scope.
7. Close the Configuration Manager console.
8. Start the Configuration Manager console as a different user. To do this, hold down the Shift key, right-click **Configuration Manager Console**, and then click **Run as different user**.
9. At the Windows Security prompt message box, in the **User name** box, type **Ed**, in the **Password** box, type **Pa\$\$w0rd**, and then click **OK**.
10. Browse the Configuration Manager console, and then verify permissions. Ed is a member of the Desktop Admins group and should only be able to see objects assigned to the Desktop Administration scope.
11. Close the Configuration Manager console.

# Module Reviews and Takeaways

## Review questions

**Question:** What is the purpose of the Heartbeat Discovery method?

**Answer:** The Heartbeat Discovery method is a client-side process that you can use to refresh the discovery data for a Configuration Manager client.

**Question:** You change an attribute on an Active Directory user object. You expect that delta discovery should identify the change within five minutes; however, the change is not discovered. What might be the problem?

**Answer:** The attribute that was changed is not a replicated attribute. Delta discovery will only discover replicated Active Directory attribute changes. However, when the full discovery cycle takes place, this change will be discovered.

**Question:** Active Directory System Discovery does not seem to discover several computer resources. You verify that the computer accounts are in Active Directory. What else should you check?

**Answer:** You should verify that the computer accounts are not disabled and that each computer account has a corresponding DNS record that is registered and resolvable on the DNS server.

**Question:** You can use boundary groups to provide two critical services. Which two services do boundary groups provide?

**Answer:** You can use boundary groups for site assignment and content location services.

**Question:** You need to verify all actions performed by Configuration Manager administrators. What can you do?

**Answer:** View the role-based access reports including the Administrative Activity Log.

# Lab Review Questions and Answers

## Lab A: Configuring Resource Discovery and Boundaries

**Question:** You notice that there are no members listed in the All User Groups built-in collection. What should you do?

**Answer:** Verify that you have enabled and run the Active Directory Group Discovery method.

**Question:** Which discovery method will automatically create IP subnet boundaries when they are discovered?

**Answer:** Active Directory Forest Discovery will automatically create IP subnet boundaries when they are discovered.

**Question:** You have created a boundary group and have added several boundaries. However, you notice that clients within the boundaries are not being installed. What should you do?

**Answer:** You have to configure the boundary group to provide site assignment by selecting the Use this boundary group for site assignment check box.

## Lab B: Monitoring and Troubleshooting a Configuration Manager Site

**Question:** You need to create a collection that includes a static list of members. Which rule type would you use?

**Answer:** You need to use the Direct Rule to create a static list of members in a collection.

**Question:** You need to create a collection with workstations that do not have Microsoft Office installed. How can this be accomplished?

**Answer:** You need to create a collection that includes all workstations that have Microsoft Office installed. Then, create a second collection that is based upon All Systems but excludes the collection that contains the workstations with Microsoft Office installed.

**Question:** You need to ensure that applications cannot be installed during working hours. What can you do?

**Answer:** You need to configure a maintenance window to ensure that application installations take place only during a specific time period.

## Lab C: Configuring Role-Based Administration

**Question:** In the Configuration Manager console, list some of the object types that you can associate with a specific security scope?

**Answer:** The object types that you can associate with a specific security scope are:

- Applications
- Packages
- Boot images
- Sites
- Custom client settings

- Distribution points and distribution point groups
- Software update groups

**Question:** You want to provide an administrative user with the permissions to create and deploy applications. Which security role would provide this capability?

**Answer:** The Application Administrator role provides this capability because it includes the permissions for the Application Author and Application Deployment Manager roles.

**Question:** An administrative user should only be able to administer a specific collection. How can you configure this?

**Answer:** You need to configure the user or group to limit the access to the specific collection. You need to remove all other default collections.

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# Module 3

## Managing the Configuration Manager Client

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## Lesson 1

# Overview of the Configuration Manager Client

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## Question and Answers

### What Is the Configuration Manager Client?

**Question:** In your environment, do you allow users to choose their own software or does the IT department do it? How will the Software Center affect that?

**Answer:** Answers will vary.

### Device Requirements to Support the Configuration Manager Client

**Question:** If your environment contained computers that were running Windows XP SP1, what would you need to be able to install the Configuration Manager client?

**Answer:** You would need to get these systems up to at least Windows XP SP3, if they are 32-bit systems, or Windows XP SP2, if they are 64-bit systems.

### Supporting Internet-Based Clients

**Question:** In your environment, are you planning on supporting Internet-based clients? If so, are you going to install a private PKI in your environment?

**Answer:** Answers will vary.

### Demonstration: Exploring the Configuration Manager Client Properties

**Question:** Thinking of your environment, how would you change these settings if you found that you configured something wrong during the installation of the client?

**Answer:** Answers will vary; however, they might include reinstalling the client with the correct settings.

**Question:** How would you troubleshoot an issue where a user is not able to connect to the Application Catalog from home?

**Answer:** Answers will vary. However, they may include using the Configuration Manager applet to verify the user was configured for Internet -based management and had a certificate installed. If the user was configured properly for Internet-based management, you would validate that the user has a certificate that meets the requirements for Internet-based management

# Detailed Demonstration Steps

## Demonstration: Exploring the Configuration Manager Client Properties

### Detailed demonstration steps

**Note** Virtual machines 10747A-NYC-DC1-A and 10747A-NYC-CFG-A are required to complete this demonstration. Log on to the virtual machines as **Contoso\Administrator** with the password **Pa\$\$w0rd**.

#### Use the Configuration Manager Control Panel applet

1. Log on to **NYC-CFG** as **Contoso\Administrator**, with a password of **Pa\$\$w0rd**.
2. Click **Start**, and then click **Control Panel**.
3. In the **Control Panel**, click **System and Security**, and then click **Configuration Manager**.
4. Note how the **General** tab contains basic information about the client. Review how the information found here can be used for troubleshooting.
  - For example, if a user brought a laptop computer home for the first time and is unable to connect to the Application Catalog through the internet, you might see the user only has a "self signed" certificate and is configured for "Always intranet".
  - You also use this tab to identify that the client is connected to the correct site, or any site, and are running the correct version of the client.
5. Click the **Components** tab. Review how to use the **Components** tab to determine if the client is receiving policy.
  - The components tab is used to verify that components have successfully installed and whether or not a client is receiving policy. Explain how the Enabled\Disabled status of the components indicates policy has been downloaded.
  - You would compare the Enabled\Disabled status to the client settings they are supposed to receive from the site.
6. Click the **Actions** tab. Review why you would initiate client actions manually rather than waiting for the next scheduled interval.
  - For example, you might force an agent to run instead of waiting for a change to be applied normally.
7. Click the **Site** tab. Review why you would configure a client to use a different site.
  - Automatic site assignment only occurs once.
  - Click the **Configure Settings** button and review how to change the site code.
8. Click the **Cache** tab and then click **Configure Settings**. Review why you would change the size of the cache for a client.
  - The cache size is set during client installation, and that the default size is 5120 MB.
  - Click the **Configure Settings** button and review how to change the cache size.
  - Click the **Change Location** button and review how to change the cache location, and then click **Cancel**.

- Click the **Delete Files** button and review the "Delete persisted cache content" check box, and then click **No**.
9. Click the **Configurations** tab. Discuss configuration baselines and examine how to use the **Evaluate** and **View Report** buttons.
    - The Evaluate and View Report button allows you to immediately check the client machine in comparison to a baseline.
  10. Click the **Network** tab. Review why you would change a client to be an internet client.
  11. Click the **Configure Settings** button and review how to use these settings to convert a client to an Internet client.
  12. Click **Cancel** and close the **Control Panel**.

## Additional Reading

### What Is the Configuration Manager Client?

- [Fundamentals of Configuration Manager 2012](#)

### Device Requirements to Support the Configuration Manager Client

- [Prerequisites for Client Deployment in Configuration Manager 2012](#)

### Supporting Internet-Based Clients

- [PKI Certificate Requirements for Configuration Manager 2012](#)

### Supporting Mobile Devices

- [Determine How to Manage Mobile Devices in Configuration Manager 2012](#)
- [Prerequisites for Client Deployment in Configuration Manager 2012](#)

## Lesson 2

# Deploying Configuration Manager Clients

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# Question and Answers

## Site Systems Used to Support Client Deployment

**Question:** During the installation process, what could cause a client system to be unable to communicate with a Management Point?

**Answer:** Answer will vary, but may include certificate trust issues at the client or a client that was installed offline.

## Overview of the Client Installation Process

**Question:** Which executable determines the location of the source files, and downloads them to begin the Configuration Manager client installation process?

**Answer:** CCMSSetup.exe determines the location of the source files, and downloads them for use when installing the Configuration Manager client.

## Overview of Client Installation Methods

**Question:** Which client deployment method will you use for your organization, and why?

**Answer:** Answers will vary.

## Installing the Client by Using Client Push Installation

**Question:** What is the main difference between the client push installation site configuration and the Client Push Installation wizard?

**Answer:** The main difference between these two methods is that the client push installation site configuration automatically installs the Configuration Manager client on systems when they are assigned to the site, whereas you can use the Client Push Installation wizard to push the client onto systems on your schedule.

## Installing the Client by Using Group Policy

**Question:** Why would you want to assign the Configuration Manager client to a computer?

**Answer:** You might want to assign the Configuration Manager client to a computer so that the Configuration Manager client will install when the computer reboots and, therefore, will not require user interaction.

## Installing the Client by Using Software Update Point Client Installation

**Question:** What are some of the benefits of using the software update point installation method?

**Answer:** Answers will vary but may include:

- Allows you to install the Configuration Manager client when the logged-on user is not a local administrator (has low rights).
- Allows you to install the Configuration Manager client when there is a firewall in place, and when you do not want to create exemptions through the firewall.
- Uses your existing WSUS infrastructure.

## Additional Reading

### Role of AD DS in the Client Deployment Process

- [About Client Installation Properties Published to Active Directory Domain Services in Configuration Manager 2012](#)

### Site Systems Used to Support Client Deployment

- [Determine the Site System Roles for Client Deployment in Configuration Manager 2012](#)

### Overview of the Client Installation Process

- [Introduction to Client Deployment in Configuration Manager 2012](#)
- [About Client Installation Properties in Configuration Manager 2012](#)

### Overview of Client Installation Methods

- [Determine the Client Installation Method to Use in Configuration Manager 2012](#)

### Installing the Client by Using Client Push Installation

- [How to Install Clients on Computers in Configuration Manager 2012](#)

### Installing the Client by Using Group Policy

- [How to Install Clients on Computers in Configuration Manager 2012](#)

### Installing the Client by Using Software Update Point Client Installation

- [How to Install Clients on Computers in Configuration Manager 2012](#)

### Installing the Client by Using Additional Installation Methods

- [How to Install Clients on Computers in Configuration Manager 2012](#)

### Client Policy Retrieval

- [About Client Policy in Configuration Manager](#)
- [System Center Configuration Manager 2007 Toolkit V2](#)

### Verifying Successful Client Installation

- [How to Monitor Clients in Configuration Manager 2012](#)



## Lesson 3

# Managing Client Agents

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## Question and Answers

### Considerations for Creating Custom Client Settings

**Question:** Keeping your environment in mind, what custom client settings will you be using?

**Answer:** Answers will vary.

### Demonstration: Configuring Custom Client Device Settings

**Question:** When creating a custom client setting, what value is shown in the values when you add a new setting to a custom client setting?

The value from the default client settings is displayed in newly created custom settings.

**Question:** When creating custom client settings, why is the Order value important?

The order value determines the order in which the settings apply,, the last applied setting is the effective setting.

### Blocking and Unblocking Devices

**Question:** When would you need to block a device?

**Answer:** Answers will vary but may include a stolen laptop or lost mobile device.

# Detailed Demonstration Steps

## Demonstration: Configuring Default Client Settings

### Detailed demonstration steps

**Note** Virtual machines 10747A-NYC-DC1-A and 10747A-NYC-CFG-A are required to complete this demonstration. Log on to the virtual machines as **Contoso\Administrator** with the password **Pa\$\$w0rd**.

#### Configure the default client agent settings

1. On NYC-CFG, click Start, click All Programs, click Microsoft System Center 2012 , click Configuration Manager, and then click Configuration Manager Console.
2. Click the **Administration** workspace, and then click the **Client Settings** node.
3. Right-click Default Client Settings, and then click Properties.
4. In the **Default Settings** dialog box, click the **Client Policy** setting. Explain that the **Client policy polling interval (minutes)** value controls how often the client requests settings from a management point.
5. Verify that the **Client policy polling interval (minutes)** is set to **15** minutes. Notice this is for demonstration purposes and should not be used in a production environment.
6. Note that this configuration also reduces the number of supported clients on the management point by 75%. So instead of supporting 25,000 clients per management point, it is now only around 6,000 clients.
7. Click the **State Messaging** setting. Notice that the **State message reporting cycle (minutes)** value controls how often the client sends state messages to a management point.
8. Set the **State message reporting cycle (minutes)** to **5** minutes. Note that this is for demonstration purposes and should not be used in a production environment.
9. Note that doing this could cause a backlog of state messages, especially during a software update scan cycle.
10. Note that the other Settings and values are set in a similar fashion and will be covered in the appropriate module.
11. Click **OK** to accept changes and close the **Default Settings** dialog box.

## Demonstration: Configuring Custom Client Device Settings

### Detailed demonstration steps

**Note** Virtual machines 10747A-NYC-DC1-A and 10747A-NYC-CFG-A are required to complete this demonstration. Log on to the virtual machines as **Contoso\Administrator** with the password **Pa\$\$w0rd**.

#### Create a custom client setting

1. In the Configuration Manager console, ensure you are still in the **Administration** workspace, and on the **Client Settings** node.
2. Right-click the **Client Settings** node, and then click **Create Custom Client Device Settings**.
3. In the **Custom Device Settings** dialog box, type **NYC Server Systems** in the **Name** field.
4. Type **Client settings for all NYC server systems** in the **Description** field.
5. In the **Select the custom settings to be enforced on client devices** section, select the **State Messaging** check box.
6. Click the **State Messaging** setting, take note of the value displayed, and then set the **State message reporting cycle (minutes)** to **15** minutes.
7. Click **OK** to create the custom client device setting policy. Note the priority of the newly created **NYC Server Systems** client setting.
8. **Deploy a custom client setting**
9. Right-click the **NYC Server Systems** client setting and then click **Deploy**.
10. In the **Select Collection** dialog box, click **All Windows Server 2008 Servers**, and then click **OK**.
11. In the **preview** pane, click the **Deployments** tab. Note the client deployment you just created, and note that the client setting can be assigned to more than one collection.

#### Create an additional custom client setting

1. Right-click the **Client Settings**, and then click **Create Custom Client Device Settings**.
2. In the **Custom Device Settings** dialog box, type **Windows 7 Client Systems** in the **Name** field.
3. Type **Client settings for all Windows 7 client systems** in the **Description** field.
4. In the **Select the custom settings to be enforced on client devices** section, select the **Client Policy** check box.
5. Click the **Client Policy** setting, take note of the value displayed, and then set the **Client policy polling interval (minutes)** value to **30** minutes.
6. Click **OK** to create the custom client device setting policy. Note the priority of the newly created **Windows 7 Client Systems** client setting.

## Additional Reading

### Overview of Client Settings

- [About Client Settings in Configuration Manager 2012](#)

### Considerations for Creating Custom Client Settings

- [How to Configure Client Settings in Configuration Manager 2012](#)

### Blocking and Unblocking Devices

- [Determine Whether to Block Clients in Configuration Manager 2012](#)

## Lesson 4

# Configuring and Monitoring Client Status

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# Question and Answers

## Overview of Client Settings

**Question:** How does Client Status improve on client monitoring compared to the previous versions of Configuration Manager?

**Answer:** Client Status uses a separate process running on the client to report the health of the client and doesn't depend on the client to self-report issues.

## Overview of the Client Health Evaluator

### Reference

Client Health in Configuration Manager 2012 Beta 2

<http://go.microsoft.com/fwlink/?LinkID=252187>

**Question:** How can you monitor the health for other parts of the Configuration Manager client?

**Answer:** As mentioned in Module 1, you can create a compliance baseline.

## Demonstration: Configuring Client Status Settings

**Question:** In your environment, when would you change the client activity monitors from the default settings? If so, would you set them to more or less days?

Answers will vary.

Demonstration: Using the Console to Monitor Client Health and Client Activity

**Question:** In your environment, how often would you monitor the client status page?

**Answer:** Answers will vary.

Configuring In-Console Alert Thresholds for Client Status

**Question:** What would be the result if you set a very low value for the percentages?

**Answer:** The alerts would not trigger till a large number of clients had problems.

## Detailed Demonstration Steps

### Demonstration: Configuring Client Status Settings

#### Detailed demonstration steps

**Note** Virtual machines 10747A-NYC-DC1-A and 10747A-NYC-CFG-A are required to complete this demonstration. Log on to the virtual machines as **Contoso\Administrator** with the password **Pa\$\$w0rd**.

#### Configure client status settings

1. In the Configuration Manager console, click the **Monitoring** workspace, and then select the **Client Status** node.
2. Right-click the **Client Status** node, and then click **Client Status Settings**.
3. In the **Client Status Settings Properties** dialog box, under **Evaluation periods to determine client activity**, review the settings.
  - If the clients do not have activity for the specified task, within the specified number of days the client shows in the monitor as inactive.
  - Do not configure these settings for less than the scheduled interval. For instance if hardware inventory is scheduled to run every 14 days do not leave its activity monitor at the default 7 days because this will cause it to show as inactive most of the time.
4. Discuss the **Retain client status history for the following number of days** setting.
  - Explain that this setting is primarily concerned with Health data as the activity results shows the last time a client was active, not how often.
5. In the **Client Status Settings Properties** dialog box, click **OK**.

### Demonstration: Using the Console to Monitor Client Health and Client Activity

#### Detailed demonstration steps

**Note** Virtual machines 10747A-NYC-DC1-A and 10747A-NYC-CFG-A are required to complete this demonstration. Log on to the virtual machines as **Contoso\Administrator** with the password **Pa\$\$w0rd**.

#### Use the Client Status Health and Activity page

1. Ensure the Configuration Manager console, is still in the **Monitoring** workspace, with the **Client Status** node selected.
2. On the **Client Status** page, click the **Browse** button in the statistics section.
  - Explain that this allows you to choose the collection whose health and activity you want to examine.
3. In the **Select Collection** dialog box, click the **All Systems** collection, and then click **OK**.
4. Click the Active clients that passed client check or no results link. Briefly discuss the results.
  - Note that a temporary node has been created in the **Assets and Compliance** workspace and it is now displayed in the console.



- Note that the name of the collection, Active clients that passed client check or no results from "All Systems".
5. Click the **Monitoring** workspace, and then click the **Client Status** node.
  6. On the **Client Status** page click the **Browse** button in the statistics section.
  7. In the **Select Collections** dialog box, click the **All Desktops and Server Clients** collection, and then click **OK**.
  8. Click the Active clients that passed client check or no results link. Briefly discuss the results.
    - Note the name of the collection, Active clients that passed client check or no results from "All Desktops and Server Clients".
  9. In the Active clients that passed client check or no results from "All Desktops and Server Clients" collection, click NYC-CFG.
  10. Examine the preview pane.
    - Explain that the **Summary** tab contains an overview of that client's status and some general information.
    - Click the **Client Activity Detail** tab; review that this tab shows the last times the client performed monitored activity as well as the management point it last communicated with.
    - Click the **Client Check Detail** tab; review that this tab shows the health checks the client has failed over the past 31 days (by default) or the last time the client passed all the health checks.

## Additional Reading

### Overview of the Client Health Evaluator

- [Client Health in Configuration Manager 2012 Beta 2](#)

# Module Reviews and Takeaways

## Review questions

**Question:** In your environment, do your users have local administrative rights? Will they need to change any of the Configuration Manager client settings, such as Cache settings or Site settings?

**Answer:** Answers will vary. As a best practice, users should not have administrative rights and the Configuration Manager Control Panel applet is for support personnel.

**Question:** What site systems would you deploy to support Internet-based clients?

**Answer:** Answers will vary. However, it should include at least a management point and a distribution point .

**Question:** What is the danger of putting a fallback status point on the Internet?

**Answer:** The fallback status point allows for unauthenticated connections that automatically load data into a production database.

**Question:** Which deployment method will you use the most in your environment?

**Answer:** Answers will vary and can include any of the installation methods.

**Question:** Do you think your environment will require multiple client device settings?

**Answer:** Answers will vary.

## Best Practices

Supplement or modify the following best practices for your own work situations:

- Always deploy at least one fallback status point.
- Do not rely on a single Client Installation method.
- Proactively monitor the health of your clients through the Client Status feature.

## Common Issues and Troubleshooting Tips

Issue	Troubleshooting Tip
Certificate trust issues	All systems must trust the root CA
Typographical errors on command line for Client.msi installation.	Review CCMSSetup.log to find the mistake
Nothing happens during installation attempt	Windows firewall is blocking the deployment.
Clients not receiving the intended settings	Validate the order in which the client settings are being applied.

## Real-world Issues and Scenarios

**Question:** In a multi-domain forest, how will the client installation process gain local administrative rights on all the client systems?

**Answer:** Answers will vary. One possible solution is to use a client installation account from each domain that has administrative rights within that domain,

**Question:** Different groups or departments need different installation option. What would be the easiest way to do this?

**Answer:** Answers will vary. One possible answer is to use GPOs to set the installation properties.

**Question:** Mobile users need a client installed on laptops that will be managed on the Internet. What is the best way to install the client on these systems?

**Answer:** Answers will vary. One possible answer is to have the users ship the systems to the IT department to install the client and then ship them back.

# Lab Review Questions and Answers

## Lab A: Managing Client Settings

**Question:** You need to modify the time that a plugged in computer will go to sleep during peak hours. What should you do?

**Answer:** You need to select the Customized Peak (ConfigMgr) plan, which will allow you to edit the specific power management settings.

**Question:** When would you want to assign multiple Client Device Settings to a collection?

**Answer:** You might have one setting per Client Device Setting, and you can mix and match the settings to assign to collections.

## Lab B: Configuring and Monitoring Client Status

**Question:** In your environment, for what interval will you configure the status health settings?

**Answer:** Answers will vary.

**Question:** In your environment, what threshold will you set for alerts?

**Answer:** Answers will vary.

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**Administering System Center 2012  
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*Companion Content*

# Module 4

## Managing Inventory and Software Metering

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## Lesson 1

# Overview of Inventory Collection

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## Question and Answers

### What Is Inventory Collection?

**Question:** You would like to identify all computers that have only 1 gigabyte (GB) to 4 GB of random access memory (RAM). What inventory feature can assist you with this task?

**Answer:** You can use hardware inventory to find all computers having 1 GB of RAM.

### Uses of Inventory Data

**Question:** How will you use inventory collection in your environment?

**Answer:** Answers will vary. Have students share their previous experiences and goals regarding the use of inventory collection. For example, ask whether they are using hardware inventory for budget reports or upgrade analysis.

## Additional Reading

### What Is Inventory Collection?

- [Inventory in Configuration Manager](#)

## Lesson 2

# Configuring Hardware Inventory

### Contents:

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## Question and Answers

### Demonstration: Configuring Client Settings for Hardware Inventory

**Question:** Under what circumstances would you choose to run the hardware inventory by using the simple schedule option?

**Answer:** You might want to run the simple schedule if your organization wants to avoid spikes in network utilization caused by the inventory process. The simple schedule runs the hardware inventory at a single, specific interval. Although it allows less flexibility in scheduling, this method usually avoids spikes in network utilization, because the run time is based on the time that each client first retrieved the policy that enabled hardware inventory collection. When you choose the custom schedule, all clients run their inventory collection simultaneously, at which time the network utilization spikes.

# Detailed Demonstration Steps

## Demonstration: Configuring Client Settings for Hardware Inventory

### Detailed demonstration steps

**Note** Virtual machines 10747A-NYC-DC1-B and 10747A-NYC-CFG-B are required to complete this demonstration. Log on to the virtual machines as **Contoso\Administrator** with the password as **Pa\$\$w0rd**.

#### Configure hardware inventory

1. On NYC-CFG, open the System Center 2012 Configuration Manager console, click the **Administration** workspace, and then click **Client Settings**.
2. In the results pane, double-click **Default Client Settings**.
3. In the Default Settings window, click **Hardware Inventory**.
4. Under **Device Settings**, next to **Enable hardware inventory on clients**, verify that the **True** option is selected.
5. Next to **Hardware inventory schedule**, click **Schedule**.
6. In the **Configure Client Setting** dialog box, select the option next to **Custom schedule**, and then click **Customize**.
7. Describe the **Time** and **Recurrence pattern** sections, and then click **Cancel**.
8. In the **Configure Client Setting** dialog box, select the option next to **Simple schedule**, and then click **OK**.

