

# MODULE 7: DEPLOYMENT

## Module Overview

Deploying software is essential to meet the changing application needs of organizations. It provides these benefits:

1. When deploying Microsoft Dynamics® NAV 2013 clients with Windows Server Group Policy, users no longer have to look for the application on a network share, use a CD-ROM, or install, fix, and upgrade software themselves.
2. Deploying Microsoft Dynamics NAV 2013 with Group Policy reduces the time that you spend administering user systems.
3. Application life-cycle management is simplified because applications can be redeployed, upgraded, or removed in the same manner they were deployed.

### Objectives

The objectives are:

- Explain Software Deployment with Group Policy.
- Deploy Microsoft Dynamics NAV 2013 client for Windows by using Group Policy.

## Deployment Process

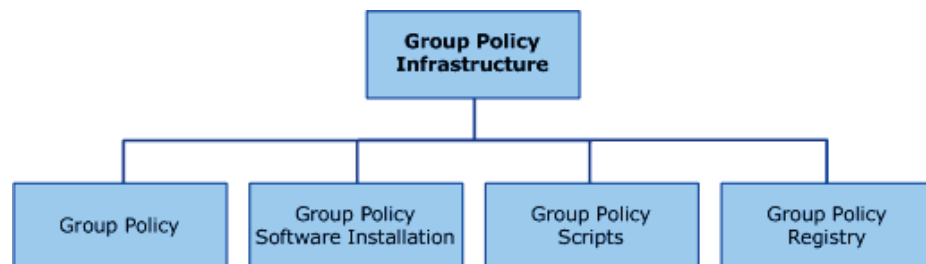
One of the challenges administrators in an organization typically face is application life-cycle management. Imagine a scenario where an administrator has to go to every single computer in a network to individually install any application that is required by all the connected computers in the domain. Imagine an even more complex network setup where the whole domain is scattered around the globe.

To eliminate this problem, Windows Server 2008 offers software installation through Group Policy. With Group Policy Software Installation, a software management feature, administrators can manage software throughout its life-cycle within the organization. Software Installation is available as an extension in the Group Policy Management Console (GPMC) and works together with Group Policy and Active Directory.

### Group Policy

Group Policy provides an infrastructure for centralized configuration management of the operating system and applications that run on the operating system. It can be used to deliver and apply one or more desired configurations or policy settings to a set of targeted users and computers in an Active Directory environment.

The Group Policy Infrastructure figure shows the entities that are available and can be managed in the Group Policy infrastructure.



**FIGURE 7.1: GROUP POLICY INFRASTRUCTURE**

This infrastructure consists of a Group Policy engine and multiple client-side extensions (CSEs) responsible for reading specific policy settings on target client computers.

The Scripts extension can apply one or more scripts to a computer or users. Scripts that apply to computers run during startup and shutdown. Scripts that apply to users run during logon and logoff.

The Registry extension is a way to use Group Policy to centrally manage client registry keys. This client-side extension is used to apply registry-based policy settings (Administrative Templates) by creating and configuring the client registry keys.

The Software Installation extension of Group Policy enables you to provide on-demand software installation and automatic repair of applications. Group Policy offers a convenient method for distributing software, especially if you already use Group Policy for other purposes such as securing the client and server computers.

To start the Group Policy Management Editor, follow these steps:

1. Click **Start**, and then click **Run**.
2. In the **Open** box, type "mmc" and then click **OK**.
3. Click **File > Add/Remove Snap-in**.
4. Click **Add**.
5. Under **Available snap-ins**, click **Group Policy Management Editor** and then click **Add**. The **Select Group Policy Object** dialog box appears.
6. Click **Browse** to open the **Browse for a Group Policy Object** dialog box.
7. Select the tabs and locate the Group Policy object that you want to display.
8. Click **OK** to close the dialog box.
9. When you return to the **Select Group Policy Object** dialog box, click **Finish**.
10. Click **Close**, and then in the **Add/Remove Snap-in** dialog box, click **OK**.

The selected GPO is displayed in the Console Root.