#### Customize hardware inventory collection

1. Under **Device Settings**, next to **Hardware inventory classes**, click **Set Classes**.
2. In the **Hardware Inventory Classes** dialog box, scroll down to view the various classes that are enabled and disabled.
3. Click **Filter by category**. Review the various categories.
4. Click the **Filter by type** button. Review the various types.
5. Click the **Add button**. Review **how you can connect to the WMI namespace of another computer**. Click **Cancel**.
6. Review the **Import** and **Export** buttons. Click **Cancel** to return to the **Default Settings** window.
7. Next to **Collect MIF files**, click the drop-down menu. Review the options for configuring the collection of IDMIF and NOIDMIF files.
8. Click **Cancel** to close the **Default Settings** window.

## Additional Reading

### How Is Hardware Inventory Collected?

- [Introduction to Hardware Inventory in Configuration Manager](#)

### Options for Collecting Hardware Inventory

- [How to Configure Hardware Inventory in Configuration Manager:](#)

### Extending Hardware Inventory

- [How to Extend Hardware Inventory in Configuration Manager](#)
- [Best Practices for Hardware Inventory in Configuration Manager](#)

## Lesson 3

# Configuring Software Inventory

### Contents:

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## Question and Answers

### How Is Software Inventory Collected?

**Question:** How will you use software inventory in your organization?

**Answer:** Answers will vary. Be sure to have the students provide suggestions on how they currently use or could use software inventory in their organizations.



## Additional Reading

### How Is Software Inventory Collected?

- [Introduction to Software Inventory in Configuration Manager](#)

### The Process for Configuring Software Inventory File Types

- [Configuring Software Inventory in Configuration Manager](#)

## Lesson 4

# Managing Inventory Collection

### Contents:

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## Question and Answers

### Initiating Inventory Cycle on a Client

**Question:** What are some circumstances when you might need to initiate inventory collection on a single client?

**Answer:** You might need to initiate inventory collection if you have modified hardware or software inventory settings, and you need to view immediate results.

Demonstration: Initiating Inventory Collection on a Client

**Question:** You have just made a modification to the inventory schedule for both hardware inventory and software inventory. If you want to force the change to a specific client, which action must you initiate from the Configuration Manager Control Panel application on the client?

**Answer:** You must initiate Machine Policy Retrieval & Evaluation Cycle.

**Question:** Which tool can you use to view hardware and software inventory results for a single computer?

**Answer:** Use Resource Explorer to view hardware and software inventory results.

# Detailed Demonstration Steps

## Demonstration: Initiating Inventory Collection on a Client

### Detailed demonstration steps

**Note** Virtual machines 10747A-NYC-DC1-B and 10747A-NYC-CFG-B are required to complete this demonstration. Log on to the virtual machines as **Contoso\Administrator** with the password as **Pa\$\$w0rd**.

#### Initiate inventory collection on a client

1. On NYC-CFG, click **Start**, and then click **Control Panel**.
2. In Control Panel, click **System and Security** and then click **Configuration Manager**. The **Configuration Manager Properties** dialog box opens.
3. In the **Configuration Manager Properties** dialog box, click the **Actions** tab. Take note of the various actions available.
4. Select the **Machine Policy Retrieval & Evaluation Cycle** action, and then click **Run Now**. Click **OK** at the prompt.
5. Select the **Hardware Inventory Cycle** action, and then click **Run Now**. Click **OK** at the prompt.
6. Click **OK** to close the **Configuration Manager Properties** dialog box, and then close **Control Panel**.
7. **Use Resource Explorer to view hardware inventory**
8. On NYC-CFG, open the System Center 2012 Configuration Manager console, click the **Assets and Compliance** workspace, and then click **Devices**.
9. In the results pane, right-click **NYC-CFG**, point to **Start**, and then click **Resource Explorer**.
10. In the left-hand pane of the Resource Explorer window, expand the **Hardware** node. Take note of the various hardware inventory nodes.
11. Click various hardware inventory nodes, and then discuss the results.
12. In the left-hand pane of the Resource Explorer window, expand the **Hardware History** node. Take note of and discuss any history data.
13. Close the Resource Explorer.

#### View inventory using reports

1. In the System Center Configuration Manager console, click the **Monitoring** workspace, expand the **Reporting** node, and then expand the **Reports** node. Notice the various report categories.
2. In the left-hand pane, click the **Hardware-Disk folder**. Notice the reports that related to disk information.
3. In the left-hand pane, click the **Hardware-Memory folder**. Notice the reports that related to computer memory information.

## Additional Reading

### Considerations for Securing Inventory Collection

- [Security and Privacy for Hardware Inventory in Configuration Manager](#)
- [Security and Privacy for Software Inventory in Configuration Manager](#)

### Troubleshooting Inventory Collection

- [BADMIF Processing - When a client doesn't report hardware inventory](#)

## Lesson 5

# Configuring Asset Intelligence

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# Detailed Demonstration Steps

## Demonstration: Enabling the Collection of Asset Intelligence Data

### Detailed demonstration steps

**Note** Virtual machines 10747A-NYC-DC1-B and 10747A-NYC-CFG-B are required to complete this demonstration. Log on to the virtual machines as **Contoso\Administrator** with the password as **Pa\$\$w0rd**.

#### Enable Asset Intelligence reporting classes

1. On NYC-CFG, open the System Center 2012 Configuration Manager console, click the **Assets and Compliance** workspace, and then click **Asset Intelligence**.
2. Right-click **Asset Intelligence** and then click **Edit Inventory Classes**. The **Edit Inventory Classes** dialog box opens.
3. Verify that **Enable only the selected Asset Intelligence reporting classes** is enabled.
4. Enable all inventory classes except **SMS\_InstalledExecutable** and **SMS\_SoftwareShortcut**.
5. Point to each reporting class, and then with the tool tip, discuss the reports that are associated with each class.
6. Click **OK** to close the **Edit Inventory Classes** dialog box. Click **Yes** at the message box.

#### Import software license information

1. On NYC-CFG, open the System Center 2012 Configuration Manager console, click the **Assets and Compliance** workspace, and then click **Asset Intelligence**.
2. Right-click **Asset Intelligence** and then click **Import Software Licenses**. The **Import Software Licenses Wizard** opens. Click **Next**.
3. On the **Import** page, click the **General License Statement (.csv file)** option.
4. In the **Path** box type **\\NYC-CFG\E\$\Licenses\LicenseData.csv** and then click **Next**.
5. On the **Summary** page, click **Next**.
6. On the **Completion** page, click **Close**.

#### Install an Asset Intelligence Synchronization Point

1. On NYC-CFG, open the System Center 2012 Configuration Manager console, click the **Administration** workspace, expand the **Site Configuration** node, and then click **Servers and Site System Roles**.
2. In the details pane, right-click **\\NYC-CFG.Contoso.com** and then click **Add Site System Roles**. The **Add Site System Roles Wizard** starts. Click **Next**.
3. On the **System Role Selection** page, select the check box next to **Asset Intelligence synchronization point**. Click **Next**.
4. On the **Asset Intelligence Synchronization Point Settings** page, click **Next**.
5. On the **Proxy Server Settings** page, click **Next**.
6. On the **Synchronization Schedule** page, ensure that **Enable synchronization on a schedule** is selected and that it is set to run every **7 days**. Click **Next**.

7. On the **Summary** page, click **Next**.
8. On the **Completion** page, click **Close**.
9. Click the **Assets and Compliance** workspace, and then click **Asset Intelligence**. In the results pane, under **Catalog Synchronization** review the status details. Refresh the page if required.
10. Right-click **Asset Intelligence** and then point to **Synchronize**. Discuss the **Synchronize Asset Intelligence Catalog** and **Schedule Synchronization** options. Note: If the options are not available, refresh the console, or click on another node and then re-click the Asset Intelligence node.



## Additional Reading

### Overview of Asset Intelligence

- [Introduction to Asset Intelligence in Configuration Manager](#)

### Configuring Asset Intelligence Data Collection

- [Configuring Asset Intelligence in Configuration Manager](#)
- [Importing Software Licenses Into the Asset Intelligence Catalog](#)

## Lesson 6

# Configuring Software Metering

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# Question and Answers

## Overview of Software Metering

**Question:** Which types of applications would you want to meter in your organization?

**Answer:** Answers will vary. Possible answers may include Microsoft Office applications, line of business software, or third-party applications.

**Question:** Describe various scenarios where software metering can help determine software usage?

**Answer:** An organization might want to analyze the usage of an application, to determine whether it should be upgraded based on how it is being used.

## How Software Metering Works

**Question:** How does software metering work for portable computers that are not frequently connected to the network?

**Answer:** Metering data will be registered on the portable computer, and then uploaded to the management point the next time the portable computer connects to the corporate network.

## Demonstration: Configuring Software Metering

**Question:** What is the default percentage that must be reached before rules are auto-created?

**Answer:** By default, 10 percent of computers within a site must use a specific executable before a rule is auto-created.

**Question:** Which component configuration should you modify in order to configure clients to report software metering usage data more frequently?

**Answer:** You should modify the **Software Metering Agent** schedule settings.

## Software Metering Maintenance Tasks

**Question:** How can summarization help maintain the size of the Configuration Manager site database?

**Answer:** With summarization, multiple records are condensed into one general record to help simplify reporting and to maintain the amount of data that the site database stores.

# Detailed Demonstration Steps

## Demonstration: Configuring Software Metering

### Detailed demonstration steps

**Note** Virtual machines 10747A-NYC-DC1-B and 10747A-NYC-CFG-B are required to complete this demonstration. Log on to the virtual machines as **Contoso\Administrator** with the password as **Pa\$\$w0rd**.

#### Configure the Software Metering Agent

1. On NYC-CFG, open the System Center 2012 Configuration Manager console, click the **Administration** workspace, and then click **Client Settings**.
2. Right-click **Default Client Settings** and then click **Properties**. The **Default Settings** dialog box opens.
3. In the left-hand pane, click **Software Metering**.
4. Under **Device Settings**, verify that the **Enable software metering on clients** option is set to **True**.
5. Click the **Schedule** button. Describe the schedule options, and then click **Cancel**.
6. Click **OK** to close the **Default Settings** dialog box.

#### Configure a software metering rule

1. On NYC-CFG, open the System Center 2012 Configuration Manager console, click the **Assets and Compliance** workspace, and then click **Software Metering**.
2. In the navigation pane, right-click **Software Metering** and then click **Create Software Metering Rule**.
3. In the **Name** box, type **CalcRule**
4. Click **Browse**, and then navigate to **C:\Windows\system32**.
5. Click **Calc.exe**, and then click **Open**. Notice that the **Original file name**, **Version**, and **Language** boxes are populated automatically.
6. In the **Version** box, delete the existing version text, and type the asterisk wildcard character (\*).
7. In the **Language** box, select **– Any –**. Click **Next**.
8. Click **Next**, and then click **Close**.

#### Configure automatic software metering rule generation

1. In the Configuration Manager console, right-click **Software Metering** and then click **Software Metering Properties**.
2. In the **Software Metering Properties** dialog box, ensure that **Automatically create disabled metering rules from recent usage inventory data** is enabled.
3. In the **Specify the percentage of computers in the hierarchy that must use a program before a software metering rule is automatically created** box, configure a setting of **5**.
4. In the **Specify the number of software metering rules that must be exceeded in the hierarchy before the automatic creation of rules is disabled** box, configure a setting of **25**.

5. Click **OK** to close the **Software Metering Properties** box.
6. **View Software Metering reports**
7. In System Center 2012 Configuration Manager console, click the **Monitoring** workspace, and then expand **Reporting**.
8. Expand **Reports**, and then click the **Software Metering** folder.
9. Describe the reports that are displayed. Run reports as time allows.

## Additional Reading

### Configuring the Software Metering Agent and Rules

- [How to Create Software Metering Rules in Configuration Manager](#)

### Software Metering Maintenance Tasks

- [Maintenance Tasks for Software Metering in Configuration Manager](#)

## Module Reviews and Takeaways

### Review questions

**Question:** How can hardware and software inventory assist in software distribution?

**Answer:** You can create collections of resources based upon inventory data. For example, you can create a collection of computers that support the minimum hardware and software requirements for installing Microsoft Office 2010, and then distribute the software to that collection.

**Question:** A user in your organization is having intermittent problems with their desktop computer. How can you use hardware and software inventory to troubleshoot the problem?

**Answer:** You can use hardware inventory data to determine potential issues, such as a recent change in computer hardware. For example, you can find out if new hardware has been installed that might not be configured properly. You can use software inventory to determine if a user's computer has the latest service packs installed, or to collect log files from the client's computer.

**Question:** A department in your organization has deployed a user application with expensive per-user licenses. How can you use software inventory and software metering to help ensure that your organization is getting the most value from this application?

**Answer:** Use software inventory to determine which clients have the application installed. Use software metering to determine which users are running the application. Use the data to help determine if additional clients need to have the software installed, and which clients should have the software removed. Depending upon the application, you also may use Asset Intelligence reports to obtain license reports from reported data.

**Question:** You have enabled software metering and have just deployed a new application throughout your network. By default, how long will it take before an automatic disabled software metering rule is created?

**Answer:** By default, a software metering rule will not be created until at least 10 percent of computers use the application's executable within a 90-day period.

## Lab Review Questions and Answers

### Lab A: Configuring and Managing Inventory Collection

**Question:** How can you configure hardware and software inventory to minimize network impact?

**Answer:** Consider configuring a simple schedule instead of a custom schedule. A simple schedule usually helps anticipate network impact because the client's install time determines the time each client's inventory data file is sent. When you configure a custom schedule, all clients run inventory at the specified time. In addition, consider minimizing the amount of files to collect during inventory.

**Question:** How can you determine whether hardware has changed on a managed computer?

**Answer:** Hardware history will display any changes to inventory that have been reported for a specific client.

**Question:** You have configured software inventory to collect a large number of log files. However, you have noticed that no files are being collected. How can you troubleshoot and correct the issue?

**Answer:** To troubleshoot the issue, you can view the InventoryAgent.log file, which is located in the \Windows\CCM\Logs folder on a client. The most likely problem is that the amount of log files being collected has reached the maximum size configured in the **Collected File** properties.

**Question:** How can you determine the last time that hardware and software inventory was reported from a client?

**Answer:** For hardware inventory, view the **Workstation Status** attribute within Resource Explorer. For software inventory, view the **Last Software Scan** attribute within Resource Explorer.

### Lab B: Configuring and Managing Asset Intelligence

**Question:** You run an Asset Intelligence report to find computers that are used by multiple users, but the report displays no records. How can you troubleshoot and correct the issue?

**Answer:** Ensure that all computers are configured to audit logon events. Typically, this would be done in Group Policy.

### Lab C: Configuring Software Metering

**Question:** You have created a new software metering rule for a specific application that is installed on both Windows XP and Windows 7 clients. You notice that only Windows 7 clients are reporting usage data. What might be the problem?



**Answer:** There might be a specific version number entered that pertains only to the Windows 7 install base. Change the version value to the wildcard character (\*) to cover all versions.

**Question:** What is the advantage of using the **Browse** button as opposed to manually entering the file name?

**Answer:** The **Browse** button also will automatically fill in the original file name, version, and language fields. This is useful to ensure the application is monitored even if a user were to rename the executable file.

**Question:** Can software metering account for the same application running locally as well as from a Terminal Services or Remote Desktop session?

**Answer:** Yes, each instance of the program is metered as a distinct usage, whether it is in a local and/or remote session.

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# Module 5

## Querying and Reporting Data

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## Lesson 1

# Introduction to Queries

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# Question and Answers

## Objects and Attributes

**Question:** What is the relationship between object types and attributes?

**Answer:** An object type is a set of attributes that represents a Configuration Manager database object.

## Query Elements

**Question:** When creating a query to discover all the Windows® 7 computers with a CD burner and a specific video card, would you need to create any attribute class joins?

**Answer:** No. Suitable joins are automatically created when you build the query.

## Additional Reading

### Objects and Attributes

- [About Object Types](#)
- [About Attributes and Attribute Classes](#)

### Query Elements

- [About Query Elements](#)
- [Queries in Configuration Manager](#)

## Lesson 2

# Managing Queries

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# Question and Answers

## Managing Data Queries

**Question:** What programming language do you use to create Configuration Manager queries?

**Answer:** You use WQL, a query language similar to SQL statements, to create queries.

## Managing Status Message Queries

**Question:** Why are there fewer options for creating status message queries than for data queries?

**Answer:** There are multiple object types and attributes available for data queries, but there are only a few object types for Status Message objects.

## Demonstration: Creating and Running Queries

**Question:** Why was the Name box not displayed in the data query?

**Answer:** The Name box was not included on the General tab because it was only specified as part of the search criteria.

**Question:** In your environment, what kinds of data queries would you use?

**Answer:** Answer will vary. This may include data queries for specific hardware to create a collection.





# Detailed Demonstration Steps

## Demonstration: Creating and Running Queries

### Detailed demonstration steps

Virtual machines 10747A-NYC-DC1-C and 10747A-NYC-CFG-C are required to complete this demonstration. Log on to the virtual machines as **Contoso\Administrator** with the password **Pa\$\$w0rd**.

#### Create a data query


1. On NYC-CFG, click Start, click All Programs, click Microsoft System Center 2012, click Configuration Manager, and then click Configuration Manager Console.
2. Click the **Monitoring** workspace, and then click **Queries**.
3. Right-click the **Queries** node and then click **Create Query**.
4. In the Create Query Wizard, on the **General** page, in the **Name** box, type **All NYC Systems**
5. Click Edit Query Statement.
6. In the All NYC Systems Query Statement Properties dialog box, on the General tab, click the New ( ) button.
7. In the **Result Properties** dialog box, click **Select**.
8. In the **Select Attribute** dialog box, click the **Attribute** drop-down arrow, select **Active Directory Site Name**, and then click **OK**.
9. In the **Result Properties** dialog box, click **OK**.
10. In the **All NYC Systems Query Statement Properties** dialog box, on the **General** tab, click the New ( ) button.
11. In the **Result Properties** dialog box, click **Select**.
12. In the **Select Attribute** dialog box, click the **Attribute** drop-down arrow, select **IP Addresses**, and then click **OK**.
13. In the **Result Properties** dialog box, click **OK**.
14. In the **All NYC Systems Query Statement Properties** dialog box, on the **General** tab, click the New (  ) button.
15. In the **Result Properties** dialog box, click **Select**.
16. In the **Select Attribute** dialog box, click the **Attribute** drop-down arrow, select **Last Logon User Name**, and then click **OK**.
17. In the **Result Properties** dialog box, click **OK**.
18. In the **All NYC Systems Query Statement Properties** dialog box, on the **Criteria** tab, and click the New (  ) button.
19. In the **Criterion Properties** dialog box, click **Select**.
20. In the **Select Attribute** dialog box, in the **Attribute Class** list, select **System Resource**.
21. In the **Select Attribute** dialog box, in the **Attribute** list, select **Name**, and then click **OK**.
22. In the **Criterion Properties** dialog box, in the **Operator** drop list, select **is greater than or equal to**.

23. In the **Value** box, type **NYC**, and then click **OK**.
24. In the **All NYC Systems Query Statement Properties** dialog box, click **OK**.
25. On the **General** page of the Create Query Wizard, click **Next**.
26. On the **Summary** page of the Create Query Wizard, click **Next**.
27. On the **Completion** page of the Create Query Wizard, click **Close**.

#### Run a data query

1. Right-click the **All NYC Systems** query, and then click **Run**.
2. Review the results. Notice that the **Name** attribute is not displayed in the results pane.

#### Create a status message query

1. In the **Monitoring** workspace, expand **System Status**, and then click **Status Message Queries**.
2. Right-click the **Status Message Queries** node and click **Create Status Message Query**.
3. On the **General** page of the Create Status Message Query Wizard, in the **Name** box, type **All NYC Systems Status Messages**.
4. Click **Import Query Statement**. In the **Browse Query** dialog box, in the **Queries** box, click **All Status Messages from a Specific System**, and then click **OK**.
5. Click **Edit Query Statement**, and then click the **Criteria** tab.
6. Select **[Status message as stat].Machine Name is equal to <prompted value>**, and then click the **Modify** (  ) button.
7. In the **Criterion Properties** dialog box, in the **Operator** drop-down list, select **is greater than or equal to**, and then click **OK**.
8. In the **Query Statement Properties** dialog box, click **OK**.
9. On the **General** page of the Create Status Message Query Wizard, click **Next**.
10. On the **Summary** page, click **Next**.
11. On the **Completion** page, click **Close**.

#### Run a status message query

1. Right-click the **All NYC Systems Status Messages** query, and then click **Show Messages**.
2. In the **All NYC Systems Status Messages** dialog box, in the **Prompted value** box, click **Machine Name** and then, in the **Specify** box, type **NYC**.
3. In the **Prompted value** box, click **Time**, and then in the **Select date and time** list, select **12 hours ago**.
4. In the **All NYC Systems Status Messages** dialog box, click **OK**.
5. Review the results.
6. Close the Status Message Viewer.
7. Minimize the System Center 2012 Configuration Manager console.

## Additional Reading

### Managing Status Message Queries

- [How to Manage Status Message Queries](#)

### Managing Query Results

- [Status Message Tasks](#)

## Lesson 3

# Configuring SQL Server Reporting Services

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# Question and Answers

## Configuring SQL Server Reporting Services

**Question:** What database should SQL Server Reporting Services use?

**Answer:** SQL Server Reporting Services should use the database that contains the information that users of the reporting services point are allowed to access. The database for the central administration site contains the information for the entire Configuration Manager environment.

**Question:** When installing SQL Server Reporting Services, does it have to be installed on a site server?

**Answer:** No. You can install SQL Server Reporting Services on any existing or new site system.

## Configuring the Reporting Services Point

**Question:** What user rights do you need to assign to an account that is to be used for a reporting services point?

**Answer:** The account can be a regular domain account. However, you need to set the account as a reporting services account to grant it the necessary database rights.

## Demonstration: Installing a Reporting Services Point

**Question:** In a multi-site hierarchy, in which site should you install a reporting services point so that you could view reports about all sites in the hierarchy?

**Answer:** You should install the reporting services point in the central administration site. This is because the database in the central administration site contains the data from every site within the hierarchy. A primary site only has the data related to it and any secondary child sites.

## Configuring Report Subscriptions

**Question:** In your work environment, are you planning to use report subscriptions?

**Answer:** Answer will vary.

## Configuring Report Security

**Question:** In your organization, how are you going to configure security in your reports?

**Answer:** Answers will vary.

# Detailed Demonstration Steps

## Demonstration: Installing a Reporting Services Point

### Detailed demonstration steps

Virtual machines 10747A-NYC-DC1-C and 10747A-NYC-CFG-C are required to complete this demonstration. Log on to the virtual machines as **Contoso\Administrator** with the password **Pa\$\$w0rd**.

#### Configure SQL Server Reporting Services

1. On NYC-CFG, click Start, point to All Programs, click Microsoft SQL Server 2008 R2, click Configuration Tools, and then click Reporting Services Configuration Manager.
2. In the Reporting Services Configuration Connection dialog box, click Connect.
3. In Reporting Services Configuration Manager, click the Service Account node.
4. Verify that Reporting Services is configured to use the **Local System** account.
5. Click the **Web Service URL** node, review the default settings, and then click **Apply**.
6. Click the **Database** node, and then click **Change Database**.
7. In the Report Server Database Configuration Wizard, on the Action page, ensure that Create a new report server database is selected, and then click Next.
8. On the **Database Server** page, click **Test Connection**, in the **Test Connection** dialog box, click **OK**, and then click **Next**.
9. On the **Database** page, review the default settings, and then click **Next**.
10. On the **Credentials** page, review the default settings, and then click **Next**.
11. On the **Summary** page, review the settings, and then click **Next**.
12. On the **Progress and Finish** page, review the results, and then click **Finish**.
13. In Reporting Services Configuration Manager, click the Report Manager URL node.
14. Review the default settings and then click **Apply**.
15. Click the **E-mail Settings** node.
16. Click the Execution Account node.
17. Click the **Scale-out Deployment** node, review the Scale-out Deployment settings, and then click **Exit**.

#### Add the reporting services point role

1. If necessary, open the **System Center 2012 Configuration Manager** console.
2. Click the **Administration** workspace, and then expand **Site Configuration**.
3. Click **Servers and Site Systems Roles**.
4. Right-click **\\NYC-CFG.Contoso.com** and then click **Add Site System Roles**.
5. In the **Add Site System Roles Wizard**, on the **General** page, click **Next**.
6. On the **System Role Selection** page, select the **Reporting services point** check box, and then click **Next**.

7. On the **Reporting Services Point** page, click **Verify**.
8. On the **Reporting services point** page, click **Set**, and then click **New Account**.
9. In the **User name** box, type **Contoso\Administrator**, in the **Password** and **Confirm password** boxes, type **Pa\$\$w0rd** and then click **OK**.
10. On the **Reporting Services Point** page, click **Next**.
11. Review the **Summary** page, and then click **Next**.
12. On the **Completion** page, click **Close**.

#### **Test the reporting services point**

1. In the **Monitoring** workspace, expand the **Reporting** node, and then click the **Reports** node. You may need to refresh the console until all the reports appear.
2. Right-click the **Reports** node and then click **Report Options**. Review the **Report Options** dialog box, and then click **OK**.
3. In the **Search** box, type **Windows** and then click **Search**.
4. Right-click the **Windows Server computers** report and then click **Run**.
5. In the Windows Server computers window, click **Values**, click **All Systems**, and then click **OK**.
6. Click **View Report**.
7. Close the **Report Viewer**, and then minimize the Configuration Manager console.
8. Open Internet Explorer® and navigate to **http://NYC-CFG:80/Reports**.
9. Click the **ConfigMgr\_S01** link. Review the different report folders, and open one or two to view the reports in the folders.

## Additional Reading

### Overview of SQL Server Reporting Services

- [Introduction to Reporting in Configuration Manager](#)

### Prerequisites for Configuration Manager Reporting

- [Prerequisites for Reporting in Configuration Manager](#)

### Configuring SQL Server Reporting Services

- [Configuring a Report Server Installation](#)

### Configuring the Reporting Services Point

- [Configuring Reporting in Configuration Manager](#)

### Configuring Report Security

- [Security and Privacy for Reporting in Configuration Manager](#)

### Creating Reports by Using the Create Report Wizard

- [Operations and Maintenance for Reporting in Configuration Manager](#)



# Module Reviews and Takeaways

## Review questions

**Question:** What is the difference between attributes and attribute values?

**Answer:** Attributes are the types of data collected; attribute values are the actual values collected.

**Question:** What is the difference between a data query and a status message query?

**Answer:** You can use data queries to find any data in the Configuration Manager tables and to build collections. You can use status message queries to query only the stored status messages and to assist in the monitoring and troubleshooting of Configuration Manager.

**Question:** How many reporting services points can you have in your hierarchy? How many should you have in your hierarchy?

**Answer:** Answers will vary, but could include: You can have one or more reporting services points per primary site and the central administration site. You should have at least one reporting services point in the central administration site and at least one reporting services point in each primary site where the local administrators need to view reports that include only data from their site.

## Best Practices Related to a Querying and Reporting Data

Supplement or modify the following best practices for your own work situations:

- Optimize SQL Server Reporting Services queries and your report queries. Usually, the bulk of the report run time is spent on running queries and retrieving results. SQL Server tools, such as Query Analyzer and Profiler can help you optimize queries.
- Report Subscription Scheduling. Whenever possible, schedule report subscription processing to run outside of normal office hours. This will reduce the load on the Configuration Manager site database server and improve availability for immediate report requests.

## Common Issues and Troubleshooting Tips

Issue	Troubleshooting Tip
Queries not returning results	Data may not exist in the database. When setting the criteria for queries, use the Values button, to be sure the data exists in the database. In addition, when using multiple criteria for a query, be careful not to create a query statement so complex that no objects can match the query.
Reports not showing up in the Configuration Manager console	Ensure that SQL Server Reporting Services has been configured. In particular, when using the default settings, ensure that the Apply button was clicked for the Web Service URL and the Report Manager URL.

## Real-world Issues and Scenarios

**Question:** Management users at an organization want to view reports from within Configuration Manager but are generally not configured with any roles in Configuration Manager. What can you do to allow them to read reports from Configuration Manager?

**Answer:** One possible solution is to assign them permissions through the SQL Server Reporting Services website.

## Tools

Tool	Use to	Where to find it
SQL Server Business Intelligence Development Studio	Creating custom models for reports	Microsoft SQL Server <a href="http://go.microsoft.com/fwlink/?LinkId=252940">http://go.microsoft.com/fwlink/?LinkId=252940</a>
Visual Studio	Developing custom reports for SQL Server Reporting Services	Microsoft Visual Studio <a href="http://go.microsoft.com/fwlink/?LinkId=252941">http://go.microsoft.com/fwlink/?LinkId=252941</a>

## Lab Review Questions and Answers

### Lab A: Creating and Running Queries

**Question:** Why did you use the **OR** operator for the query to return both the Production users and the Research users?

**Answer:** If the **AND** operator was used, it would only return users who are in both groups. To find the users in either group you use the **OR** operator.

**Question:** In your work environment, what additional status message queries would you make or have you made?

**Answer:** Answers will vary. One possible answer is queries for specific client status messages.

**Question:** Why would you import an existing query to create a new query?

**Answer:** Answers will vary. One possible answer is that it is easier to modify an existing query than to completely build a new query.

### Lab B: Configuring Reporting

**Question:** Why was the number of users returned in the queries greater than those returned in the report?

**Answer:** The query returned all the discovered users; the user report returns all the users associated with a device in the database.

**Question:** What account should you use for the SQL Server Reporting Services service account?

**Answer:** You should use the Local System account or an account that has administrative rights to the reporting database.

**Question:** What rights do users need to view reports on the SQL Reporting Services website?

**Answer:** Users need at least Read access to the data for it to be displayed in a report.

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# Module 6

## Managing Software Deployments by Using Packages and Programs

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## Lesson 1

# Configuring Software Distribution

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# Question and Answers

## Software Distribution Concepts

**Question:** What is the purpose of the program software distribution object?

**Answer:** The program software distribution object defines the command that the client runs, in addition to any requirements for the program, such as operating system, platform, and disk space required.

## Demonstration: Configuring the Software Distribution Component and Client Settings

**Question:** You want to decrease the time it takes to distribute packages to multiple distribution points. What can you do?

**Answer:** You can modify the **Concurrent distribution settings** options located on the **Software Distribution Components Properties** dialog box. Increasing the default value for **Maximum number of packages** may decrease the time it takes to distribute packages to multiple distribution points. However, network traffic will increase.

## Detailed Demonstration Steps

### Demonstration: Configuring the Software Distribution Component and Client Settings

#### Detailed demonstration steps

**Note** Virtual machines 10747A-NYC-DC1-B and 10747A-NYC-CFG-B are required to complete this demonstration. Log on to the virtual machines as **Contoso\Administrator** with the password as **Pa\$\$w0rd**.

#### Configure the Software Distribution component

1. On NYC-CFG, open the System Center 2012 Configuration Manager console, click the **Administration** workspace, expand **Site Configuration**, and then click **Sites**.
2. In the results pane, right-click **S01-Contoso New York Site**, point to **Configure Site Components**, and then click **Software Distribution**. The **Software Distribution Component Properties** dialog box opens.
3. On the **General** tab, take note of the default settings for the **Concurrent distribution settings**, **Retry settings**, and **Multicast retry settings** sections.
4. Click the **Network Access Account** tab.
5. Select **Specify the account that accesses network locations**.
6. Click **Set**, and then click **New Account**.
7. In the **Windows User Account** dialog box, click **Browse**.
8. In the **Select User** dialog box, type **NetworkAccess**, click **Check Names**, and then click **OK**.
9. In the **Windows User Account** dialog box, in the **Password** and **Confirm password** fields, type **Pa\$\$w0rd**.
10. Click **Verify**, and then in the **Network share** field type **\\NYC-CFG\SMS\_S01**.
11. Click **Test connection**. In the **Configuration Manager** dialog box, review the message to be sure that the connection was successfully verified, and click **OK**.
12. Click **OK** to close the **Windows User Account** dialog box.
13. Click **OK** to close the **Software Distribution Component Properties** dialog box.

#### Configure client settings

1. In the **Administration** workspace, click **Client Settings**.
2. In the results pane, right-click **Default Client Settings** and then click **Properties**.
3. Click **Background Intelligent Transfer**. Discuss the device settings options.
4. Click **Client Policy**. Discuss the device settings options.
5. Click **Computer Agent**. Discuss the device settings options.
6. Click **Computer Restart**. Discuss the device settings options.
7. Click **Software Deployment**. Discuss the device settings options.
8. Click **State Messaging**. Discuss the device settings options.



9. Click **Cancel** to close the **Default Settings** window.

## Additional Reading

### Benefits of Software Distribution

- [Introduction to Application Management in Configuration Manager](#)
- [Optimizing Infrastructure: The Relationship Between IT Labor Costs and Best Practices for Systems Management Server](#)

## Lesson 2

# Configuring Packages and Programs

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## Question and Answers

### Demonstration: Creating a Package and Program

**Question:** Why does NYC-SVR1 report that content is still in progress?

**Answer:** NYC-SVR1 has been enabled for prestaged content. In addition, the package has been configured to manually copy content to distribution points that are enabled for prestaged content.

# Detailed Demonstration Steps

## Demonstration: Creating a Package and Program

### Detailed demonstration steps

**Note** Virtual machines 10747A-NYC-DC1-B and 10747A-NYC-CFG-B are required to complete this demonstration. Log on to the virtual machines as **Contoso\Administrator** with the password as **Pa\$\$w0rd**. In addition, note that all previous demonstrations should be completed before demonstrating these tasks.

#### Create a package and a program

1. On NYC-CFG, open the System Center 2012 Configuration Manager console.
2. Click the **Software Library** workspace, expand **Application Management**, and then click **Packages**.
3. Right-click Packages and then click Create Package. The Create Package and Program Wizard opens.
4. On the **Package** page, configure the following settings and then click **Next**:
  - Name: Office Viewers
  - Description: Microsoft Office Viewers Package
  - Manufacturer: Microsoft
  - Language: English
  - Version: 2007
  - This package contains source files: Selected
  - Source folder: Local folder on site server: E:\Software\Office Viewers
5. On the **Program Type** page, select **Standard program**, and then click **Next**.
6. On the **Standard Program** page, configure the following settings, and then click **Next**:
  - Name: PowerPoint Viewer
  - Command line: PPTViewer\PowerPointViewer.exe /quiet
  - Program can run: Only when a user is logged on
  - Run mode: Run with administrative rights
7. On the **Requirements** page, configure the following, and then click **Next**:
  - Estimated disk space: **550 MB**
  - Maximum allowed run time (minutes): **15**
8. On the **Summary** page, click **Next**.
9. On the **Completion** page, click **Close**.

#### Modify the package

1. Click the **Software Library** workspace, expand **Application Management**, and then click **Packages**.
2. In the results pane, right-click **Office Viewers** and then click **Properties**.

3. Click the **Data Source** tab, and then select the check box next to **Enable binary differential replication**.
4. Click the **Data Access** tab, and then select the check box next to **Disconnect users from distribution points**.
5. Click the **Distribution Settings** tab. Notice that the **Prestaged distribution point settings** option is configured to **Manually copy the content in this package to the distribution point**.
6. Click **OK** to close the **Office Viewers Properties** dialog box.

#### Create a new program

1. Click the **Software Library** workspace, expand **Application Management**, and then click **Packages**.
2. In the results pane, click **Office Viewers**.
3. In the preview pane, click the **Programs** tab. Point out that the initial program is listed.
4. Right-click **Office Viewers** and then click **Create Program**. The **Create Program Wizard** starts.
5. On the **Program Type** page, select the **Standard program** option, and then click **Next**.
6. On the **Standard Program** page, configure the following settings, and then click **Next**:
  - Name: Visio Viewer
  - Command line: VisioViewer\VisioViewer.exe /quiet
  - Program can run: Only when a user is logged on
  - Run mode: Run with administrative rights
7. On the **Requirements** page, configure the following, and then click **Next**:
  - Estimated disk space: 550 MB
  - Maximum allowed run time (minutes): 15
8. On the **Summary** page, click **Next**.
9. On the **Completion** page, click **Close**.
10. In the preview pane, right-click **Visio Viewer** and then click **Properties**. Discuss the options to modify the program if required.

#### Distribute the package to a distribution point

1. Click the **Software Library** workspace, expand **Application Management**, and then click **Packages**.
2. In the results pane, right-click **Office Viewers** and then click **Distribute Content**. The **Distribute Content Wizard** opens.
3. On the **General** page, click **Next**.
4. On the Content Destination page, click Add, and then click Distribution Point.
5. On the **Add Distribution Points** dialog box, click the check box next to **\\NYC-CFG.Contoso.com**, and then click **OK**. Click **Next**.
6. On the **Summary** page, click **Next**.
7. On the **Completion** page, click **Close**.
8. Click the **Monitoring** workspace, expand **Distribution Status**, and then click **Content Status**.

9. In the results pane, click **Microsoft Office Viewers 2007 English**. Discuss the information displayed in the details pane.
10. In the results pane, right-click **Microsoft Office Viewers 2007 English** and then click **View Status**. Discuss that content was distributed to NYC-CFG.

## Lesson 3

# Distributing Content to Distribution Points

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## Question and Answers

### Demonstration: Installing and Configuring the Distribution Point Site System Role

**Question:** Under what circumstances would you choose to add a distribution point to a boundary group?

**Answer:** You might want to configure a protected site system that restricts the use of the distribution point to specific members within a boundary associated with the boundary group.

### Demonstration: Managing Content on Distribution Points

**Question:** You suspect that the content for a specific software application has become corrupt on a distribution point. What can you do to fix the problem?

**Answer:** You can redistribute the content to the distribution point, either from the properties of the software application or package, or from the distribution point itself.

## Detailed Demonstration Steps

### Demonstration: Installing and Configuring the Distribution Point Site System Role

#### Detailed demonstration steps

**Note** Virtual machines 10747A-NYC-DC1-B, 10747A-NYC-SVR1-B, and 10747A-NYC-CFG-B are required to complete this demonstration. Log on to the virtual machines as **Contoso\Administrator** with the password as **Pa\$\$w0rd**.

#### Configure site system prerequisites

1. On NYC-SVR1, open Server Manager.
2. In the Server Manager console, in the navigation pane, expand **Configuration**, expand **Local Users and Groups**, and then click **Groups**.
3. In the details pane, double-click **Administrators**. The **Administrators Properties** dialog box opens.
4. In the **Administrators Properties** dialog box, click **Add**.
5. In the **Select Users, Computers, Service Accounts, or Groups** dialog box, click **Object Types**.
6. In the **Object Types** dialog box, select the check box next to **Computers**, and then click **OK**.
7. In the **Select Users, Computers, Service Accounts, or Groups** dialog box, type **NYC-CFG**. Click **Check Names**, and then click **OK**.
8. Click **OK** to close the **Administrators Properties** dialog box.

#### Add a new site system with the distribution point role

1. On NYC-CFG, open the System Center 2012 Configuration Manager console.
2. Click the **Administration** workspace, expand **Site Configuration**, and then click **Servers and Site System Roles**.
3. Right-click **Servers and Site System Roles** and then click **Create Site System Server**. The **Create Site System Server Wizard** opens.
4. On the **General** page, describe the options, configure the following, and then click **Next**:
  - Name: NYC-SVR1.Contoso.com
  - Site code: S01 – Contoso New York Site
5. On the **System Role Selection** page, select the check box next to **Distribution point**, and then click **Next**.
6. On the **Distribution Point** page, select the check box next to **Install and configure IIS if required by Configuration Manager**. Discuss the other options, but do not configure any additional settings. Click **Next**.
7. On the **Drive Settings** page, configure the following settings, and then click **Next**:
  - Drive space reserve (MB): **250**
  - Primary content library location: **E:**
  - Secondary content library location: **Automatic**

8. On the **PXE Settings** page, click **Next**.
9. On the **Multicast** page, click **Next**.
10. On the **Content Validation** page, select the check box next to **Validate content on a schedule**. Discuss the default schedule, and then click **Next**.
11. On the **Boundary Groups** page, discuss the options (but do not change any settings), and then click **Next**.
12. On the **Summary** page, click **Next**.
13. On the **Completion** page, click **Close**.
14. Click the **Monitoring** workspace, expand **Distribution Status**, and then click **Distribution Point Configuration Status**. Note that as components are installed, the status will show an error state. This will not affect the rest of the tasks. The error state should be resolved and show success after content has been distributed to the distribution point.
15. In the results pane, click **\\NYC-SVR1.Contoso.com**. In the preview pane, discuss the **Summary** and **Details** tabs.

#### **Configure distribution point settings**

1. In the **Administration** workspace, click the **Distribution Points** node.
2. In the results pane, click **\\NYC-SVR1.Contoso.com**. Discuss the information in the preview pane.
3. In the results pane, right-click **\\NYC-SVR1.Contoso.com** and then click **Properties**. Discuss the related settings for each tab and then click **OK** to close the dialog box.

#### **Create a distribution point group**

1. In the **Administration** workspace, click the **Distribution Point Groups** node.
2. Right-click **Distribution Point Groups**, and then click **Create Group**.
3. On the **Create New Distribution Point Group** dialog box, in the **Name** field, type **New York DPs**. In the **Description** field, type **DPs located in New York**.
4. On the **Create New Distribution Point Group** dialog box, on the **Collections** tab, click **Add**.
5. In the **Select Collections** dialog box, click the dropdown menu, and then click **Device Collections**. Select the **All Windows 7 Workstations** check box, and then click **OK**.
6. Click the **Members** tab, and then click **Add**.
7. In the **Add Distribution Points** dialog box, click the [\\NYC-CFG.Contoso.com](#) and [\\NYC-SVR1.Contoso.com](#) check boxes. Click **OK**.
8. Click **OK** to close the **Create New Distribution Point Group** dialog box.

## Demonstration: Managing Content on Distribution Points

### Detailed demonstration steps

**Note** Virtual machines 10747A-NYC-DC1-B, 10747A-NYC-SVR1-B, and 10747A-NYC-CFG-B are required to complete this demonstration. Log on to the virtual machines as **Contoso\Administrator** with the password as **Pa\$\$w0rd**.

#### Distribute content to a distribution point

1. On NYC-CFG, open the System Center 2012 Configuration Manager console.
2. Click the **Software Library** workspace, expand **Application Management**, and then click **Packages**.
3. In the results pane, right-click **Configuration Manager Client Package** and then click **Distribute Content**. The **Distribute Content Wizard** opens.
4. On the **General** page, click **Next**.
5. On the **Content Destination** page, click **Add**, and then click **Distribution Point Group**.
6. On the **Add Distribution Point Groups** dialog box, select the check box next to **New York DPs**, and then click **OK**. Click **Next**.
7. On the **Summary** page, click **Next**.
8. On the **Completion** page, click **Close**.
9. Click the **Monitoring** workspace, expand **Distribution Status**, and then click **Content Status**.
10. In the results pane, click **Configuration Manager Client Package**. Discuss the information displayed in the details pane.
11. In the results pane, right-click **Configuration Manager Client Package**, and then click **View Status**. Discuss the information displayed in the results pane.

#### Manage content on a distribution point

1. In the **Administration** workspace, click the **Distribution Points** node.
2. In the results pane, right-click **\\NYC-SVR1.Contoso.com** and then click **Properties**.
3. Click the **Content** tab. Discuss the **Validate**, **Redistribute**, and **Remove** buttons. Click **OK**.
4. Click the **Software Library** workspace, expand **Application Management**, and then click **Packages**.
5. In the results pane, right-click **Configuration Manager Client Package** and then click **Properties**.
6. Click the **Content Locations** tab. Discuss the **Validate**, **Redistribute**, and **Remove** buttons. Click **OK**.

#### Prestage content on a distribution point

1. Click the Software Library workspace, expand Application Management, and then click Applications.
2. In the results pane, right-click **XML Notepad** and then click **Properties**.
3. Click the Distribution Settings tab. In the Prestaged distribution point settings section, verify that Manually copy the content in this package to the distribution point is selected. Click **OK**.
4. In the results pane, right-click XML Notepad and then click Create Prestage Content File. The Create Prestaged Content File Wizard starts.
5. On the **General** page, click the **Browse** button.

6. In the **Prestaged content file** dialog box, in the **File name** text box, type **E:\XMLNotepad.pkgx** and then click **Save**.
7. On the **General** page, click **Next**.
8. On the **Content** page, click **Next**.
9. On the Content Locations page, click Add. In the Add Distribution Points dialog box, select the [\\NYC-CFG.Contoso.com](#) check box, and then click OK.
10. On the **Content Locations** page, click **Next**.
11. On the **Summary** page, click **Next**.
12. On the **Completion** page, click **Close**.
13. Open Windows Explorer, and then browse to **E:\**. Verify that **XMLNotepad.pkgx** is saved to this location, and then close the Explorer window.
14. In the Configuration Manager console, in the **Administration** workspace, click the **Distribution Points** node.
15. In the results pane, right-click **\\NYC-SVR1.Contoso.com** and then click **Properties**.
16. Select the check box next to Enable this distribution point for prestaged content. Click OK.
17. Click the Software Library workspace, expand Application Management, and then click Applications.
18. In the results pane, right-click **XML Notepad** and then click **Distribute Content**.
19. On the **General** page, click **Next**.
20. On the **Content** page, click **Next**.
21. On the Content Destination page, click Add, and then click Distribution Point.
22. On the **Add Distribution Points** dialog box, select the check box next to **\\NYC-SVR1.Contoso.com**, and then click **OK**. Click **Next**.
23. On the **Summary** page, click **Next**.
24. On the **Completion** page, click **Close**.
25. Click the **Monitoring** workspace, expand **Distribution Status**, and then click **Content Status**.
26. In the results pane, click **XML Notepad**. Discuss the information displayed in the details pane.
27. In the results pane, right-click **XML Notepad** and then click **View Status**. Click the **In Progress** tab, and then discuss the information displayed in the results pane.
28. Switch to NYC-SVR1.
29. Open Windows Explorer, and then browse to **\\NYC-CFG\E\$**.
30. Copy and paste **XMLNotepad.pkgx** to **C:\** on NYC-SVR1.
31. On NYC-SVR1, click **Start**, click **All Programs**, click **Accessories**, and then click **Command Prompt**.
32. In the **Administrator: Command Prompt** window, type the following commands each followed by pressing Enter:
  - E:
  - CD \SMS\_DP\$\SMS\Tools

- ExtractContent /P:C:\XMLNotepad.pkgx /S
- Exit

33. Switch to NYC-CFG.

34. In the results pane, click the **Refresh** link for Content Status for XML Notepad. Click the **Success** and **In Progress** tabs, and then discuss the information displayed in the results pane.

## Additional Reading

### Overview of Content Management by Using Distribution Points

- [Introduction to Content Management in Configuration Manager](#)

### Considerations for Deploying a Distribution Point

- [Planning for Content Management in Configuration Manager](#)

### Process for Installing and Configuring a Distribution Point

- [Configuring Content Management in Configuration Manager](#)

### Content Management Tasks for Distribution Points

- [Operations and Maintenance for Content Management in Configuration Manager](#)

## Lesson 4

# Deploying Programs to Configuration Manager Clients

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## Question and Answers

### How Clients Run Deployments

**Question:** If a program is configured to run only when no user is logged on, and if that program is advertised to run after the next logon, when will the program run?

**Answer:** The program will run after the next user logs on and logs off again.

### Demonstration: Deploying a Program by Using the Deploy Software Wizard

**Question:** You need to allow end -users to reinstall a software deployment at any time. What can you do?

**Answer:** Enable the deployment option: **Allow users to run the program independently of assignments.**

## Detailed Demonstration Steps

### Demonstration: Deploying a Program by Using the Deploy Software Wizard

#### Detailed demonstration steps

**Note** Virtual machines 10747A-NYC-DC1-B, 10747A-NYC-SVR1-B, 10747A-NYC-CFG-B, and 10747A-NYC-CL1-B are required to complete this demonstration. Log on to the virtual machines as **Contoso\Administrator** with the password as **Pa\$\$w0rd**. In addition, note that all previous demonstrations should be completed before demonstrating these tasks.

#### Deploy a program

1. On NYC-CFG, open the System Center 2012 Configuration Manager console.
2. Click the **Software Library** workspace, expand **Application Management**, and then click **Packages**.
3. In the results pane, click the **Office Viewers** package.
4. In the preview pane, select the **Programs** tab, right-click the **PowerPoint Viewer** program, and then click **Deploy**. The **Deploy Software Wizard** starts.
5. On the **General** page, configure the following settings, and then click **Next**:
  - Software: Office Viewers (PowerPoint Viewer)
  - Collection: All Windows 7 Workstations
6. On the **Content** page, click **Next**.
7. On the **Deployment Settings** page, configure the following settings, and then click **Next**:
  - Purpose: **Required**
8. On the **Scheduling** page, next to **Assignment schedule**, click **New**. In the **Assignment Schedule** dialog box, select the **Assign immediately after this event** option. Ensure that **As soon as possible** is displayed, and then click **OK**.
9. On the Scheduling page, click **Next**.
10. On the **User Experience** page, click **Next**.
11. On the **Distribution Points** page, verify that **Download content from distribution point and run locally** is selected, and then click **Next**.
12. On the **Summary** page, click **Next**.
13. On the **Completion** page, click **Close**.

#### Run a deployed program on a client

1. Switch to NYC-CL1.
2. Open Control Panel, and then click **System and Security**.
3. Click **Configuration Manager**.
4. In the **Configuration Manager Properties** dialog box, click the **Actions** tab.
5. In the **Actions** tab, click **Machine Policy Retrieval & Evaluation Cycle**, and then click **Run Now**.

6. In the **Machine Policy Retrieval & Evaluation Cycle** message box, click **OK**.
7. Click **OK** to close the **Configuration Manager Properties** dialog box, and then close the Control Panel. In a few moments, the software will automatically install on the client.
8. On NYC-CL1, click **Start**, click **All Programs**, and verify that Microsoft Office PowerPoint Viewer 2007 shows in the start menu.

**View software deployment status**

1. On NYC-CFG, click the **Monitoring** workspace, and then click **Deployments**. Run a summarization and then verify that the deployment is successful.

# Module Reviews and Takeaways

## Review questions

**Question:** What are some of the ways that software distribution can help reduce total cost of ownership?

**Answer:** Software distribution can help reduce TCO by:

**Question:** Reducing the need for staff to install software manually.

- Increasing the consistency of software installations.
- Improving client satisfaction by reducing the wait time for application installations.

**Question:** What is the default timeout when you are deploying a package to a distribution point?

**Answer:** By default, the timeout process of copying a package to a distribution point is 50 hours, at which point an error status message will generate.

**Question:** Which object must be created first, the package or the program?

**Answer:** The package must be created first. You cannot create a program until a package exists.

**Question:** What can you do to ensure that software is not installed during working hours?

**Answer:** You can configure a maintenance window on the collection to help control when software is installed.

## Lab Review Questions and Answers

### Lab: Managing Software Deployment by Using Packages and Programs

**Question:** Where can you quickly review the status of deployed software?

**Answer:** You can quickly review the status of deployed software on the **Deployments** node of the **Monitoring** workspace.

**Question:** Can you distribute a package to a distribution point without defining a program?

**Answer:** Yes, you can distribute a package to a distribution point without defining a program. However, you cannot deploy the package until a program is defined.

**Question:** You do not want to deploy a program until it has been distributed to all distribution points. How can you tell if the package has been successfully distributed to distribution points?

**Answer:** You can review the status of content on the Content Status node of the Monitoring workspace.

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# Module 7

## Creating and Deploying Applications

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## Lesson 1

# Overview of Application Management

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# Question and Answers

## Overview of the Configuration Manager Application Model

**Question:** Compared to how you currently deploy applications, which of these benefits would be most helpful in your work environment?

**Answer:** Answers will vary.

## Applications vs. Packages

**Question:** In your work environment, how can you take advantage of the enhanced capabilities of applications as compared to packages?

**Answer:** Answers will vary, but can include using deployment types with an application to control their installation behavior.

## Deployment Types

**Question:** When creating an application for Microsoft Office 2010, how many deployment types can you create?

**Answer:** Answers will vary. However, it depends on the number of Office applications that are virtualized and the number of different custom Office installations that are performed.

## Application Management Features

**Question:** What is the difference between a requirement rule and a global condition?

**Answer:** A global condition defines a business or technical condition and is not associated with a specific deployment type. A requirement rule is associated with a specific deployment type and includes the values being evaluated by the conditions defined in the global condition used to create the requirement rule.

## What Is Software Center?

**Question:** Why would you configure a deployment to be available to devices?

**Answer:** Answers will vary, but can include if the device collection includes all devices from a department and the application, although not required, is used by members of that department.

## Additional Reading

### Overview of the Configuration Manager Application Model

- [Introduction to Application Management in Configuration Manager](#)

### Applications vs. Packages

- [Introduction to Application Management in Configuration Manager](#)

### Prerequisites for the Application Catalog

- [Prerequisites for Application Management in Configuration Manager](#)

### Deployment Types

- [Introduction to Application Management in Configuration Manager](#)

### Application Management Features

- [Introduction to Application Management in Configuration Manager](#)

## Lesson 2

# Creating Applications

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# Question and Answers

## Creating an Application by Using Automatically Detected Settings

**Question:** When creating a new application, do you need to modify the application to be able to use it?

**Answer:** No. However, the default application does not include any categories or keywords or other settings that make it easier for users. A default application does not include any requirement rules to help manage the deployment, and there is only one deployment type configured.

## Demonstration: Creating an Application from an MSI file

**Question:** When creating a new application for a suite such as Office 2010, how many applications would you create in your work environment?

**Answer:** The number of applications depends on whether your organization wants to deploy the full suite to all employees or only specific components of the suite to certain employees.

## Creating Applications Manually

**Question:** What do you think is the benefit of manually creating applications?

**Answer:** Answers will vary. One possible answer is that the manual method allows you to add more initial information in the Create Application Wizard.

## Creating Deployment Types Manually

**Question:** When would you create a new deployment type?

**Answer:** Answers will vary, but can include times when:

- Manually creating an application for software that does not support any automatic creation methods.
- Enhancing the deployment options for a suite of applications.

## What Is a Detection Method?

**Question:** If you are deploying an application suite, such as Office 2010, how many detection rules would you use?

**Answer:** The answer depends on several factors, such as:

- Do all users require all the suite components?
- Are specific components more important than others?

## Overview of User Experience Settings

**Question:** In your work environment, do you plan on deploying to users or systems? Are you going to allow users to interact with deployments?

**Answer:** Answers will vary. System Center 2012 Configuration Manager is designed to be user centric. Hence, typically, applications are deployed to users and users do not interact with deployments.

## Demonstration: Creating an Application and a Deployment Type Manually

**Question:** When would you manually create a deployment type for an MSI installer?

**Answer:** Answers will vary, but can include times when you want to customize the installation program to include nondefault settings or a MSI Transforms (MST) file.

# Detailed Demonstration Steps

## Demonstration: Creating an Application from an MSI File

### Detailed demonstration steps

In this demonstration, you will show the students how to create an application from an MSI file. Virtual machines 10747A-NYC-DC1-B and 10747A-NYC-CFG-B are required to complete this demonstration. Log on to the virtual machines as **Contoso\Administrator** with the password **Pa\$\$w0rd**.

#### Create an application

1. On NYC-CFG, click **Start**, click **All Programs**, click **Microsoft System Center 2012**, click **Configuration Manager**, and then click **Configuration Manager Console**.
2. Click the **Software Library** workspace, expand **Application Management**, and then click **Applications**.
3. Right-click **Applications** and then click **Create Application**.
4. In the **Create Application Wizard**, on the **General** page, ensure the **Automatically detect information about this application from installation files** option is selected and the **Type** list displays **Windows Installer (Native)**, and then click **Browse**.
5. Navigate to **\\NYC-CFG\E\$\Software\ExcelViewer**, click **xlview.msi**, and then click **Open**.
6. On the **General** page, click **Next**.
7. On the **Import Information** page, click **Next**.
8. On the **General Information** page, in the **Administrator comments** box, type **Excel viewer program**, in the **Manufacturer** box, type **Microsoft**, and then in the **Software Version** box, type **12.0.4518.1069**.
9. Under **Administrative categories**, click **Select**.
10. In the **Manage Administrative Categories** dialog box, click **Create**, and in the **Create Administrative Category** box, type **Viewer**, and then click **OK**.
11. In the **Manage Administrative Categories** dialog box, click **OK**.
12. On the **General Information** page, click **Next**.
13. On the **Summary** page, click **Next**.
14. On the **Completion** page, click **Close**.

#### Modify an application

1. In the results pane, click **Microsoft Office Excel Viewer**, and then on the ribbon, click **Properties**. Review the setting on the **General** tab.
2. On the Application Catalog tab, next to User categories, click **Edit**.
3. In the **User Categories** dialog box, click **Create**.
4. In the **Create User Category** dialog box, in the **Specify the name of the new user category** box, type **Viewers**, and then click **OK**.
5. In the **User Categories** dialog box, click **Create**.

6. In the Create User Category dialog box, in the Specify the name of the new user category box, type Excel, click OK, and then in the User Categories dialog box, click OK.
7. In the **Keywords** box, type **Spreadsheet**, and then next to **Icon**, click **Browse**.
8. In the **Change Icon** dialog box, click **Browse**, navigate to **C:\Windows\System32\imageres.dll**, and then click **Open**.
9. Click an icon, and then click **OK**.
10. In the Microsoft Office Excel Viewer Properties dialog box, click OK.

## Demonstration: Creating an Application and a Deployment Type Manually

### Detailed demonstration steps

In this demonstration, you will show the students how to manually create an application and a deployment type. Virtual machines 10747A-NYC-DC1-B and 10747A-NYC-CFG-B are required to complete this demonstration. Log on to the virtual machines as **Contoso\Administrator** with the password **Pa\$\$w0rd**.

#### Manually create an application

1. On NYC-CFG, in the System Center 2012 Configuration Manager console, click the **Software Library** workspace, expand the **Application Management** folder, click the **Applications** node.
2. Right-click **Applications** and then click **Create Application**.
3. In the **Create Application Wizard**, on the **General** page, click the **Manually specify the application information** option, and then click **Next**.
4. On the **General** page, in the **Name** box, type **Microsoft Office Word Viewer**, in the **Administrator comments** box, type **Word viewer program**, in the **Manufacturer** box, type **Microsoft**, and then in the **Software Version** box, type **11.6506.6505**.
5. Next to **Administrative categories**, click **Select**.
6. In the **Manage Administrative Categories** dialog box, select the **Viewer** check box, and then click **OK**.
7. On the **General** page, click **Next**.
8. On the **Application Catalog** page, in the **Localized description** box, type **Word Viewer for users without Microsoft Word available**, in the **Keywords** box, type **Word, Viewer**, and then click **Next**.
9. On the **Deployment Types** page, click **Next**.
10. On the **Summary** page, click **Next**.
11. On the **Completion** page, click **Close**.

#### Manually create a deployment type

1. In the results pane, click **Microsoft Office Word Viewer**, and then on the ribbon, click **Properties**.
2. In the **Microsoft Office Word Viewer Properties** dialog box, click the **Deployment Types** tab, and then click **Add**.
3. In the **Create Deployment Type Wizard**, on the **General** page, click the **Manually specify the deployment type information** option, ensure the **Type** list displays **Windows Installer (Native)**, and then click **Next**.

4. On the **General Information** page, in the **Name** box, type **Install Word Viewer for all users**, and then click **Next**.
5. On the **Content** page, in the **Content location** box, type **\\NYC-CFG\E\$\Software\WordViewer**, and then in the **Installation program** box, type the following code:
  6. **msiexec.exe /q ALLUSERS=2 /m MSIYLYMA /i "wordview.msi"**
7. In the **Uninstall program** box, type the following code, and then click **Next**:
  8. **msiexec.exe /q ALLUSERS="" /m MSIYLYMA /x "wordview.msi"**
9. On the **Detection Method** page, click **Add Clause**, and in the **Setting Type** list, select **Windows Installer**, and then next to the **Product code** box, click **Browse**.
10. In the **Open** dialog box, browse to **\\NYC-CFG\E\$\Software\WordViewer**, click **wordview.msi**, and then click **Open**.
11. On the **Detection Rule** page, click **OK**.
12. On the **Detection Method** page, click **Next**.
13. On the **User Experience** page, in the **Installation behavior** list, select **Install for system**, and then in the **Logon requirement** list, select **Whether or not a user is logged on**.
14. In the **Maximum allowed run time (minutes)** box, type **15**, in the **Estimated installation time (minutes)** box, type **2**, and then click **Next**.
15. On the **Requirements** page, click **Next**.
16. On the **Dependencies** page, click **Next**.
17. On the **Summary** page, click **Next**.
18. On the **Completion** page, click **Close**.
19. In the **Microsoft Office Word Viewer Properties** dialog box, click **OK**.



## Additional Reading

### Creating an Application by Using Automatically Detected Settings

- [How to Create Applications in Configuration Manager](#)

### Creating Applications Manually

- [How to Create Applications in Configuration Manager](#)

### Creating Deployment Types Manually

- [How to Create Deployment Types in Configuration Manager](#)

### What Is a Detection Method?

- [How to Create Deployment Types in Configuration Manager](#)

### Overview of User Experience Settings

- [How to Create Deployment Types in Configuration Manager](#)

## Lesson 3

# Deploying Applications

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## Question and Answers

### Deploying an Application to a User or a Device

**Question:** Are you more likely to deploy to users or devices in your work environment?

**Answer:** Answers will vary.

### Demonstration: Distributing Content to Distribution Points

**Question:** When deploying applications, why would you want to distribute the content to the distribution points before deploying the application to users?

**Answer:** By distributing the content to the distribution points before deploying the application to users, you ensure that the application is ready for download after the users have received the deployment.

### Demonstration: Deploying an Application

**Question:** When deploying applications, will you perform more of Required deployments or Available deployments?

**Answer:** Answers will vary. You might use Required deployments for applications that have to be available for users at any cost. However, if these users frequently use multiple systems and there is no one primary device, you may want to use Available deployments so that the users can deploy applications when they need them.

### Monitoring Application Deployment

**Question:** How do you currently monitor application deployments?

**Answer:** Answers will vary but can include relying on users to report errors or manually checking systems as they are deployed.

# Detailed Demonstration Steps

## Demonstration: Distributing Content to Distribution Points

### Detailed demonstration steps

In this demonstration, you will show the students how to distribute content to a distribution point. Virtual machines 10747A-NYC-DC1-B and 10747A-NYC-CFG-B are required to complete this demonstration. Log on to the virtual machines as **Contoso\Administrator** with the password **Pa\$\$w0rd**.

#### Distribute content to a distribution point

1. On NYC-CFG, in the System Center 2012 Configuration Manager console, click the **Software Library** workspace, expand the **Application Management** folder, and then click the **Applications** node.
2. Click Microsoft Office Excel Viewer, and then on the ribbon, click Deployment, and then click Distribute Content.
3. In the **Distribute Content Wizard**, on the **General** page, click **Next**, and then on the **Content** page, click **Next**.
4. On the Content Destination page, click Add, and then click Distribution Point.
5. In the **Add Distribution Points** dialog box, select the **\\NYC-CFG.Contoso.com** check box, and then click **OK**.
6. On the Content Destination page, click Next.
7. On the **Summary** page, click **Next**.
8. On the **Completion** page, click **Close**.
9. In the preview pane, click the **Summary** tab, and then click **Content Status**.
10. In the results pane, click Microsoft Office Excel Viewer.
11. If the content status does not show success, on the ribbon, click **Refresh** until the **Status** shows **Success**.
12. On the ribbon, click **View Status**, and then review the **Content Status** results.

## Demonstration: Distributing Content to Distribution Points

### Detailed demonstration steps

In this demonstration, you will show the students how to deploy an application. Virtual machines 10747A-NYC-DC1-B and 10747A-NYC-CFG-B are required to complete this demonstration. Log on to the virtual machines as **Contoso\Administrator** with the password **Pa\$\$w0rd**.

#### Deploy an application

1. Click the **Software Library** workspace, and then under **Application Management**, click the **Applications** node.
2. Click **Microsoft Office Excel Viewer**, and then on the ribbon, click **Deployment**, and then click **Deploy**.
3. In the **Deploy Software Wizard**, on the **General** page, next to the **Collection** box, click **Browse**.
4. In the **Select Collection** dialog box, click **All Users**, click **OK**, and then click **Next**.

5. On the **Content** page, click **Next**.
6. On the **Deployment Settings** page, in the **Purpose** list, select **Required**, and then click **Next**.
7. On the **Scheduling** page, select the **Schedule at** option, in the date list, select *tomorrow's date*, and then click **Next**.
8. On the **User Experience** page, select the **Software Installation** check box, and then click **Next**.
9. On the **Alerts** page, click **Next**.
10. On the **Summary** page, click **Next**.
11. On the **Completion** page, click **Close**.

## Additional Reading

### The Process for Deploying Applications

- [How to Deploy Applications in Configuration Manager](#)

### Options for Deploying Applications

- [How to Deploy Applications in Configuration Manager](#)

### Monitoring Application Deployment

- [How to Monitor Applications in Configuration Manager](#)

## Lesson 4

# Configuring the Application Catalog

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# Question and Answers

## Overview of the Application Catalog

**Question:** In your work environment, are you going to allow users to specify their own primary devices?

**Answer:** It depends. Having users designate their own devices reduces some of the work the Configuration Manager administrator has to do, but this may lead to some inaccuracies.

## System Roles Required for the Application Catalog

**Question:** When will you allow users to install software through an Internet-published Application Catalog website point?

**Answer:** Answers will vary, but may include times when you have a highly mobile work group that is not connected to the LAN very often or if you are supporting work from home users.

## Demonstration: Installing the Application Catalog System Roles

**Question:** In the demonstration, you specified the Application Catalog. When would you use the Automatically detect setting?

**Answer:** Answers will vary but may include times when you have multiple locations and want to use the same client settings across all locations and yet want the users to attach to a local Application Catalog.

## Making Applications Appear in the Application Catalog

**Question:** Why would you configure a deployment to require administrator approval?

**Answer:** Answers will vary but can include situations in which the number of available licenses for the software is severely constrained.

## Demonstration: Deploying and Requesting Applications in the Application Catalog

**Question:** Why would you configure an application to install silently when it requires user interaction to request it?

**Answer:** This is because if the deployment allows user interaction, users can make mistakes while installing it.



# Detailed Demonstration Steps

## Demonstration: Installing the Application Catalog System Roles

### Detailed demonstration steps

In this demonstration, you will show the students how to install the roles that make up the Application Catalog. Virtual machines 10747A-NYC-DC1-B and 10747A-NYC-CFG-B are required to complete this demonstration. Log on to the virtual machines as **Contoso\Administrator** with the password **Pa\$\$w0rd**.

#### Install the Application Catalog system roles

1. Switch to the NYC-CFG computer.
2. Click the **Administration** workspace, expand the **Site Configuration** folder, and then click the **Servers and Site System Roles** node.
3. Click **\\NYC-CFG.Contoso.com**, on the ribbon click **Home**, and then click **Add Site System Roles**.
4. In the **Add Site System Roles Wizard**, on the **General** page, click **Next**.
5. On the **System Role Selection** page, select the **Application Catalog Web Service Point** and **Application Catalog Website Point** check boxes, and then click **Next**.
6. On the **Application Catalog Web Service Point** page, click **Next**.
7. On the **Application Catalog Website Point** page, click **Next**.
8. On the **Application Catalog Customizations** page, in the **Organization name** box, type **Contoso, Ltd.**
9. Next to **Website theme**, click the color list, select a color, and then click **Next**.
10. On the **Summary** page, click **Next**.
11. On the **Completion** page, click **Close**.

#### Configure the Default Client Settings

1. Click the **Administration** workspace, click the **Client Settings** node, click **Default Client Settings**, and then on the ribbon, click **Properties**.
2. Click **Computer Agent**.
3. Next to the **Default Application Catalog website point** label, click **Set Website**.
4. In the **Configure Client Setting** dialog box, in the **Select Application Catalog website point** list, select **NYC-CFG.Contoso.com (use intranet FQDN)**, and then click **OK**.
5. In the **Add default Application Catalog website to Internet Explorer trusted sites zone** list, select **True**, and then in the **Default Settings** dialog box, click **OK**.

## Demonstration: Deploying and Requesting Applications in the Application Catalog

### Detailed demonstration steps

In this demonstration, you will show the students how to deploy an application to the Application Catalog for Administrator Approval. Virtual machines 10747A-NYC-DC1-B, 10747A-NYC-CL1-B, and 10747A-NYC-CFG-B are required to complete this demonstration. Log on to the virtual machines as

**Contoso\Administrator** with the password **Pa\$\$w0rd**.

#### Modify an application

1. Click the **Software Library** workspace, and then under **Application Management**, click the **Applications** node.
2. Click the **XML Notepad** application, and then on the ribbon, click **Properties**.
3. In the **XML Notepad Properties** dialog box, on the **Deployment Types** tab, click the **XML Notepad 2007 – Windows installer (Native)** deployment type, and then click **Edit**.
4. In the **XML Notepad 2007 – Windows installer (Native) Properties** dialog box, on the **Programs** tab, in the **Installation program** box, verify the following:  
`Msiexec /q /i "XmlNotepad.msi"`
5. Click **OK**, and then in the **XML Notepad Properties** dialog box, click **OK**.

#### Deploy an application that requires administrator approval

1. Right-click **XML Notepad**, and then click **Deploy**.
2. In the **Deploy Software Wizard**, on the **General** page, next to the **Collection** box, click **Browse**.
3. In the **Select Collection** dialog box, click **All Users**, click **OK**, and then click **Next**.
4. On the **Content** page, click **Next**.
5. On the **Deployment Settings** page, ensure that in the **Purpose** list **Available** is selected, select the **Require administrator approval if users request this application** check box, and then click **Next**.
6. On the **Scheduling** page, click **Next**.
7. On the **User Experience** page, click **Next**.
8. On the **Alerts** page, click **Next**.
9. On the **Summary** page, click **Next**.
10. On the **Completion** page, click **Close**.

#### Request an application

1. Switch to the NYC-CL1 computer.
2. Open Internet Explorer and browse to <http://nyc-cfg.contoso.com/CMApplicationCatalog>. If you are prompted for credentials, type **Contoso\Administrator** with the password **Pa\$\$w0rd**. Also if you are prompted to run an add-on, click the banner, click **Run Add-on**, and then click **Run**.
3. Click **XML Notepad**, and then click **Request**.
4. In the **Reason for application request (required)** box, type **To edit XML documents**, and then click **Submit**.

### **Approve an application request**

1. Switch to the NYC-CFG computer.
2. Click the **Software Library** workspace, expand the **Application Management** folder, and then click the **Approval Requests** node.
3. In the results pane, click **XML Notepad**, on the ribbon, click **Approve**, and then in the **Application Request(s)** dialog box, click **OK**.

### **Install an approved application**

1. Switch to the NYC-CL1 computer.
2. In the Application Catalog window, click **My Application Requests**, and then notice the application has been approved.
3. Click the **Application Catalog** tab, and notice the **XML Notepad** application no longer requires administrator approval.
4. Click **XML Notepad**, and then click **Install**. Click **Yes** at the message box. Monitor the **Status** of the installation until the Software Center message box appears stating that the software installation is complete.

## Additional Reading

### Making Applications Appear in the Application Catalog

- [How to Deploy Applications in Configuration Manager](#)

## Module Reviews and Takeaways

### Review questions

**Question:** What are some of the differences between an application and a package?

**Answer:** There are several differences between an application and a package; one of the differences is that an application contains more built in intelligence for deploying software than a package.

**Question:** What are some of the differences between a deployment type and a program?

**Answer:** There are several differences between deployment types and programs. One difference is that unlike a program, a deployment type contains more information about the software being installed.

**Question:** How can you create an application?

**Answer:** There are two ways to create an application: automatically by importing the information from an installer file such as an .msi file or a .cab file and manually.

**Question:** What is a detection method?

**Answer:** Detection methods enable the deployment process to determine whether or not an application is already present in a system. Detection methods can use file or folder properties, registry settings, or scripts for determining if a particular application is installed.

**Question:** What is the Application Catalog?

**Answer:** The Application Catalog is a website that allows users to install or request available software and to provide them with control over their application deployment experience.

# Lab Review Questions and Answers

## Lab A: Creating and Deploying Applications

**Question:** At the end of Exercise 1, why did the Completion Statistics for Microsoft Office Excel Viewer display as In Progress when viewed in the preview pane?

**Answer:** The administrator is associated with several devices, such as NYC-CL1 and NYC-CFG. The status reflects the lowest status of all the devices, which is In Progress for NYC-CFG.

**Question:** At the end of Exercise 1, what was the status for the NYC-CL1 asset and the NYC-CFG asset? What did the Unknown tab show?

**Answer:** The status of NYC-CL1 was Success. On the In Progress tab, the status of NYC-CFG was Content downloaded. The Unknown tab showed 43 users with a status of Unknown.

**Question:** At the end of Exercise 2, what did the Completion Statistics for Microsoft Office PowerPoint Viewer 2007 (English) display in the preview pane?

**Answer:** The Completion Statistics for Microsoft Office PowerPoint Viewer 2007 (English) displayed Success.

**Question:** At the end of Exercise 2, what was the status for the NYC-CL1 asset and the NYC-CFG asset?

**Answer:** The status of NYC-CL1 was Success. There was no status page for NYC-CFG. There was no additional status information.

**Question:** Why is the status of each deployed application so different?

**Answer:** You deployed the first application as Required. Hence, the status was based on all the users who have or have not installed the application and systems that have downloaded the content. You deployed the second application as Available. Hence, the status process does not have any information to use other than attempted installations. Therefore, the status of each deployed application was different.

## Lab B: Deploying Applications from the Application Catalog

**Question:** What applications would you make available to users without needing administrator approval?

**Answer:** Answers will vary. Possible answers include applications used in general that are not required or limited by a license restriction.

**Question:** Why was it important to modify the XML Notepad 2007 application?

**Answer:** It was important to modify the XML Notepad 2007 application because as created, the application did not do a silent install and would have needed user input.

**Question:** What was the status of the approved application when you first switched back to Software Center?

**Answer:** The application status was: Waiting to be installed outside of working hours. The application would have installed on its own if there was no user intervention.

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# Module 8

## Managing Application Deployment

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## Lesson 1

# Configuring Requirements and Dependencies for Deployment Types

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## Question and Answers

### What Are Global Conditions?

**Question:** What kind of Global Conditions might you create for your environment?

**Answer:** Answers will vary. Perhaps, a registry entry related to a locally develop line of business application or specific versions of an application executable file.

### Demonstration: Creating a Global Condition

**Question:** In your environment, what types of Global Settings would you want to create?

**Answer:** Answers will vary.

### What Are Requirement Rules?

**Question:** What would happen to your network if you configured deployment re-evaluation to every 15 minutes and used requirements on your applications?

**Answer:** You will generate a lot of network traffic every 15 minutes as the requirements are evaluated for each system.

### Demonstration: Creating a Device Requirement

**Question:** When creating requirements, should you create multiple requirements for each deployment type?

**Answer:** You should create as many requirements as you need to define the deployment. Using too many requirements could lead to no targets meeting the requirements.

### Dependencies for Deployment Types

**Question:** What would you use the dependency feature for?

**Answer:** Answers will vary. One possible answer is when deploying an add-on for an application. There may also be a dependency for a version of the .NET Framework to run the add-on.

# Detailed Demonstration Steps

## Demonstration: Creating a Global Condition

### Detailed demonstration steps

**Note** Virtual machines 10747A-NYC-DC1-B and 10747A-NYC-CFG-B are required to complete this demonstration. Log on to the virtual machines as **Contoso\Administrator** with the password as **Pa\$\$w0rd**.

#### Create global conditions

1. In the Configuration Manager Console, click the Software Library workspace, expand the Application Management folder, and then click the Global Conditions node.
2. Click Create Global Condition on the ribbon.
3. In the **Create Global Condition** dialog box, click the **Browse** button.
4. In the **Browse Registry** dialog box, expand **HKEY\_LOCAL\_MACHINE**, expand **Software**, expand **Microsoft**, click **Internet Explorer**, and then in the **Registry Value** field, click **Version** and then click **OK**.
5. In the Create Global Condition dialog box, in the Name box, type: Internet Explorer Version
6. In the **Create Global Condition** dialog box, click **OK**.

## Demonstration: Adding a Device Requirement

### Detailed demonstration steps

**Note** Virtual machines 10747A-NYC-DC1-B and 10747A-NYC-CFG-B are required to complete this demonstration. Log on to the virtual machines as **Contoso\Administrator** with the password as **Pa\$\$w0rd**.

#### Create global conditions

#### Add device requirements

1. On NYC-CFG, click **Start**, click **All Programs**, click **Microsoft System Center 2012**, click **Configuration Manager**, and then click **Configuration Manager Console**.
2. Click the **Software Library** workspace, expand the **Application Management** folder, and then click the **Applications** node.
3. Select the **XML Notepad** application, and then click **Properties** on the ribbon.
4. In the **XML Notepad Properties** dialog box, click the **Deployment Types** tab.
5. Select the **XML Notepad– Windows Installer (Native)** deployment type, and then click **Edit**.
6. In the **XML Notepad 2007 – Windows Installer (Native) Properties** dialog box, click the **Requirements** tab.
7. Click the **Add** button
8. In the **Create Requirement** dialog box, in the **Category** drop down list, click **Custom**.
9. In the **Condition** drop down, click **Internet Explorer Version**.
10. In the **Operator** drop down, click **Begins with**.

11. In the **Value** box, type: **8.0.7600** and then click **OK**.
12. Click the **Add** button
13. In the **Category** drop down list, click **Device**.
14. In the **Condition** drop down list, click **Disk space**.
15. In the **Select local logical drive** drop down list, click **System drive**.
16. In the **Operator** drop down list, select **Greater than or equal to**
17. In the **Value** box, type **20480**
18. In the **Create Requirement** dialog box, click **OK**.
19. In the **XML Notepad 2007 – Windows Installer (Native) Properties** dialog box, click **OK**.
20. In the **XML Notepad Properties** dialog box, click **OK**.

## Additional Reading

### What Are Global Conditions?

- [How to Create Global Conditions in Configuration Manager](#)

### What Are Requirement Rules?

- [How to Create Deployment Types in Configuration Manager](#)

## Lesson 2

# Configuring Multiple Deployment Types and User Device Affinity

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## Question and Answers

### Reasons for Implementing Multiple Deployment Types

**Question:** What applications in your environment would you use multiple deployment types for?

**Answer:** Answers will vary.

### What Is a Simulated Deployment?

**Question:** Would you use a simulated deployment for every deployment?

**Answer:** Answers will vary. Answers could include no, only for complex deployments with several requirements.

### What Is User Device Affinity?

**Question:** In your environment how would you use User Device Affinity?

**Answer:** Answers will vary.

### Demonstration: Configuring User Device Affinity

**Question:** Which method of defining user device affinity will work best in your environment?

**Answer:** Answers will vary.

## Detailed Demonstration Steps

### Demonstration: Configuring User Device Affinity

#### Detailed demonstration steps

**Note** Virtual machines 10747A-NYC-DC1-B and 10747A-NYC-CFG-B are required to complete this demonstration. Log on to the virtual machines as **Contoso\Administrator** with the password as **Pa\$\$w0rd**.

#### Assign device affinity for a user

1. On NYC-CFG, in the **Configuration Manager Console**, click the **Assets and Compliance** workspace, and then select the **Users** node.
2. Click Contoso\Administrator (Administrator), and then click the Edit Primary Devices button on the ribbon.
3. In the Devices of this user in the last 90 days dialog box, click NYC-CFG, and then click Add.
4. In the **Edit Primary Devices** dialog box, click **OK**.



## Additional Reading

### The Process for Creating Multiple Deployment Types

- [How to Create Deployment Types in Configuration Manager](#)

### What Is User Device Affinity?

- [How to Manage User Device Affinity in Configuration Manager](#)

### Methods for Configuring User Device Affinity

- [How to Manage User Device Affinity in Configuration Manager](#)

## Lesson 3

# Managing Applications

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## Question and Answers

### What Is Application Revision History?

**Question:** If an application has 10 revisions and you restore the first revision, how many revisions will you have?

**Answer:** You will now have 11 revisions; restoring a revision creates a new revision and does not remove any of the other revisions.

### Retiring Applications

**Question:** When would you retire an application instead of uninstalling it or deleting it?

**Answer:** Answers will vary but could include the following: If you need to continue using an application and do not want any new deployments to occur, you can either retire or delete the application. If you delete the application and decide you want to uninstall it later, you would need to create a new application. If you have retired an application, you would just need to reinstate it when the time comes to deploy an uninstall action. If you uninstall the application from clients, you can keep some existing clients and deploy to new clients, if desired.

### What is Application Supersedence?

**Question:** When configuring supersedence, when would you configure to uninstall the prior application instead of upgrading the application?

**Answer** Answers will vary but could include when you plan to never go back to the old version of the application.

### Demonstration: Configuring Application Supersedence

**Question:** Can an application supersede more than one other application?

**Answer** Yes, either directly or in a chain of supersedence.

\*

# Detailed Demonstration Steps

## Demonstration: Configuring Application Supersedence

### Detailed demonstration steps

**Note** Virtual machines 10747A-NYC-DC1-B and 10747A-NYC-CFG-B are required to complete this demonstration. Log on to the virtual machines as **Contoso\Administrator** with the password as **Pa\$\$w0rd**.

#### Create an application

1. In the **Configuration Manager Console**, click the **Software Library** workspace, expand the **Application Management** folder and then select the **Applications** node.
2. On the ribbon, click **Create**, and then click the **Create Application** button.
3. In the **Create Application Wizard**, on the **General** page, ensure the **Automatically detect information about this application from installation files** option is selected and the type is set to **Windows Installer (Native)**.
4. Click the **Browse** button.
5. Navigate to **\\NYC-CFG\E\$\Software\WordViewer** and click on **Wordview.msi**, and then click **Open**.
6. On the **General** page, click **Next**. Click **Yes** at the message box.
7. Review the **Import Information** page, and then click **Next**.
8. Complete the **General Information** page with the following information:
9. Administrator comments: Word viewer program
10. Manufacturer: **Microsoft**
11. Software Version: **11.6506.6505**
12. On the **General Information** page, click **Next**.
13. Review the **Summary** page, and then click **Next**.
14. On the **Completion** page, click **Close**.

#### Configure supersedence for an application

1. In the results pane, click on **Microsoft Office Word Viewer 2003**.
2. On the ribbon click the **Properties** button.
3. Click the **Supersedence** tab.
4. Click **Add**.
5. In the **Specify Supersedence Relationship** dialog box, for the **Superseded Application** field click **Browse**.
6. In the **Choose application** dialog box, click on **XML Notepad**, and then click **OK**.
7. Click the **New Deployment Type** drop down list and select the **Microsoft Office Word Viewer 2003 – Windows Installer (Native)** deployment method.
8. Discuss and check the **uninstall** check box, and then click **OK**.

9. In the **Microsoft Office Word Viewer 2003 Properties** dialog box, click **OK**.

**Use view relationships**

1. In the results pane, click on **Microsoft Office Word Viewer 2003**.
2. On the ribbon, click the **View Relationships** button, and then click **Supersedence**.
3. Discuss the **Microsoft Office Word Viewer 2003 Supersedence** window, and then click **OK**.

## Additional Reading

### What Is Application Revision History?

- [How to Manage Application Revisions in Configuration Manager](#)

### Retiring Applications

- [How to Uninstall Applications in Configuration Manager](#)

### Uninstalling Applications

- [How to Uninstall Applications in Configuration Manager](#)

### What Is Application Supersedence?

- [How to Use Application Supersedence in Configuration Manager](#)

# Module Reviews and Takeaways

## Review questions

**Question:** What are deployment requirement rules?

**Answer:** Requirement rules are conditions that a target system has to meet in order for a deployment type to run. Requirements can include a requirement that a device is a users primary device, or a specific operating system is installed.

**Question:** What are deployment dependencies?

**Answer:** Dependencies are prerequisite applications that need to be installed before an application can be deployed.

**Question:** Can you add multiples of the same deployment types to a single application?

**Answer:** Yes. You may need to create multiple deployment types of the same type for single application for several reasons, for example, when there are different dependencies based on the operating system target.

**Question:** What is simulated deployment?

**Answer:** A simulated deployment is a special deployment that allows you to run through the requirement rules, detection method, and dependencies in a deployment without actually deploying files.

**Question:** How would you replace an application on client systems with a different application?

**Answer:** Answer will vary but could include:

**Question:** Deploy an Uninstall deployment before sending an Install deployment for the new application.

**Answer:** Create a Supersedence relationship between the new application and the old application.

## Lab Review Questions and Answers

### Lab A: Advanced Application Deployment

**Question:** Why did the Administrator have only the Microsoft Word Viewer application available?

**Answer:** The Administrator was not a primary user of the NYC-CL1 system.

**Question:** Why did Ed have the both the Microsoft Word Viewer application and the Microsoft Excel Viewer application available?

**Answer:** Ed was a primary user of NYC-CL1, and the Microsoft Word Viewer was deployed to all users.

**Question:** Would Ed have received the App-V deployment type for the Microsoft Excel Viewer application if he had logged on?

**Answer:** No. Ed already had the MSI deployment type and would not receive both.

### Lab B: Managing Application Supersedence and Removal

**Question:** In Exercise 1, When Ed logged in, why did we see information only about the Excel application and the XML Notepad 2007 applications?

**Answer:** The XML Notepad 2007 application replaced the Word Viewer application; therefore, the Word Viewer application is no longer available.

**Question:** In Exercise 2, when Ed logged in, why did we see information for the Excel application and the XML Notepad 2007 Application?

**Answer:** The Excel application was uninstalled not replaced; the Excel Viewer application still exists and could become available in the future

**Question:** In Exercise 2, why did the Administrator see the Excel application as uninstalled? What happened to the Virtual Application Deployment type?

**Answer:** You had to remove the install deployment for the uninstall deployment to work. This had the side effect of removing the Virtual Application Deployment type as well. If you wanted the virtual application deployment type to be available, you, will need to either create a new application and include only the Virtual application deployment type or wait for the Excel viewer to be uninstalled everywhere, delete the MSI deployment type from the Excel Viewer application, delete the uninstall deployment, and redeploy the Excel Viewer application.



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# Module 9

## Deploying and Managing Software Updates

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## Lesson 1

# Overview of Software Updates

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# Question and Answers

## Overview of the Software Updates Feature

**Question:** Do you currently use WSUS in your organization? How will the integration of Configuration Manager benefit your current software update processes?

**Answer:** Answers will vary based upon students' experiences.

## Additional Reading

### Overview of the Software Updates Feature

- [Introduction to Software Updates in Configuration Manager](#)
- [Updates Publisher 2011](#)

### Prerequisites for the Software Updates Feature

- [Prerequisites for Software Updates in Configuration Manager](#)
- [Windows Server Update Services](#)
- [How to Check the Windows Update Agent Version on Clients](#)
- [How to Install the Windows Update Agent on Client Computers](#)
- [How to Configure a Software Update Point to Use Network Load Balancing\(NLB\) Cluster](#)

### The Software Update Point Site System Role

- [Planning for Software Updates in Configuration Manager](#)

### Synchronizing the Software Update Catalog Metadata

- [Operations and Maintenance for Software Updates in Configuration Manager](#)
- [How to Synchronize Updates Using Export and Import](#)

## Lesson 2

# Preparing the Configuration Manager Site for Software Updates

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# Question and Answers

## Configuring Software Updates Client Settings

**Question:** What is the role of the deployment re-evaluation schedule?

**Answer:** The deployment reevaluation schedule specifies how often the Software Updates Agent reevaluates software updates for installation status. It is also used to re-evaluate pending deployments.

## Demonstration: Installing and Configuring the Software Update Point

**Question:** In the demonstration, why were ports 8530 and 8531 chosen as opposed to the standard ports 80 and 443?

**Answer:** WSUS was installed using a custom website. During the installation, the setup wizard suggests to use ports 8530 and 8531 for custom websites.

**Question:** What additional tasks would you need to perform if you wanted to use SSL to secure software updates?

**Answer:** You will need to install a trusted web server signing certificate on the WSUS server and configure the appropriate WSUS virtual directories to use SSL. You will also need to run the WSUSUTIL command with the configuresl switch to configure WSUS to use SSL. Finally, you may need to configure the Software Update Component Properties to enable SSL communication for the WSUS server.

## Detailed Demonstration Steps

### Demonstration: Installing and Configuring the Software Update Point

#### Detailed demonstration steps

**Note** Virtual machines 10747A-NYC-DC1-B, 10747A-NYC-SVR2-B, and 10747A-NYC-CFG-B, and 10747A-NYC-CL1-B are required to complete this demonstration. Log on to the virtual machines as **Contoso\Administrator** with the password as **Pa\$\$w0rd**.

#### Configure site system prerequisites

1. On NYC-SVR2, open Server Manager.
2. In the Server Manager console, in the navigation pane, expand **Configuration**, expand **Local Users and Groups**, and then click **Groups**.
3. In the details pane, double-click **Administrators**. The **Administrators Properties** dialog box opens.
4. In the **Administrators Properties** dialog box, click **Add**.
5. In the **Select Users, Computers, Service Accounts, or Groups** dialog box, click **Object Types**.
6. In the **Object Types** dialog box, select the **Computers** check box, and then click **OK**.
7. In the **Select Users, Computers, Service Accounts, or Groups** dialog box, type **NYC-CFG**. Click **Check Names**, and then click **OK**.
8. Click **OK** to close the **Administrators Properties** dialog box.
9. In the Server Manager console, in the navigation pane, click **Roles**. Verify that Windows Server Update Services has already been installed along with its prerequisites such as the Web Server (IIS) server role.
10. Close **Server Manager**.

#### Add a new site system with the software update point role

1. On NYC-CFG, open the System Center 2012 Configuration Manager console.
2. Click the **Administration** workspace, expand **Site Configuration**, and then click **Servers and Site System Roles**.
3. Right-click **Servers and Site System Roles** and then click **Create Site System Server**. The **Create Site System Server Wizard** opens.
4. On the **General** page, describe the options, configure the following settings:
  - Name: NYC-SVR2.Contoso.com
  - Site code: S01 – Contoso New York Site
5. Click **Next**.
6. On the **System Role Selection** page, select the check box next to **Software update point**, and then click **Next**.
7. On the Software Update Point page, click **Next**.
8. On the **Active Settings** page, configure the following settings:
  - Use this server as the active software update point: **Selected**



- WSUS is configured to use a custom website (by default, clients communicate over ports 8530 and 8531): **Selected**
9. Click **Next**.
  10. On the **Synchronization Source** page, verify that the option next to **Synchronize from Microsoft Update** is selected, and then click **Next**.
  11. On the **Synchronization Schedule** page, configure the following settings:
    - Enable synchronization on a schedule: **Selected**
    - Simple schedule: **Selected**
    - Run every: **3 days**
    - Alert when synchronization fails on any site in the hierarchy: **Selected**
  12. Click **Next**.
  13. On the **Supersedence Rules** page, select the **Immediately expire a superseded software update** option. Discuss the other options, and then click **Next**.
  14. On the **Classifications** page, select the following software update classifications:
    - Critical Updates
    - Definition Updates
    - Security Updates
  15. Click **Next**.
  16. On the **Products** page, select the following Products:
    - Windows 7
  17. Click **Next**.
  18. On the **Languages** page, ensure that only **English** is selected. Deselect any other enabled languages and then click **Next**.
  19. On the **Summary** page, click **Next**.
  20. On the **Completion** page, click **Close**.

#### **Monitor site system component installation status**

1. Click the **Monitoring** workspace, expand **System Status**, and then click **Component Status**.
2. In the results pane, scroll down and then click **SMS\_WSUS\_CONTROL\_MANAGER**.
3. Right-click **SMS\_WSUS\_CONTROL\_MANAGER**, point to **Show Messages**, and then click **All**.
4. In the **Status Messages: Set Viewing Period** dialog box, click **OK**.
5. In the Configuration Manager Status Message Viewer, discuss the messages related to the component installation on NYC-SVR2.
6. Close the Configuration Manager Status Message Viewer.
7. **Configure the software update point component**
8. Click the **Administration** workspace, expand **Site Configuration**, and then click **Sites**.

9. In the results pane, right-click **S01 – Contoso New York Site**, point to **Configure Site Components**, and then click **Software Update Point**.
10. In the **Software Update Point Component Properties** dialog box, click each tab, and then point out that this is how one would modify the initial software update point installation settings.
11. Click the **Sync Settings** tab, and then click **Do not synchronize from Microsoft Update or the upstream software update point**. Point out that this is only done for our lab environment since we do not have an Internet connection.
12. Click **OK** to close the **Software Update Point Component Properties** dialog box.

#### **Synchronize the software update point**

1. Click the **Software Library** workspace, expand **Software Updates**, and then click **All Software Updates**.
2. Right-click **All Software Updates** and then click **Synchronize Software Updates**.
3. In the **Configuration Manager** message box, click **Yes** to initiate a site-wide synchronization of software updates.
4. Click the **Monitoring** workspace, and then click **Software Update Point Synchronization Status**. Point out the information in the preview pane.
5. Click the **Software Library** workspace, expand **Software Updates**, and then click **All Software Updates**. In the results pane, verify that updates are now listed. It may take a few minutes for the updates to appear.

#### **Configure the software update client settings**

1. Click the **Administration** workspace, and then click **Client Settings**.
2. In the results pane, right-click **Default Client Settings** and then click **Properties**.
3. In the **Default Settings** dialog box, click **Software Updates**. Verify that software updates is enabled, and then discuss other options as needed.
4. Modify the **State Messaging** value to have a reporting cycle of 5 minutes.
5. Click **OK** to close the **Default Settings** dialog box.

#### **Run software updates scan on a client**

1. On NYC-CL1, open Configuration Manager Properties and initiate the Machine Policy Retrieval & Evaluation Cycle action and the Software Updates Scan Cycle action.

## Additional Reading

### Installing the Software Update Point

- [Windows Server Update Services \(WSUS\)](#)

## Lesson 3

# Managing Software Updates

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## Question and Answers

### Demonstration: Creating Software Update Groups and Deployment Packages

**Question:** You need to add another distribution point to the deployment package. What should you do?

**Answer:** Just like standard content management tasks, you can use the Distribute Content Wizard to distribute the deployment package to a new distribution point.

### Demonstration: Deploying Software Updates

**Question:** Each month, you configure a new software update deployment that contains similar deployment configuration settings. What should you do so that you do not have to reconfigure a deployment with the same settings each month?

**Answer:** You should save the deployment settings as a Deployment Template. This will allow you to specify a preconfigured template that will save you time for subsequent deployments.

## Detailed Demonstration Steps

### Demonstration: Creating Software Update Groups and Deployment Packages

#### Detailed demonstration steps

**Note** Virtual machines 10747A-NYC-DC1-B, 10747A-NYC-SVR2-B, and 10747A-NYC-CFG-B, and 10747A-NYC-CL1-B are required to complete this demonstration. Log on to the virtual machines as **Contoso\Administrator** with the password as **Pa\$\$w0rd**. In addition, note that all previous demonstrations should be completed before demonstrating these tasks.

#### Create a software update group

1. On NYC-CFG, open the System Center 2012 Configuration Manager console.
2. Click the **Software Library** workspace, expand **Software Updates**, and then click **All Software Updates**.
3. In the results pane, select the following updates:
  - Update for Windows 7 (KB2533552)
  - Update for Windows 7 (KB975053)
4. On the ribbon, select the **Home** tab, and then click **Create Software Update Group**. The **Create Software Update Group** dialog box opens.
5. On the **Create Software Update Group** dialog box, configure the following then click **Create**:
  - Name: Critical Updates – Windows 7
  - Description: Critical Updates for Windows 7 Clients
6. In the **Software Library** workspace, under **Software Updates**, click **Software Update Groups**. The **Critical Updates – Windows 7** software update group is visible in the results pane.
7. Select **Critical Updates – Windows 7**, and then on the ribbon, click **Show Members**. Verify that the two updates that you added are displayed.
8. Under **Software Updates**, click **Software Update Groups**.
9. In the ribbon, click **Run Summarization**. In the **Configuration Manager** message box, click **OK**. In a few minutes, the preview pane displays the compliance statistics for the **Critical Updates – Windows 7** software update group. Refresh the results pane as required.

#### Create a Deployment Package

1. In the navigation pane, expand **Software Updates**, and then click **Software Update Groups**.
2. In the list pane, right-click **Critical Updates – Windows 7** and then click **Download**. The **Download Software Updates Wizard** starts.
3. On the **Deployment Package** page, verify that **Create a new deployment package** is selected, and then configure the following information:
  - Name: Critical Updates – Win7
  - Package source: \\NYC-CFG\E\$\Source\Updates
4. Click **Next**.

5. On the Distribution Points page, click Add, and then click Distribution Point. The Add Distribution Points dialog box opens.
6. In the **Add Distribution Points** dialog box, select the check box next to **\\NYC-CFG.Contoso.com**, and then click **OK**. In the **Download Software Updates Wizard**, click **Next**.
7. On the Distribution Settings page, click Next.
8. On the Download Location page, click Download software updates from a location on my network.
9. In the text box, type **\\NYC-CFG\E\$\Updates** and then click **Next**.
10. On the **Language Selection** page, verify that only **English** is selected, and then click **Next**.
11. On the **Summary** page, click **Next**.
12. On the **Completion** page, verify that the package and software updates show success as indicated by a green check mark. Click **Close**.
13. In the navigation pane, under **Software Updates**, click **Deployment Packages**.
14. In the preview pane, verify that the **Distribution Point Status** shows **Success**.

## Demonstration: Deploying Software Updates

### Detailed demonstration steps

**Note** Virtual machines 10747A-NYC-DC1-B, 10747A-NYC-SVR2-B, and 10747A-NYC-CFG-B, and 10747A-NYC-CL1-B are required to complete this demonstration. Log on to the virtual machines as **Contoso\Administrator** with the password as **Pa\$\$w0rd**. In addition, note that all previous demonstrations should be completed before demonstrating these tasks.

#### Deploy software updates

1. On NYC-CFG, open the System Center 2012 Configuration Manager console.
2. Click the Software Library workspace, expand Software Updates, and then click Software Update Groups.
3. In the results pane, select **Critical Updates – Windows 7**.
4. On the ribbon, click Deploy. The Deploy Software Updates Wizard starts.
5. On the **General** page, configure the following settings:
  - Deployment Name: Critical Updates – Win7
  - Collection: All Windows 7 Workstations
6. Click **Next**.
7. On the **Deployment Settings** page, next to **Type of deployment**, select **Required**, and then click **Next**.
8. On the **Scheduling** page, click **Next**.
9. On the **User Experience** page, configure the following setting:
  - User notifications: Display in Software Center and show all notifications
10. Click **Next**.

11. On the Alerts page, select the Generate an alert when the following conditions are met check box, and then click Next.
12. On the **Download Settings** page, click **Next**.
13. On the **Summary** page, verify that the settings are correct, and then click **Save As Template**.
14. In the Save As Template dialog box, in the Name box, type Critical Updates – Windows 7. Click Save.
15. On the **Summary** page, click **Next**.
16. On the **Completion** page, click **Close**.

#### **Run software updates deployment on a client**

1. Switch to NYC-CL1.
2. Open Control Panel, and then click **System and Security**.
3. Click **Configuration Manager**.
4. In the **Configuration Manager Properties** dialog box, click the **Actions** tab.
5. In the **Actions** tab, click **Machine Policy Retrieval & Evaluation Cycle**, and then click **Run Now**.
6. In the **Machine Policy Retrieval & Evaluation Cycle** message box, click **OK**.
7. In the **Actions** tab, click **Software Updates Deployment Evaluation Cycle**, and then click **Run Now**.
8. In the **Software Updates Deployment Evaluation Cycle** message box, click **OK**.
9. Click **OK** to close the **Configuration Manager Properties** dialog box, and then close Control Panel. Within a few minutes, a prompt appears in the notification area.
10. On NYC-CL1, click **Start**, click **All Programs**, click **Microsoft System Center 2012**, click **Configuration Manager**, and then click **Software Center**.
11. In the **Software Center**, on the **Installation Status** tab, take note of the installation status and details for the software updates.
12. Select **Update for Windows 7 (KB2533552)**, and then click **Install**.

#### **View software updates deployment status**

1. On NYC-CFG, click the **Monitoring** workspace, and then click **Deployments**.
2. In the results pane, click **Critical Updates – Windows 7**, and then on the ribbon, click **Run Summarization**. Click **OK**. Describe the information in the preview pane. It may take several minutes for details to appear.
3. In the results pane, right-click **Critical Updates – Windows 7** and then click **View Status**. View the information displayed on the **Deployment Status** page.



## Lesson 4

# Configuring Automatic Deployment Rules

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## Question and Answers

### Demonstration: Creating Automatic Deployment Rules

**Question:** You create an automatic deployment rule. Both the software update group and deployment objects are created; however, the updates are not being deployed. What might be the cause of this issue?

**Answer:** The deployment is most likely disabled. To enable the deployment, modify the rule properties and select **Enable the deployment after this rule is run**, or right-click the deployment and then click **Enable**.

# Detailed Demonstration Steps

## Demonstration: Creating Automatic Deployment Rules

### Detailed demonstration steps

**Note** You require the 10747A-NYC-DC1-B, 10747A-NYC-SVR1-B, 10747A-NYC-CFG-B, and 10747A-NYC-CL1-B virtual machines to complete this demonstration. Log on to the virtual machines as **Contoso\Administrator** with the password as **Pa\$\$w0rd**. In addition, note that all previous demonstrations should be completed before demonstrating these tasks.

#### Create an automatic deployment rule

1. On NYC-CFG, open the System Center 2012 Configuration Manager console.
2. Click the Software Library workspace, expand Software Updates, and then click Automatic Deployment Rules.
3. On the ribbon, click Create Automatic Deployment Rule. The Create Automatic Deployment Rule Wizard starts.
4. On the **General** page, configure the following settings:
  - Name: Required Critical Updates
  - Collection: All Windows 7 Workstations
  - Create a new Software Update Group: **Selected**
5. Click **Next**.
6. On the Deployment Settings page, click Next.
7. On the **Software Updates** page, configure the following settings:
  - Required: **1**
  - Update Classification: **Critical Updates**
8. Click **Next**.
9. On the **Evaluation Schedule** page, verify that the **Enable rule to run on a schedule** check box is selected. Click **Customize** and configure the schedule to recur every 2 days. Click **OK** to close the **Custom Schedule** dialog box.
10. On the **Deployment Schedule** page, configure the following settings:
  - Time based on: Client local time
  - Software available time: As soon as possible
  - Installation deadline: Specific time: 7 days
11. Click **Next**.
12. On the **User Experience** page, configure the following setting:
  - User notifications: Display in Software Center and show all notifications
13. Click **Next**.
14. On the **Alerts** page, select the **Generate an alert when the following conditions are met** check box, and then click **Next**.

15. On the **Download Settings** page, click **Next**.
16. On the **Deployment Package** page, select **Create a new deployment package**, configure the following settings:
  - Name: AutoDeployment
  - Package source: \\NYC-CFG\E\$\source\autoupdate
17. Click **Next**.
18. On the **Distribution Points** page, click **Add**, and then click **Distribution Point**.
19. On the **Add Distribution Points** dialog box, select the **\\NYC-CFG.Contoso.com** check box, and then click **OK**.
20. On the **Distribution Points** page, click **Next**.
21. On the **Download Location** page, select **Download software updates from a location on my network**. In the text box, type **\\NYC-CFG\E\$\Updates** and then click **Next**.
22. On the **Language Selection** page, click **Next**.
23. On the **Summary** page, verify that the settings are correct, and then point out the **Save As Template** option to the students. Click **Next**.
24. On the **Completion** page, click **Close**.

#### **Run an automatic deployment rule**

1. Click **Automatic Deployment Rules**, and then in the results pane, select **Required Critical Updates**.
2. On the ribbon, click **Run Now**. In the **Configuration Manager** message box, click **OK**.
3. In the navigation pane, click **Software Update Groups**. Refresh the results pane. In the results pane, notice that a software update group named **Required Critical Updates** is listed. In addition, notice that the Created By column shows **AutoUpdateRuleEngine**.
4. In the preview pane, click the **Deployment** tab. Notice that a deployment is automatically created, and is enabled.
5. In the results pane, right-click **Required Critical Updates** and then click **Show Members**. Notice the list of software updates that have been automatically added to the software update group.

## Module Reviews and Takeaways

### Review questions

**Question:** You have specific group of computers that require a unique software update scan schedule. What can you do to accommodate this?

**Answer:** You can create a custom client device setting that is configured with the software updates requirements. You can then assign the custom client device settings object to a collection that contains the group of computers.

**Question:** Which method do you feel will benefit you the most for determining software update compliance?

**Answer:** Answers will vary, but the options include sorting, filtering, or searching the All Software updates list or using software updates compliance reports.

**Question:** You have a LOB application that you want to update. Which tool can you use to create a catalog for use with software updates?

**Answer:** You can use System Center Updates Publisher to create a catalog for use with software updates.

**Question:** You need to provide information to the junior service desk staff to help them monitor software update deployment. Without giving the junior service desk staff access to the Configuration Manager console, how can you give them the information?

**Answer:** You can grant the junior service desk staff access to the Configuration Manager reporting web site, where they can access the various reports that they require.

## Lab Review Questions and Answers

### Lab A: Configuring the Site for Software Updates

**Question:** Which version of WSUS do you require to support Configuration Manager 2012?

**Answer:** You need to use WSUS 3.0 SP2.

**Question:** You need to add the Service Packs classification to be synchronized for software updates. Where can you make this modification?

**Answer:** This is modified on the Software Update Point Component Properties dialog box.

**Question:** Why would you not want to immediately expire a superseded software update?

**Answer:** You can configure the software update point, not expire a superseded software update, until a specified amount of time. This is useful, for example, where a critical update has been superseded by a standard security update. The security update may not have been tested for deployment, whereas the critical update can still be deployed as required.

### Lab B: Deploying and Managing Software Updates

**Question:** In the lab, you had to run a summarization to view software update status. What can you do to minimize the manual summarization task?

**Answer:** You can modify the software update summarization schedule. By default, it runs every 1 hour; however, if summarization is set too low, it can cause performance issues.

**Question:** What are some of the advantages of using a software update group?

**Answer:** A software update group is an efficient way to organize, monitor, and deploy software updates. A number of the reports are also based upon software update group settings.

**Question:** When is an automatic deployment rule useful?

**Answer:** An automatic deployment rule is useful for any automated deployments; however, it will be most used for managing the deployment of Endpoint Protection definition files.

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# Module 10

## Implementing Endpoint Protection in Configuration Manager 2012

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## Lesson 1

# Overview of Endpoint Protection in Configuration Manager

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## Question and Answers

### Introduction to the Endpoint Protection Feature

**Question:** Do you currently use an antimalware solution in your organization? How will the integration of Configuration Manager benefit your current antimalware processes?

**Answer:** Answers will vary based upon student experiences.

### Prerequisites for the Endpoint Protection Feature

**Question:** You attempt to enable the installation of the Endpoint Protection client from the Default Client settings. However, it is greyed out. What might be the cause of the issue?

**Answer:** You need to first implement the Endpoint Protection point site system role.

### Demonstration: Configuring the Endpoint Protection Point Site System Role and Client Settings

**Question:** You need to ensure that all pre-existing instances of a third-party malware application are removed when deploying Endpoint Protection. What can you do?

**Answer:** Be sure to enable the Automatically remove previously installed antimalware software before Endpoint Protection is installed option.

## Detailed Demonstration Steps

### Demonstration: Configuring the Endpoint Protection Point Site System Role and Client Settings

#### Detailed demonstration steps

**Note** Virtual machines 10747A-NYC-DC1-B, and 10747A-NYC-CFG-B, and 10747A-NYC-CL1-B are required to complete this demonstration. Log on to the virtual machines as **Contoso\Administrator** with the password as **Pa\$\$w0rd**.

#### Install the Endpoint Protection Point Role

1. On NYC-CFG, open the System Center 2012 Configuration Manager console.
2. Click the **Administration** workspace, and in the navigation pane, expand **Site Configuration**, and then click **Servers and Site System Roles**.
3. Right-click **\\NYC-CFG.Contoso.com** and then click **Add Site System Roles**. The **Add Site System Roles Wizard** opens.
4. On the **General** page, describe the default settings, and then click **Next**.
5. On the **System Role Selection** page, select the **Endpoint protection point** check box, click **OK** at the message box, and then click **Next**.
6. On the **Endpoint Protection** page, click the **I accept the Endpoint Protection license terms** check box, and then click **Next**.
7. On the **Microsoft Active Protection Service** page, select the **Do not join MAPS** option, and then click **Next**.
8. On the **Summary** page, click **Next**.
9. On the **Completion** page, click **Close**.

#### Monitor Site System Component Installation Status

1. Click the **Monitoring** workspace, and in the navigation pane, expand **System Status**, then click **Component Status**.
2. In the results pane, scroll down, and then click **SMS\_ENDPOINT\_PROTECTION\_MANAGER**.
3. On the ribbon, click **Show Messages**, and then click **All**.
4. In the **Status Messages: Set Viewing Period** dialog box, click **OK**.
5. In the Configuration Manager Status Message Viewer, discuss the messages related to the component installation.
6. Close the Configuration Manager Status Message Viewer.

#### Configure the Client Settings for Endpoint Protection

1. Click the **Administration** workspace, and then click **Client Settings**.
2. In the results pane, right-click **Default Client Settings** and then click **Properties**.

3. In the **Default Settings** dialog box, click **Endpoint Protection**. Discuss each of the device settings. Discuss that configuring the settings here will affect all clients in the hierarchy. In addition, discuss that a policy should be configured first before enabling installation. The policy will define where to download the latest updates from and will define initial client settings.
4. Next to **Manage Endpoint Protection client on client computers**, select **True**.
5. Click **OK** to close the **Default Settings** dialog box.

## Additional Reading

### Introduction to the Endpoint Protection Feature

- [Introduction to Endpoint Protection in Configuration Manager](#)

### Prerequisites for the Endpoint Protection Feature

- [Prerequisites for Endpoint Protection in Configuration Manager](#)

## Lesson 2

# Configuring and Monitoring Endpoint Protection Policies

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## Question and Answers

### Demonstration: Configuring Endpoint Protection Policies

**Question:** What additional tasks would you need to do if you wanted to receive email notifications of Endpoint Protection alerts?

**Answer:** You first need to configure email settings to specify an SMTP server. You then need to configure the properties of a device collection to specify alert settings. Finally, you need to create a subscription by specifying an email address to send the Endpoint Protection alerts.

# Detailed Demonstration Steps

## Demonstration: Configuring Endpoint Protection Policies

### Detailed demonstration steps

**Note** Virtual machines 10747A-NYC-DC1-B, and 10747A-NYC-CFG-B, and 10747A-NYC-CL1-B are required to complete this demonstration. Log on to the virtual machines as **Contoso\Administrator** with the password as **Pa\$\$w0rd**.

#### Create a new antimalware policy

1. On NYC-CFG, open the System Center 2012 Configuration Manager console.
2. Click the **Assets and Compliance** workspace, and in the navigation pane, expand **Endpoint Protection**, then click **Antimalware Policies**.
3. On the ribbon, click **Create Antimalware Policy**. The **Create Antimalware Policy** dialog box opens.
4. On the **General** page, configure the following settings:
  - **Name:** Windows 7 Client Policy
  - **Description:** Windows 7 Antimalware Policy
5. Select each of the setting pages, discuss the default options, and then on the **Definition updates** page, click **Set Source**. The **Configure Definition Update Sources** dialog box opens.
6. Select the **Updates from UNC file shares** check box, and then click the **Up** button until the selection is first on the list.
7. Clear all other options, and then click **OK**.
8. Click the **Set Paths** button. The **Configure Definition Update UNC Paths** dialog box opens.
9. Under **UNC path**, type **\\NYC-CFG\E\$\Updates** and then click **Add**.
10. Click **OK** to close the **Configure Definition Update UNC Paths** dialog box.
11. Click **OK** to close the **Create Antimalware Policy** dialog box. Notice that the policy is listed in the results pane.

#### Deploy an antimalware policy to a collection of computers

1. Click the **Assets and Compliance** workspace, and in the navigation pane, expand **Endpoint Protection**, then click **Antimalware Policies**.
2. In the results pane, select **Windows 7 Client Policy**, and then on the ribbon, click **Deploy**. The **Select Collection** dialog box opens.
3. Select **All Windows 7 Workstations**, and then click **OK**.

#### Create a new Windows Firewall policy

1. Click the **Assets and Compliance** workspace, and in the navigation pane, expand **Endpoint Protection**, and then click **Windows Firewall Policies**.
2. On the ribbon, click **Create Firewall Policy**. The **Create Firewall Policy Wizard** dialog box opens.
3. On the **General** page, configure the following settings, and then click **Next**.
  - **Name:** Windows 7 Client Firewall Policy



- Description: Windows 7 Firewall Policy
4. On the **Profile Settings** page, configure the following settings, and then click **Next**:
    - Enable Windows Firewall – Domain profile: **Yes**
    - Notify the user when firewall blocks a new program – Domain profile: **Yes**
  5. Click the **Summary** page, click **Next**.
  6. On the **Completion** page, click **Close**.

#### **Deploy a Windows Firewall policy to a collection of computers**

1. Click the **Assets and Compliance** workspace, and in the navigation pane, expand **Endpoint Protection**, and then click **Windows Firewall Policies**.
2. In the results pane, select **Windows 7 Client Firewall Policy**, and then on the ribbon, click **Deploy**. The **Deploy Windows Firewall Policy** dialog box opens.
3. Click **Browse**, and in the **Select Collection dialog box**, select **All Windows 7 Workstations**, and then click **OK**.
4. In the **Deploy Windows Firewall Policy** dialog box, verify that the **Simple schedule** is configured to run every **7 Days** and then click **OK**.

## Additional Reading

### Creating and Deploying Antimalware Policies

- [How to Create and Deploy Antimalware Policies for Endpoint Protection in Configuration Manager](#)

### Creating and Deploying Windows Firewall Policies

- [How to Create and Deploy Windows Firewall Policies for Endpoint Protection in Configuration Manager](#)

### Managing Endpoint Protection Policies

- [How to Manage Antimalware Policies and Firewall Settings for Endpoint Protection in Configuration Manager](#)

### Monitoring Endpoint Protection Status

- [How to Monitor Endpoint Protection in Configuration Manager](#)

### Configuring Antimalware Alerts

- [How to Configure Alerts for Endpoint Protection in Configuration Manager](#)

## Module Reviews and Takeaways

### Review questions

**Question:** You attempt to configure device settings for the Endpoint Protection client, but all options are greyed out. What is the problem?

**Answer:** You need to first install an Endpoint Protection point site system role before you can configure the Endpoint Protection device settings.

**Question:** You have configured software updates to deploy malware definitions to clients. Which Definition Update source should you use for the Antimalware Policy?

**Answer:** If you intend to use software updates, you will need to ensure that Updates distributed from Configuration Manager is selected.

**Question:** You have a client that is a member of two collections that both have a separate Antimalware Policy deployed. Which policy will affect the client?

**Answer:** The policy that is configured at a higher priority will affect the client.

**Question:** You need to determine the top malware that has been reported by computers. Which reporting method can assist you with this information?

**Answer:** You determine this information by viewing the Top Malware By Computers report, or you can view the Top 5 malware by number of computers section of the System Center 2012 Endpoint Protection Status node.

## Lab Review Questions and Answers

### Lab: Implementing Endpoint Protection

**Question:** In the lab results, what does the Operational Status of Clients graph indicate?

**Answer:** One client needs to reboot before the install is complete.

**Question:** What is the status of the definitions according to the Definition Status on Computers graph?

**Answer:** The definition status shows that the definitions are older than 7 days for 1 client.

**Question:** You have received an alert that malware has been detected. How can you determine which machines have been affected?

**Answer:** When you select the Alerts node, you can select the Malware detection alert, and then in the preview pane, click the Machines tab. This tab will display the computer name of the machines affected. You can also view Endpoint Protection reports for malware details.

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# Module 11

## Managing Operating System Deployment

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## Lesson 1

# Overview of Operating System Deployment

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## Question and Answers

### What Is Operating System Deployment?

**Question:** What is the difference between a reference computer and a target computer?

**Answer:** You can use the reference computer to build the operating system for capture. The target computer is the computer to which the image is deployed.

### Overview of Operating System Deployment Scenarios

**Question:** What is the difference between a bootable media deployment and a stand-alone media deployment?

**Answer:** The bootable media deployment connects to the site server distribution point for deployment files. The stand-alone media method requires all installation files, including drivers, to be included in the media.



## Additional Reading

### What Is Operating System Deployment?

- [Operating System Deployment in Configuration Manager](#)

### Operating System Deployment Terminology

- [Operating System Deployment Terminology](#)

### Overview of Operating System Deployment Scenarios

- [Determine Your Operating System Deployment Method](#)

### Server Roles Used in Operating System Deployment Processes

- [Operating System Deployment in Configuration Manager](#)

## Lesson 2

# Preparing the Site for Operating System Deployment

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## Question and Answers

### Demonstration: Enabling PXE and Multicast on a Distribution Point

**Question:** What is the difference between autocast mode and scheduled multicast mode?

**Answer:** Autocast starts immediately after the first client requests an image. Scheduled multicast starts either when the designated number of client devices makes a request or when the designated time elapses after the first client device makes a request.

### Configuration Manager Settings and Component Requirements

**Question:** Why would you want to add only necessary drivers to a boot image?

**Answer:** When using a PXE boot scenario, the boot image is transferred to the target computer by using the Trivial File Transfer Protocol (TFTP). Adding unnecessary drivers will bloat the image and possibly lead to issues in downloading the boot image.

### Demonstration: Configuring the Network Access Account

**Question:** What rights does the Network Access account require for use with the operating system deployment process?

**Answer:** The Network Access account requires read access to all the shares that the operating system deployment process uses.

### Demonstration: Managing Device Drivers

**Question:** When importing drivers into Configuration Manager, should you use one package for all the drivers or divide them into multiple packages?

**Answer:** Answers will vary. Driver packages are distributed as a unit. Hence, the deployment process can make use of both large packages with a number of drivers or several smaller packages.

### Preparing the Boot Images

**Question:** In your work environment, is there a need to customize any of the boot images?

**Answer:** Answers will vary.

### Demonstration: Managing the Default Boot Images

**Question:** Why did we only include the network driver when modifying the package?

**Answer:** Although you might also need to include storage or bus drivers depending on the hardware, the other drivers, such as Video and Heartbeat, would not add any needed support to the image. They increase the size of the boot image file and slow down the download time.

### Demonstration: Managing Operating System Deployment Packages

**Question:** What other packages might you use during operating system deployment?

**Answer:** Answers will vary, but may include applications that will be installed on all systems, such as Microsoft Office.

## Detailed Demonstration Steps

### Demonstration: Enabling PXE and Multicast on a Distribution Point

#### Detailed demonstration steps

Virtual machines 10747A-NYC-DC1-B and 10747A-NYC-CFG-B are required to complete this demonstration. Log on to the virtual machines as **Contoso\Administrator** with the password **Pa\$\$w0rd**.

#### Enable PXE and multicast support on a distribution point

1. On NYC-CFG, click **Start**, click **All Programs**, click **Microsoft System Center 2012**, click **Configuration Manager**, and then click **Configuration Manager Console**.
2. Click the **Administration** workspace, expand the **Site Configuration** folder, and then click the **Servers and Site System Roles** node.
3. Right-click the **Distribution point** role, and then click **Properties**.
4. In the **Distribution point Properties** dialog box, on the **PXE** tab, select the **Enable PXE support for clients** check box.
5. In the **Review Required Reports for PXE** dialog box, click **Yes**.
6. Select the **Allow this distribution point to respond to incoming PXE requests** check box.
7. Select the **Enable unknown computer support** check box.
8. In the **Configuration Manager** message box, click **OK**.
9. Clear the check mark next to **Require a password when computers use PXE**.
10. Click the **Multicast** tab.
11. Select the **Enable multicast to simultaneously send data to multiple clients** check box.
12. In the **Distribution point Properties** dialog box, click **OK**.

#### Confirm PXE installation

1. Click the **Monitoring** workspace, expand **Distribution Status**, and then click **Distribution Point Configuration Status**.
2. Right click **\\NYC-CFG.Contoso.com** and then click **Refresh**. Repeat until the PXE and Multicast columns display **Yes**.

### Demonstration: Configuring the Network Access Account

#### Detailed demonstration steps

Virtual machines 10747A-NYC-DC1-B and 10747A-NYC-CFG-B are required to complete this demonstration. Log on to the virtual machines as **Contoso\Administrator** with the password **Pa\$\$w0rd**.

#### Configure the Network Access account

1. In the Configuration Manager console, click the **Administration** workspace, expand **Site Configuration**, and then click the **Sites** node.
2. In the results pane, right-click S01-Contoso New York Site, point to Configure Site Components, and then click Software Distribution.

3. In the Software Distribution Components Properties dialog box, on the Network Access Account tab, click the Specify the account that accesses network locations option.
4. Click the **Set** button, and then click **New Account**. Provide the following information as the credentials for the Network Access account:
  - User name: Contoso\NetworkAccess
  - Password: Pa\$\$w0rd
  - Confirm password: Pa\$\$w0rd
5. Click the **Verify** button.
6. In the **Network share** box, type \\NYC-CFG\SMS\_S01, and then click **Test connection**.
7. Ensure that you receive a message stating that the connection was successfully verified and then click **OK**.
8. Click **OK** to close the **Windows User Account** dialog box.
9. Click **OK** to close the Software Distribution Component Properties dialog box.

## Demonstration: Managing Device Drivers

### Detailed demonstration steps

Virtual machines 10747A-NYC-DC1-B and 10747A-NYC-CFG-B are required to complete this demonstration. Log on to the virtual machines as **Contoso\Administrator** with the password **Pa\$\$w0rd**.

#### Import 64-bit Hyper-V® drivers

1. On NYC-CFG, click the **Software Library** workspace, expand the **Operating Systems** folder, and then click the **Drivers** node.
2. Right-click the **Drivers** node, and then click **Import Driver**.
3. On the **Locate Driver** page, click **Browse**.
4. In the **Select Folder** dialog box, in the **Folder** box, type \\NYC-CFG\E\$\Hyper-vX64, and then click **Select Folder**.
5. On the **Locate Driver** page, click **Next**.
6. On the Driver Details page, click Categories, and then in the Manage Administrative Categories dialog box, click Create.
7. In the Create Administrative Category box, type 64-bit Drivers, and then click OK.
8. In the Manage Administrative Categories dialog box, click Create.
9. In the Create Administrative Category box, type Hyper-V Drivers, and then click OK.
10. In the **Manage Administrative Categories** dialog box, click **OK**, and on the **Driver Details** page, click **Next**.
11. On the Add Driver to Packages page, click New Package.
12. In the **Create Driver Package** dialog box, in the **Name** box, type **Hyper-V Drivers**, in the **Path** box, type \\NYC-CFG\E\$\Source\Drivers, and then click **OK**.

13. On the **Add Driver to Packages** page, click **Next**.
14. On the **Add Driver to Boot Images** page, click **Next**.
15. On the **Summary** page, click **Next**.
16. On the **Confirmation** page, click **Close**.

#### **Import 32-bit Hyper-V drivers**

1. Right-click the **Drivers** node, and then click **Import Driver**.
2. On the **Locate Driver** page, click **Browse**.
3. In the **Select Folder** dialog box, in the **Folder** box, type `\\NYC-CFG\E$\Hyper-vX86`, click **Select Folder** and then click **Next**.
4. On the **Driver Details** page, click **Categories**, and then in the **Manage Administrative Categories** dialog box, click **Create**.
5. In the **Create Administrative Category** box, type **32-bit Drivers**, and then click **OK**.
6. In the **Manage Administrative Categories** dialog box, select **Hyper-V Drivers**, and then click **OK**.
7. On the **Driver Details** page, click **Next**.
8. On the **Add Driver to Packages** page, select **Hyper-V Drivers**, and then click **Next**.
9. On the **Add Driver to Boot Images** page, click **Next**.
10. On the **Summary** page, click **Next**.
11. On the **Confirmation** page, click **Close**.

#### **Distribute the Hyper-V driver package**

1. Click the **Driver Packages** node.
2. Right-click the **Hyper-V Drivers** package, and then click **Distribute Content**.
3. In the **Distribute Content Wizard**, on the **General** page, click **Next**.
4. On the **Content Destination** page, click **Add**, and then click **Distribution Point**.
5. In the **Add Distribution Points** dialog box, select the `\\NYC-CFG.Contoso.com` check box, and then click **OK**.
6. On the **Content Destination** page, click **Next**.
7. On the **Summary** page, click **Next**.
8. On the **Confirmation** page, click **Close**.



## **Demonstration: Managing the Default Boot Images**

### **Detailed demonstration steps**

Virtual machines 10747A-NYC-DC1-B and 10747A-NYC-CFG-B are required to complete this demonstration. Log on to the virtual machines as **Contoso\Administrator** with the password **Pa\$\$w0rd**.

#### **Modify the default boot images**

Explain to the students that they should make a copy of the default boot images and modify the copies and that they will be doing that in the lab.

1. On NYC-CFG, in the Configuration Manager console, click the **Software Library** workspace.
2. Expand **Operating Systems**, and then click the **Boot Images** node.
3. In the results pane, right-click **Boot Image (x64)**, and then click **Properties**.
4. Click the **Drivers** tab.
5. Click the New  button.
6. In the Select a driver dialog box, click Microsoft Virtual Machine Bus Network Adapter, and then click OK.
7. Click the Customization tab, and then select the Enable command support (testing only) check box.
8. Click the Data Source tab, and then select the Deploy this boot image from the PXE service point check box.
9. In the Boot Image (x64) Properties dialog box, click OK.
10. In the Distribution Point Update Required dialog box, click Yes.
11. In the Update Distribution Points Wizard, on the Summary page, click Next.
12. In the Update Distribution Points Wizard, on the Completion page, click Close.
13. Right-click **Boot Image (x86)**, and then click **Properties**.
14. Click the **Drivers** tab.
15. Click the New  button.
16. In the **Select a driver** dialog box, click **Microsoft Virtual Machine Bus Network Adapter**, and then click **OK**.
17. Click the **Customization** tab, and then select the **Enable command support (testing only)** check box.
18. Click the **Data Source** tab, and then select the **Deploy this boot image from the PXE service point** check box.
19. In the **Boot Image (x86) Properties** dialog box, click **OK**.
20. In the **Distribution Point Update Required** dialog box, click **Yes**.
21. In the **Update Distribution Points Wizard**, on the **Summary** page, click **Next**.
22. In the **Update Distribution Points Wizard**, on the **Completion** page, click **Close**.

#### **Distribute the default boot images**

1. Click **Boot Image (x64)**, hold down the Ctrl key and click **Boot Image (x86)**, and then right-click **Boot Image (x64)** and click **Distribute Content**.
2. In the **Distribute Content Wizard**, on the **General** page, click **Next**.
3. On the **Content Destination** page, click **Add**, and then click **Distribution Point**.
4. In the **Add Distribution Points** dialog box, select \\NYC-CFG.Contoso.com, and then click **OK**.
5. On the **Content Destination** page, click **Next**.

6. On the **Summary** page, click **Next**.
7. On the **Completion** page, click **Close**.

## Demonstration: Managing Operating System Deployment Packages

### Detailed demonstration steps

Virtual machines 10747A-NYC-DC1-B and 10747A-NYC-CFG-B are required to complete this demonstration. Log on to the virtual machines as **Contoso\Administrator** with the password **Pa\$\$w0rd**.

#### Create a USMT package

1. In the System Center 2012 Configuration Manager console, in the **Software Library** workspace, in the navigation pane, expand **Application Management**, and then click **Packages**.
2. On the ribbon, click **Create Package**.
3. In the Create Package and Program Wizard, on the **Package** page, in the **Name** box, type **User State Migration Tools**
4. Select the **This package contains source files** check box, click **Browse**, and in the **Set Source Folder** dialog box, in the **Source folder** box, type **\\nyc-cfg\C\$\Program Files\Windows AIK\Tools\USMT**, and then click **OK**.
5. On the **Package** page, click **Next**.
6. On the **Program Type** page, click the **Do not create a program** option, and then click **Next**.
7. On the **Summary** page, click **Next**.
8. On the **Completion** page, click **Close**.

#### Distribute USMT and Configuration Manager client packages

1. Click the **Configuration Manager Client Package**, hold down the Ctrl key and click the **User State Migration Tools** package, right-click the **Configuration Manager Client Package**, and then click **Distribute Content**.
2. In the Distribute Content Wizard, on the **General** page, click **Next**.
3. On the **Content Destination** page, click **Add**, and then click **Distribution Point**.
4. In the **Add Distribution Points** dialog box, select the **\\NYC-CFG.Contoso.com** check box, and then click **OK**.
5. On the **Content Destination** page, click **Next**.
6. On the **Summary** page, click **Next**.
7. On the **Completion** page, click **Close**.

#### Create an operating system installer package

1. Click the **Operating Systems Installers** node.
2. On the ribbon, in the **Create** group, click **Add Operating System Installer**.
3. In the Add Operating System Installer Wizard, on the **Data Source** page, in the **Path** box, type **\\nyc-cfg\E\$\Win7**, and then click **Next**.
4. On the **General** page, click **Next**.



5. On the **Summary** page, click **Next**.
6. On the **Completion** page, click **Close**.

**Distribute an operating system installer package**

1. Right-click the **Win7** installer package, and then click **Properties**.
2. On the **Distribution Settings** tab, select the **Allow this package to be transferred via multicast (WinPE only)** check box, and then click **OK**.
3. Click the **Win7** package, and on the ribbon, in the **Deployment** area, click **Distribute Content**.
4. In the Distribute Content Wizard, on the **General** page, click **Next**.
5. On the **Content Destination** page, click **Add**, and then click **Distribution Point**.
6. In the **Add Distribution Points** dialog box, select the **\\NYC-CFG.Contoso.com** check box, and then click **OK**.
7. On the **Content Destination** page, click **Next**.
8. On the **Summary** page, click **Next**.
9. On the **Completion** page, click **Close**.

## Additional Reading

### **Prerequisites for Operating System Deployment**

- [Planning the Infrastructure to Deploy Operating Systems in Configuration Manager](#)

### **Configuration Manager Settings and Component Requirements**

- [Planning a Device Driver Strategy in Configuration Manager](#)

### **Additional Packages Used by Operating System Deployment**

- [Planning How to Deploy Operating Systems in Configuration Manager](#)

## Lesson 3

# Capturing an Operating System Image

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# Question and Answers

## Configuring a Reference Computer

**Question:** When creating a reference computer, should you include all your line-of-business (LOB) applications?

**Answer:** Answers will vary. Including all of your LOB applications leads to larger images and makes the deployment less flexible. However, it can also lead to shorter overall deployment times.

## Task Sequence Overview

**Question:** In your environment, how can you use task sequence variables?

**Answer:** Answers will vary, but possible answers include:

- Configure settings for a task sequence action, such as specifying the proper domain to join based on a collection membership.
- Supply command-line arguments for a task sequence step, such as specifying the location to store files for the USMT.
- Evaluate a condition that determines if a task sequence step or group should run, such as determining available space before installing software.

## Creating a Build and Capture Task Sequence

**Question:** If you needed to create and capture images for five different departments with disparate LOB applications, how many build and capture task sequences would you build?

**Answer:** Answers will vary. One possible answer would be to create one build and capture task sequence and deploy all the applications separately.

## Demonstration: Creating a Build and Capture Task Sequence

**Question:** When creating the task sequence, should you use a 64-bit boot image or a 32-bit boot image?

**Answer:** Answers will vary, but using the 32-bit boot image would support a larger variety of hardware. Also, if you are trying to deploy an x86 operating system after booting with the x64 boot image, you get an error message saying that you have to use an x86 32-bit boot image for the deployment. In this case, you must use a 32-bit boot image.

## Deploying a Build and Capture Task Sequence

**Question:** In your work environment, will you use the PXE boot or the boot media when deploying a build and capture task sequence?

**Answer:** Answers will vary.

# Detailed Demonstration Steps

## Demonstration: Creating a Build and Capture Task Sequence

### Detailed demonstration steps

Virtual machines 10747A-NYC-DC1-B and 10747A-NYC-CFG-B are required to complete this demonstration. Log on to the virtual machines as **Contoso\Administrator** with the password **Pa\$\$w0rd**.

#### Create a build and capture task sequence

1. On NYC-CFG, in the System Center 2012 Configuration Manager console, click **Software Library**, expand **Operating Systems**, and then click the **Task Sequences** node.
2. On the ribbon, in the **Create** group, click **Create Task Sequence**.
3. In the Create Task Sequence Wizard, on the Create New Task Sequence page, click the Build and capture a reference operating system image option, and then click Next.
4. On the Task Sequence Information page, in the Task sequence name box, type Build and Capture Windows 7, and then click Browse.
5. In the Select a Boot Image dialog box, click Boot image (x86) 6.1.7600.16385 en-US, and then click OK.
6. On the Task Sequence Information page, click Next.
7. On the **Install Windows** page, click **Browse**.
8. In the Select an Operating System Install Package dialog box, click Win7 en-US, and then click OK.
9. On the Install Windows page, click the Always use the same administrator password option, in the Password and Confirm password boxes, type Pa\$\$w0rd, and then click Next.
10. On the **Configure Network** page, in the **Workgroup** box, type **workgroup**, and then click **Next**.
11. On the Install Configuration Manager page, click Browse.
12. In the Select a Deployment Package dialog box, click Configuration Manager Client Package, and then click OK.
13. On the Install Configuration Manager page, click Next.
14. On the **Include Updates** page, click **Next**.
15. On the Install Applications page, click Next.
16. On the System Preparation page, click Next.
17. On the **Image Properties** page, in the **Created by** box, type *your name*, and then click **Next**.
18. On the Capture Image page, in the Path box, type \\nyc-cfg\e\$\captures\MyWin7Capture.wim
19. In the area next to the **Account** box, click **Set**.
20. In the **Windows User Account** dialog box, in the **User name** box, type **Contoso\Administrator**, in the **Password** box, type **Pa\$\$w0rd**, in the **Confirm password** box, type **Pa\$\$w0rd**, and then click **OK**.
21. On the **Capture Image** page, click **Next**.
22. On the **Summary** page, click **Next**.

23. On the **Completion** page, click **Close**.

## Additional Reading

### Configuring a Reference Computer

- [Planning How to Deploy Operating Systems in Configuration Manager](#)

### Deploying a Build and Capture Task Sequence

- [Operations and Maintenance for Deploying Operating Systems in Configuration Manager](#)

### Capturing a Reference Computer by Using Task Sequence Media

- [Planning for Deploying Operating System Images in Configuration Manager](#)

## Lesson 4

# Deploying an Operating System

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## Question and Answers

### Demonstration: Importing and Distributing an Operating System Image

**Question:** If you are planning on using operating system deployment to deploy Windows 7 to two different brands of laptops and three different models of desktop computers, how many operating system images would you have to import?

**Answer:** Answers will vary. If you use a general image including only applications that will run on all laptops and desktops, you can use a single image. If you are going to create more customized images, you could create more of them. Hardware differences are not a concern as long as the drivers node has all the appropriate drivers.

### Methods for Running the Installation Task Sequence

**Question:** In your work environment, which deployment scenario and method are you most likely to use?

**Answer:** Answers will vary. However, when deploying a dozen new laptops that included an operating system, you might choose to perform an in place upgrade. When performing a hardware refresh, you might use a side-by-side migration.

# Detailed Demonstration Steps

## Demonstration: Importing and Distributing an Operating System Image

### Detailed demonstration steps

Virtual machines 10747A-NYC-DC1-B and 10747A-NYC-CFG-B are required to complete this demonstration. Log on to the virtual machines as **Contoso\Administrator** with the password **Pa\$\$w0rd**.

#### Import an operating system image

1. On NYC-CFG, in the System Center 2012 Configuration Manager console, click **Software Library**, expand **Operating Systems**, click **Operating System Images**, and then on the ribbon, in the **Create** group, click **Add Operating System Image**.
2. In the Add Operating System Image Wizard, on the **Data Source** page, in the **Path** box, type **\\nyc-cfg\e\$\Captures\Win7Capture2.wim**, and then click **Next**.
3. On the **General** page, click **Next**.
4. On the **Summary** page, click **Next**.
5. On the **Completion** page, click **Close**.

#### Distribute an operating system image

1. Right-click the **Windows 7 Enterprise** image package, and then click **Properties**.
2. On the **Distribution Settings** tab, select the **Allow this package to be transferred via multicast (WinPE only)** check box, and then in the **Windows 7 Enterprise Properties** dialog box, click **OK**.
3. Right-click **Windows 7 Enterprise** and click **Distribute Content**.
4. In the Distribute Content Wizard, on the **General** page, click **Next**.
5. On the **Content Destination** page, click **Add**, and then click **Distribution Point**.
6. In the **Add Distribution Point** dialog box, select the **\\NYC-CFG.Contoso.com** check box, and then click **OK**.
7. On the **Content Destination** page, click **Next**.
8. On the **Summary** page, click **Next**.
9. On the **Completion** page, click **Close**.
10. Right-click the **Windows 7 Enterprise** installation package, and then click **Refresh**. Repeat until the status shows Success. This should take about five 5 minutes.

## Additional Reading

### The Process for Deploying an Operating System Image

- [How to Deploy Operating Systems in Configuration Manager](#)

### Adding an Operating System Image to Configuration Manager

- [How to Deploy Operating Systems in Configuration Manager](#)

# Module Reviews and Takeaways

## Review questions

**Question:** How can operating system deployment assist in managing your organization's systems?

**Answer:** Answers will vary but can include standardization and ease of deployment.

**Question:** What packages could you use for operating system deployment?

**Answer:** The packages for operating system deployment include: operating system installer package, device driver packages, Configuration Manager client upgrade package, application packages, and the USMT package.

**Question:** Why would you use task sequences outside of operating system deployment?

**Answer:** You use task sequences to run any series of commands on multiple client computers, such as installing a set of related applications on multiple computers.

**Question:** Why should you import computer information into the Configuration Manager database before deployment?

**Answer:** You should import computer information into the Configuration Manager database before deployment to prevent accidentally sending a task sequence to unknown computers. To do this, you should use the Import Computer Information Wizard. In the wizard, add the new computers to an appropriate target collection and target the task sequences accordingly.

## Best Practices

Supplement or modify the following best practices for your own work situations:

- Implement access controls to protect bootable media. When you create bootable media, you should always assign a password and control physical access to the media.
- Always install the most recent security updates on the reference computer. Starting with an up-to-date reference computer helps decrease the window of vulnerability for newly-deployed computers.
- Implement access controls to prevent unauthorized computers from connecting to the network, if you are deploying operating systems to unknown computers. Although deploying to unknown computers can be a convenient way to bring up multiple computers on demand, it can also allow a malicious user to efficiently add a trusted computer on your network.

## Common Issues and Troubleshooting Tips

Issue	Troubleshooting Tip
When you deploy an image that includes the 100 megabytes (MB) partition for bitlocker and you receive this error: <Task_Sequence_Name> has failed with the error code (0x8000FFFF)	Verify that the partition step is creating the proper disk sizes. The second partition should be 100% of the remaining disk space.  Verify the images are being placed in the correct order.

## Real-world Issues and Scenarios

**Question:** You are creating a new image for the new corporate standard laptop. You have discovered that the accelerometer driver is not automatically installed during operating

system deployment. What can you do to install the accelerometer driver without user intervention?

**Answer:** Answers will vary; one possible solution is to create a package for the driver and add a task sequence step to install the driver after the operating system is installed.

## Tools

Tool	Use to	Where to find it
Microsoft Deployment Toolkit 2012	Managing deployment images	The Microsoft Web site <a href="https://connect.microsoft.com/site14/Downloads/DownloadDetails.aspx?DownloadID=8689">https://connect.microsoft.com/site14/Downloads/DownloadDetails.aspx?DownloadID=8689</a>

## Lab Review Questions and Answers

### Lab A: Preparing the Environment for Operating System Deployment

**Question:** In your work environment, would you enable Unknown computer support for PXE boot?

**Answer:** Answer will vary. Discuss the advantages, such as ease of deployment, and disadvantages, such as accidental deployment, of enabling Unknown computer support for PXE boot. Also, discuss the use of a password for PXE boot support.

**Question:** Apart from the packages deployed in the lab, what packages would you include as part of the operating system deployment process?

**Answer:** Answers will vary.

### Lab B: Building and Capturing a Reference Image

**Question:** Why should the reference computer not be a member of a domain?

**Answer:** A domain member computer has a GUID and a password in the domain. If this were to be cloned, it could cause the systems to fail to communicate with the domain controllers.

**Question:** Why did you deploy the build and capture task sequence to the unknown computers group?

**Answer:** There is no information in the database about the bare-metal system. Hence, instead of importing the computer information into Configuration Manager, you used the unknown computer collection.

### Lab C: Performing an In-Place Upgrade

**Question:** When would you include an application in the Install an existing image task sequence rather than the build and capture task sequence?

**Answer:** You include applications in the build and capture task sequence in situations when all computers have the same application, such as Microsoft Office. In the Install an existing image task sequence, you add additional applications that are only installed on certain systems.

**Question:** In your work environment, will you use the USMT for state migration?

**Answer:** Answers will vary. If roaming profiles are being used, state migration may not be necessary.

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# Module 12

## Managing Compliance Settings

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## Lesson 1

# Overview of Compliance Settings

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## Question and Answers

### What Are Configuration Items?

**Question:** What types of settings would you want to monitor in your work environment?

**Answer:** Answer will vary but could include registry settings for specific applications or file versions.

### What Are Configuration Baselines?

**Question:** In your work environment, what products or computer systems would you create configuration baselines for?

**Answer:** Answers will vary but may include Exchange server, SQL Server, domain controllers, or applications that provide Dynamic Host Configuration Protocol (DHCP) and Domain Name System (DNS) services.

### Scenarios for Using Compliance Settings

**Question:** Provide a few scenarios when you would use the Compliance Settings feature in your work environment.

**Answer:** Answers will vary but may include frequent security compliance checks for systems on the perimeter network or compliance of user settings for line-of-business (LOB) applications.

## Additional Reading

### Introduction to Compliance Settings

- [Introduction to Compliance Settings in Configuration Manager](#)

### What Are Configuration Items?

- [How to Create Windows Configuration Items for Compliance Settings in Configuration Manager](#)

### What Are Configuration Baselines?

- [How to Create Configuration Baselines for Compliance Settings in Configuration Manager](#)

### What Are Configuration Packs?

- [Microsoft System Center Marketplace](#)

### Scenarios for Using Compliance Settings

- [Example Scenarios for Implementing Compliance Settings in Configuration Manager](#)

## Lesson 2

# Configuring Compliance Settings

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# Question and Answers

## Creating Configuration Items

**Question:** Why would you create a child configuration item?

**Answer:** Answers will vary. However, the answer may include a requirement to have a particular setting on all Windows computers, but a related setting needs to be different on different groups of systems.

## Types of Configuration Item Settings

**Question:** When would you use a severity level of None?

**Answer:** Answers will vary. One possible answer is if you want to report on all systems that do not have a particular version of a noncritical application.

## Demonstration: Creating a Configuration Item

**Question:** When monitoring a file system setting type, what values might you monitor?

**Answer:** Answers will vary but can include settings like file version, data and time stamp, or file size.

## Configuring Remediation

**Question:** Would you use remediation in your work environment? If yes, what would you use it for?

**Answer:** Answers will vary.

## Demonstration: Configuring Remediation on a Configuration Item

**Question:** What kind of remediation would occur if the evaluation rule created in the demonstration is applied to a noncompliant system?

**Answer:** The remediation action that would occur: Set the value if it exists but is not compliant.

## Creating Configuration Baselines

**Question:** When would you copy a configuration baseline?

**Answer:** Answers will vary but can include when importing baselines that are view-only and you want to modify them.

## Deploying Configuration Baselines

**Question:** When would you use a custom schedule for a configuration baseline?

**Answer:** Answers will vary but can include a situation when you roll out a security patch and want to verify whether the patch has been deployed in a short period of time.

## Demonstration: Creating and Deploying a Configuration Baseline

**Question:** How many configuration items should you include in a configuration baseline?

**Answer:** Answers will vary. One possible answer is to include as many configuration items as necessary to define the system or application you are monitoring without adversely affecting the system performance.

# Detailed Demonstration Steps

## Demonstration: Creating a Configuration Item

### Detailed demonstration steps

In this demonstration, you are going to show the students how to create a configuration item. Virtual machines 10747A-NYC-DC1-B and 10747A-NYC-CFG-B are required to complete this demonstration. Log on to the virtual machines as **Contoso\Administrator** with the password **Pa\$\$w0rd**.

#### Create a configuration item

1. Switch to the NYC-CFG computer.
2. Click Start, click All Programs, click Microsoft System Center 2012, click Configuration Manager, and then click Configuration Manager Console.
3. Click the **Assets and Compliance** workspace, expand the **Compliance Settings** folder, and then click the **Configuration Items** node.
4. On the ribbon, click Create Configuration Item.
5. In the Create Configuration Item Wizard, on the **General** page, in the **Name** box, type **Validate Remote Desktop is Enabled**.
6. Click Categories.
7. Select the **Client** check box, and then click **OK**.
8. On the **General** page, click **Next**.
9. On the Supported Platforms page, click Next.
10. On the **Settings** page, click **New**.
11. In the **Create Setting** dialog box, on the **General** tab, click **Browse**.
12. In the **Browse Registry** dialog box, in the **Computer name** box, type **NYC-DC1**, and then click **Connect**.
13. In the Registry tree area, expand the NYC-DC1 computer, and then navigate to HKEY\_LOCAL\_MACHINE\System\CurrentControlSet\Control\Terminal Server.
14. In the Browse Registry dialog box, in the Registry Value area, click fDenyTSConnections.
15. Select the **This registry value must satisfy the following rule if present** check box. Explain to the students that because this value is already configured to the desired value, the setting does not need to be changed.
16. In the **Browse Registry** dialog box, click **OK**, and then in the **Create Setting** dialog box, click **OK**.
17. On the **Settings** page, click **Next**.
18. Under the **Condition** heading, click the **fDenyTSConnections Equals 0** condition (expand the name column if necessary), and then click **Edit**.
19. In the Noncompliance severity for reports list, click Critical, and then click OK.
20. On the **Compliance Rules** page, click **Next**.
21. On the **Summary** page, click **Next**.

22. On the **Completion** page, click **Close**.

## Demonstration: Configuring Remediation on a Configuration Item

### Detailed demonstration steps

In this demonstration, you are going to show the students how to enable remediation on a configuration item. Virtual machines 10747A-NYC-DC1-B and 10747A-NYC-CFG-B are required to complete this demonstration. Log on to the virtual machines as **Contoso\Administrator** with the password **Pa\$\$w0rd**.

After the demonstration, show the Script type setting and point out the remediation section for this type.

#### Enable remediation on a configuration item

1. In the System Center 2012 Configuration Manager console, click the **Assets and Compliance** workspace, expand the **Compliance Settings** folder, and then click the **Configuration Items** node.
2. Click **Validate Remote Desktop is Enabled**.
3. On the ribbon, click **Properties**.
4. Click the **Compliance Rules** tab.
5. Under the **Condition** heading, click **Equals 0**, and then click **Edit**.
6. In the **Edit Rule** dialog box, select the **Remediate noncompliant rules when supported** check box.

Explain that you do not specify how to remediate the problem. The remediation action depends on the type of rule you select.

7. In the **Edit Rule** dialog box, click **OK**.
8. In the **Validate Remote Desktop is Enabled Properties** dialog box, click **OK**.

## Demonstration: Creating and Deploying a Configuration Baseline

### Detailed demonstration steps

In this demonstration, you are going to show the students how to create and deploy a configuration baseline. Virtual machines 10747A-NYC-DC1-B and 10747A-NYC-CFG-B are required to complete this demonstration. Log on to the virtual machines as **Contoso\Administrator** with the password **Pa\$\$w0rd**.

#### Create a configuration baseline

1. In the System Center 2012 Configuration Manager console, click the **Assets and Compliance** workspace, expand the **Compliance Settings** folder, and then click the **Configuration Baselines** node.
2. On the ribbon, click **Create Configuration Baseline**.
3. In the **Create Configuration Baseline** dialog box, in the **Name** box, type **IT Support Configuration Settings**.
4. Click **Add**, and then click **Configuration Items**.
5. Click **Validate Remote Desktop is Enabled**, and then click **Add**.
6. In the **Add Configuration Items** dialog box, click **OK**.
7. Click **Categories**.



8. Select the **IT Infrastructure** check box, and then click **OK**.
9. In the **Create Configuration Baseline** dialog box, click **OK**.

**Deploy a configuration baseline**

1. Click **IT Support Configuration Settings**.
2. On the ribbon, click **Deploy**.
3. In the **Deploy Configuration Baselines** dialog box, click **Browse**.
4. In the **Select Collection** dialog box, click the **User Collections** list, and then click **Device Collections**.
5. Click the **All Windows 7 Workstations** collection, and then click **OK**.
6. In the **Deploy Configuration Baselines** dialog box, click **OK**.

## Additional Reading

### Configuring Client Settings to Support Compliance

- [Configuring Compliance Settings in Configuration Manager](#)

### Creating Configuration Items

- [How to Create Windows Configuration Items for Compliance Settings in Configuration Manager](#)

### Types of Configuration Item Settings

- [How to Create Windows Configuration Items for Compliance Settings in Configuration Manager](#)

### Creating Configuration Baselines

- [How to Create Configuration Baselines for Compliance Settings in Configuration Manager](#)

### Deploying Configuration Baselines

- [How to Deploy Configuration Baselines in Configuration Manager](#)

Lesson 3

Viewing Compliance Results

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## Question and Answers

### Viewing Compliance in the Configuration Manager Client

**Question:** When would you run an evaluation from the Configuration Manager client?

**Answer:** Answers will vary. One possible answer is for troubleshooting purposes. You may wish to run an evaluation off the schedule to verify if the client has been brought into compliance.

### Viewing Compliance Results in the Configuration Manager Console

**Question:** In your work environment, who would view the compliance reports?

**Answer:** Answers will vary but could include:

- Auditors to verify if certain computers have met compliance standards
- Security personnel to verify if software updates were deployed successfully
- Configuration Manager administrators to monitor the Compliance Settings activity

## Additional Reading

### Viewing Compliance Results in the Configuration Manager Console

- [How to View Compliance Results for Compliance Settings in Configuration Manager](#)

# Module Reviews and Takeaways

## Review questions

**Question:** What are the components of Compliance Settings? Which component would you create first?

**Answer:** Configuration items and configuration baselines are the components of Compliance Settings. You should first create configuration items and then the configuration baselines.

**Question:** The default evaluation interval is seven days. When would you modify this setting?

**Answer:** Answers will vary but can include regulatory compliance requirements or business requirements.

**Question:** How would you remediate computers found out of compliance with a configuration item that requires Microsoft .NET Framework 2.0?

**Answer:** You can use software distribution to deploy .NET Framework 2.0 to computers that do not have the framework.

## Best Practices for Compliance Settings

Supplement or modify the following best practices for your own work situations:

- Create configuration items that combine multiple objects and settings to define a single unit of change.
- Provide meaningful display names and descriptions for configuration items and baselines so that they can be used by other administrators without the need to check and interpret their properties.
- Minimize the number of configuration items, dependent configuration baselines, and configuration baselines that are deployed to computers when defining desired compliance.
- Where possible, use child configuration items rather than duplicating configuration items.
- Schedule compliance evaluations according to business requirements and available computing resources.

## Real-world Issues and Scenarios

**Question:** You support an LOB application that was developed in-house. This application requires that Adobe® Reader® be the default application for opening .pdf files regardless of the installed versions of Adobe. Some users have been changing their default program for the .pdf files. This generally results in a call to the help desk when the LOB application does not function properly. How can you use Compliance Settings to prevent this from happening?

**Answer:** Answers will vary. One possible answer is to configure configuration items and configuration baselines, which represent the registry settings that control the .pdf default application settings and then configure them for automatic remediation.

**Question:** You have applications that require specific versions of third-party components. These components can be updated through the Internet. Certain users have administrative access to their computers and update the application on their own. This occasionally causes issues. You would like to be able to quickly reference the version of the third-party application they are running. How could you use Compliance Settings to help with this situation?

**Answer:** Answers will vary. One possible answer is to create a file-based compliance rule for the run-time component so that user changes are quickly reported to the Configuration Manager database.

**Question:** Your audit department requires documentation showing that all client computers are in compliance with the security updates for all applications. Your security department is responsible for producing this documentation. How can you use Compliance Settings to show compliance with security updates for all applications?

**Answer:** Answers will vary. One possible answer is to work with the security department to determine the applications that can be monitored through the registry and through the files system. Then, develop configuration items for each application that will be monitored and create baselines for each department and the applications that they use.

## Lab Review Questions and Answers

### Lab: Managing Compliance Settings

**Question:** Besides presence, what values might you want to use with a file-based configuration item?

**Answer:** Answers will vary but can include Size, Date Created, SHA-1 Hash, and Attributes and permissions.

**Question:** What was the compliance state when you ran the evaluation for the first time?

**Answer:** The evaluation showed noncompliant with a severity of Information for the file system setting and critical for the registry setting.

**Question:** What was the compliance state when you ran the evaluation for the last time?

**Answer:** The evaluation showed noncompliant with a severity of Information for the file system setting and compliant for the registry setting.

**Question:** Was the remediation successful?

**Answer:** Yes.



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# Module 13

## Managing Mobile Devices

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## Lesson 1

# Configuring Mobile Device Management

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## Question and Answers

### What Are Configuration Items?

**Question:** What types of settings would you want to monitor in your work environment?

**Answer:** Answer will vary but could include registry settings for specific applications or file versions.

### What Are Configuration Baselines?

**Question:** In your work environment, what products or computer systems would you create configuration baselines for?

**Answer:** Answers will vary but may include Exchange server, SQL Server, domain controllers, or applications that provide Dynamic Host Configuration Protocol (DHCP) and Domain Name System (DNS) services.

### Scenarios for Using Compliance Settings

**Question:** Provide a few scenarios when you would use the Compliance Settings feature in your work environment.

**Answer:** Answers will vary but may include frequent security compliance checks for systems on the perimeter network or compliance of user settings for line-of-business (LOB) applications.

# Detailed Demonstration Steps

## Demonstration: Configuring the Exchange Connector

### Detailed demonstration steps

Virtual machines 10747A-NYC-DC1-B and 10747A-NYC-CFG-B are required to complete this demonstration. Log on to the virtual machines as **Contoso\Administrator** with the password **Pa\$\$w0rd**. In this demonstration, you will see how to configure an Exchange connector.

#### Configure the Exchange connector

1. On NYC-CFG, click Start, click All Programs, click Microsoft System Center 2012, click Configuration Manager, and then click Configuration Manager Console.
2. Click the Administration workspace, expand Hierarchy Configuration, and then click Exchange Server Connectors.
3. On the ribbon, click **Add Exchange Server**.
4. In the Add Exchange Server Wizard, on the **General** page, in the **Server address** box, type **Mail.contoso.com**
5. On the **General** page, click **Next**.
6. On the **Account** page, click **Next**.
7. On the **Discovery** page, click **Next**.
8. On the **Settings** page, click **General**, and then click **Edit**.
9. On the **General Settings** page, click **OK**.
10. Click **Password**, and then click **Edit**.
11. On the **Password Settings** page, click **OK**.
12. Click **Email Management**, and then click **Edit**.
13. On the Email Management Settings page, click OK.
14. Click **Security**, and then click **Edit**.
15. On the **Security Settings** page, click **OK**.
16. Click **Applications**, and then click **Edit**.
17. On the Applications Settings page, click OK.
18. On the Settings page, in the Allow external mobile device management list, select Allowed, and then click Next.
19. On the **Summary** page, click **Next**.
20. On the **Completion** page, click **Close**.

## Additional Reading

### Methods for Managing Mobile Devices

- [Determine How to Manage Mobile Devices in Configuration Manager](#)

### What Is the Exchange Connector?

- [How to Manage Mobile Devices by Using the Exchange Server Connector in Configuration Manager](#)

### Methods for Managing Mobile Devices

- [Determine How to Manage Mobile Devices in Configuration Manager](#)

### What Is the Exchange Connector?

- [How to Manage Mobile Devices by Using the Exchange Server Connector in Configuration Manager](#)

## Lesson 2

# Depth Management of Mobile Devices

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## Question and Answers

### Site System Roles Required for Depth Management

**Question:** Can you manage mobile devices without using an enrollment point?

**Answer:** Yes, you can perform light management of devices through the Exchange connector without using any other roles. However, light management provides you only a minimal set of management options.

### Client Agent Settings for Mobile Devices

**Question:** In your work environment, will you allow all users to enroll mobile devices or will you limit enrolling mobile devices to a specific group?

**Answer:** In some environments, users are encouraged to register their devices. In some other environments, the security team wants to closely regulate the devices that may be able to receive organizational documents.

### Configuring Settings Management for Mobile Devices

**Question:** What mobile device settings might you use in your work environment?

**Answer:** Answers will vary but can include configuring minimum password length or the length of time to retain e-mail on mobile devices.

### Mobile Device Inventory

**Question:** How can you use inventory information in your work environment?

**Answer:** You can use inventory information in your work environment to:

- Maintain an inventory of company-owned devices.
- Maintain a list of users with personal devices configured for active-sync.
- Find lost devices or devices that have not synchronized recently.



## Additional Reading

### Site System Roles Required for Depth Management

- [Determine How to Manage Mobile Devices in Configuration Manager](#)

### Enrolling a Mobile Device

- [How to Install Clients on Mobile Devices and Enroll Them by Using Configuration Manager](#)

## Lesson 3

# Deploying Applications to Mobile Devices

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# Question and Answers

## Overview of Application Deployment to Mobile Devices

**Question:** If you deploy an application to a mobile device at midnight with an installation deadline set to **As soon as possible**, when would you expect it to be deployed?

**Answer:** The answer depends on several factors such as:

- Are there defined maintenance windows?
- Is the application set to deploy regardless of the maintenance windows?
- Is the application configured to deploy whether or not the user is logged in?
- What is the polling interval that is specified in the relevant client settings?

## Creating Applications for Mobile Devices

**Question:** Why might you add a digital signature file to an application?

**Answer:** You would add a digital signature file to an application so that you could configure mobile device policies to prevent unsigned applications from being installed and lessen the chances of the devices being compromised.

## Demonstration: Creating a Mobile Device Application

**Question:** What kind of applications might you deploy in your work environment?

**Answer:** Answers will vary but can include line-of-business (LOB) applications and mobile utilities.

# Detailed Demonstration Steps

## Demonstration: Creating a Mobile Device Application

### Detailed demonstration steps

Virtual machines 10747A-NYC-DC1-B and 10747A-NYC-CFG-B are required to complete this demonstration. Log on to the virtual machines as **Contoso\Administrator** with the password **Pa\$\$w0rd**.

#### Create a mobile device application

1. On NYC-CFG, in the System Center 2012 Configuration Manager console, click the **Software Library** workspace, expand **Application Management**, and then click **Applications**.
2. On the ribbon, click **Create** and then click **Create Application**.
3. In the Create Application Wizard, on the **General** page, in the **Type** box, click **Windows Mobile Cabinet**, and then click **Browse**.
4. Navigate to \\nyc-cfg\e\$\software\bing\bing.cab, and then click Open.
5. On the **General** page, click **Next**.  
If a Configuration Manager message box appears, click **Yes**.
6. On the Import Information page, click Next.
7. On the General Information page, click Next.
8. On the **Requirements** page, click **Add**.
9. On the Create Requirement page, in the Condition list, select Operating System.
10. In the **Operator** area, select the **Windows Mobile** check box, click **OK**, and then on the **Requirements** page, click **Next**.
11. On the **Summary** page, click **Next**.
12. On the **Completion** page, click **Close**.

# Module Reviews and Takeaways

## Review questions

**Question:** What are the differences between light management and depth management?

**Answer:** You can use light management to manage mobile devices through the Exchange connector and the ActiveSync settings that Exchange Server 2010 supports. However, you use depth management to manage mobile device directly through Configuration Manager.

**Question:** What are the features of depth management?

**Answer:** Depth management allows you to:

- Manage Windows CE 6.0, Windows Mobile 6.0, Windows Mobile 6.1, Windows Phone 6.5, and some Nokia Belle based devices.
- Secure over-the-air enrollment.
- Monitor and remediate noncompliant devices.
- Deploy applications and configuration policies to users or devices.

**Question:** What site system roles are required for depth management?

**Answer:** Depth management requires the following site system roles:

- Enrollment point. This role completes mobile device enrollment and provisioning.
- Enrollment proxy point. This role manages enrollment requests from mobile devices.
- Management point. Mobile devices contact management points for policy settings.
- Distribution point. Mobile devices use the distribution point for retrieving content.

**Question:** How does a mobile device install the root certificate from the Microsoft CA?

**Answer:** The mobile device installs the root certificate when the client is installed during the enrollment process. This allows the mobile device to trust the certificates from the Microsoft CA.

## Lab Review Questions and Answers

### Lab: Managing Mobile Devices

**Question:** When configuring client settings, what polling interval would you use in your work environment?

**Answer:** Answers will vary. However, while setting the polling interval, keep in mind the effect of a high-frequency interval on the mobile device batteries.

**Question:** How would you enroll a mobile device if the security settings were configured to not allow downloading from untrusted sites?

**Answer:** In this situation, you need to deploy the root certificate separately.

**Question:** What compliance settings might you use in your work environment?

**Answer:** Answers will vary.

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# Module 14

## Configuring Wake On LAN, Power Management, and Remote Control

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## Lesson 1

# Configuring Wake On LAN

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## Question and Answers

### Benefits of Wake On LAN

**Question:** How would your environment benefit from using Wake On LAN?

**Answer:** Answers will vary. Conduct a class discussion on how network environments can benefit by using Wake On LAN.

### Demonstration: Enabling Wake On LAN

**Question:** How does Configuration Manager identify target computers when you use subnet-directed broadcasts?

**Answer:** Configuration Manager obtains the target computer's IP subnet and MAC address from the latest collected hardware inventory.

**Question:** Increasing the number of Wake On LAN retries increases the chances of waking a computer. What is the risk involved when increasing the number of retries?

**Answer:** Increasing the number of retries unnecessarily consumes network bandwidth and processing capabilities on network devices.

**Question:** What is the potential effect of increasing the number of transmission threads for Wake On LAN?

**Answer:** Increasing the number of threads increases the likelihood of making full use of available network bandwidth, particularly when the site server computer has multiple cores or processors. Increasing the number of threads also may produce a significant increase in CPU utilization.

# Detailed Demonstration Steps

## Demonstration: Enabling Wake On LAN

### Detailed demonstration steps

Virtual machines 10747A-NYC-DC1-B and 10747A-NYC-CFG-B are required to complete this demonstration. Log on to the virtual machines as **Contoso\Administrator** with the password **Pa\$\$w0rd**.

#### Configure the ports used for Wake On LAN

1. On NYC-CFG, open the System Center 2012 Configuration Manager console.
2. Click the **Administration** workspace, expand **Site Configuration**, and then click **Sites**.
3. Right-click **S01 – Contoso New York Site** and then click **Properties**. The **Contoso New York Site Properties** dialog box opens.

In the **Contoso New York Site Properties** dialog box, on the **Ports** tab, verify that **Wake On LAN (UDP)** is selected as an active port, right-click this entry, and then click **Properties**. Note that the default port number is nine but you can modify it if required.

#### Enable Wake On LAN for a site

1. In the **Contoso New York Site Properties** dialog box, on the **Wake On LAN** tab, select the **Enable Wake On LAN for this site** check box. A **Configuration Manager** message box displays, stating that no site system has the out of band service point role assigned. This is only relevant if out of band management is used to turn the computers on and off.
2. Click **OK**.
3. Click the **Use wake-up packets only** option. Note that for this demonstration, because there is no out of band management role configured for the site, you will only enable the use of wake-up packet transmissions.

#### Configure unicast or subnet-directed broadcasts

1. In the **Contoso New York Site Properties** dialog box, on the **Wake On LAN** tab, select one of the following options:
  - **Subnet-directed broadcasts**. Select this option if you want wake-up packets to be sent by using subnet-directed broadcast transmission.
  - **Unicast**. Select this option if you want wake-up packets to be sent by using unicast transmission.

#### Configure the advanced options in Wake On LAN

1. On the **Wake On LAN** tab, click **Advanced**.
2. In the **Wake On LAN Advanced Properties** dialog box, explore the following options:
3. **Retries** and **Delay (minutes)** under the **Transmission retries** section.
4. **Maximum** and **Wait (seconds)** under the **Transmission maximum** section.
5. **Transmission threads** under the **Transmission threads** section.
6. **Transmission offset (minutes)** under the **Transmission offset** section.
7. Click **OK** to close the Wake On LAN Advanced Properties dialog box.

8. Click **OK** to close the **Contoso New York Site Properties** dialog box.

## Additional Reading

### Benefits of Wake On LAN

- [Overview of Wake On LAN](#)

### Methods for Transmitting Wake-up Packets

- [About Unicast Wake-Up Packets for Wake On LAN](#)
- [About Subnet-Directed Broadcast Wake-Up Packets for Wake On LAN](#)
- [Choose Between Unicast and Subnet-Directed Broadcast for Wake On LAN](#)

### Prerequisites for Implementing Wake On LAN

- [Prerequisites for Wake On LAN](#)

## Lesson 2

# Overview of Out of Band Management

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## Question and Answers

### Introducing Out of Band Management

**Question:** Does your organization have a need for out of band management? If yes, how?

**Answer:** Answers will vary. Discuss how out of band management is beneficial to the organization.

## Additional Reading

### Introducing Out of Band Management

- [Introduction to Out of Band Management in Configuration Manager](#)

### Prerequisites for Out of Band Management

- [Prerequisites for Out of Band Management in Configuration Manager](#)



## Lesson 3

# Configuring Power Management Settings

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## Question and Answers

### Benefits of Power Management

**Question:** Does your organization need to manage power consumption?

**Answer:** Answers will vary. Discuss how power management is beneficial to the organization.

## Additional Reading

### Prerequisites for Implementing Power Management

- [Prerequisites for Out of Band Management in Configuration Manager](#)

### The Process for Implementing Power Management

- [Introduction to Power Management in Configuration Manager](#)

### Power Management Plan Settings

- [How to Create and Apply Power Plans in Configuration Manager](#)

### Power Management Reports

- [How to Monitor and Plan for Power Management in Configuration Manager](#)

## Lesson 4

# Configuring Remote Control

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# Question and Answers

## Securing Remote Control

**Question:** Is privacy a major concern in your organization? How do privacy concerns affect your organization's remote administration policies?

**Answer:** Answers will vary. Participate in a classroom discussion on how you can ensure that the Configuration Manager remote administration functionality meets your organization's privacy policies.

## Additional Reading

### Remote Tools Device Settings

- [Configuring Remote Control in Configuration Manager](#)

### Remotely Administering a Client Computer

- [How to Remotely Administer a Client Computer by Using Configuration Manager](#)

### Auditing Remote Access

- [How to Audit Remote Control Usage in Configuration Manager](#)

# Module Reviews and Takeaways

## Review questions

**Question:** What is the purpose of Remote Control?

**Answer:** You can use Remote Control to troubleshoot hardware and software configuration problems on remote client computers and provide remote help desk support when access to the user's computer is necessary.

**Question:** What is the purpose of the Permitted viewers list?

**Answer:** This is a list of users who are allowed to use Configuration Manager Remote Tools functionality on clients. It is important to note that the Permitted viewers list is just a list. The list is not validated until the Remote Tools Agent attempts to add the specified users to the ConfigMgr Remote Control Users group.

**Question:** What would happen if you tried to control the Remote Assistance settings through both Group Policy and through Configuration Manager?

**Answer:** When Group Policy is refreshed on the client, by default, it optimizes the process by changing only the server's changed policies. However, Configuration Manager changes the settings in the local security policy, which might not be overwritten unless you force the Group Policy update. Setting the policy in both places could lead to inconsistent results. Choose one of these methods to configure your Remote Assistance settings.

**Question:** When does Wake On LAN "wake up" computers?

**Answer:** By default, computers are woken up three minutes before the scheduled activity to ensure that they have completed startup.

**Question:** List three or four main requirements for out of band management.

**Answer:** The four main requirements for out of band management are: computers that support AMT, a PKI, an out of band service point server role, and an enrollment point site server role.

## Lab Review Questions and Answers

### Lab A: Configuring Power Management Settings

**Question:** During peak hours, when can you expect computers in the Toronto collection to turn off the display and go to sleep?

**Answer:** Because the High Performance peak plan has been applied to the Toronto collection, the display is set to **never turn off**. Computers will only go to sleep if on battery and after 60 minutes.

**Question:** During non-peak hours, when can you expect computers in the Toronto collection to turn off the display and go to sleep?

**Answer:** For the non-peak plan, the Power Saver plan has been applied. This will turn off the display after 5 minutes on battery and 10 minutes plugged in. Computers will also sleep after 5 minutes on battery and 10 minutes plugged in.

**Question:** You need to modify the time that a plugged in computer will go to sleep during peak hours. What should you do?

**Answer:** You need to select the Customized Peak (ConfigMgr) plan, which will allow you to edit the specific power management settings.

### Lab B: Configuring Remote Control

**Question:** You want to use Remote Control to manage a remote server; however, you do not want a prompt to appear for permission on the remote server. What should you do?

**Answer:** You can create a custom client device settings object and deploy it to a collection containing the server. Remote Control settings would then be configured to not prompt for permission.

**Question:** You notice that users are able to modify Remote Control settings from Software Center. What can you do to prevent this?

**Answer:** You must ensure that the **Users can change policy or notification settings in Software Center** option is set to **False**.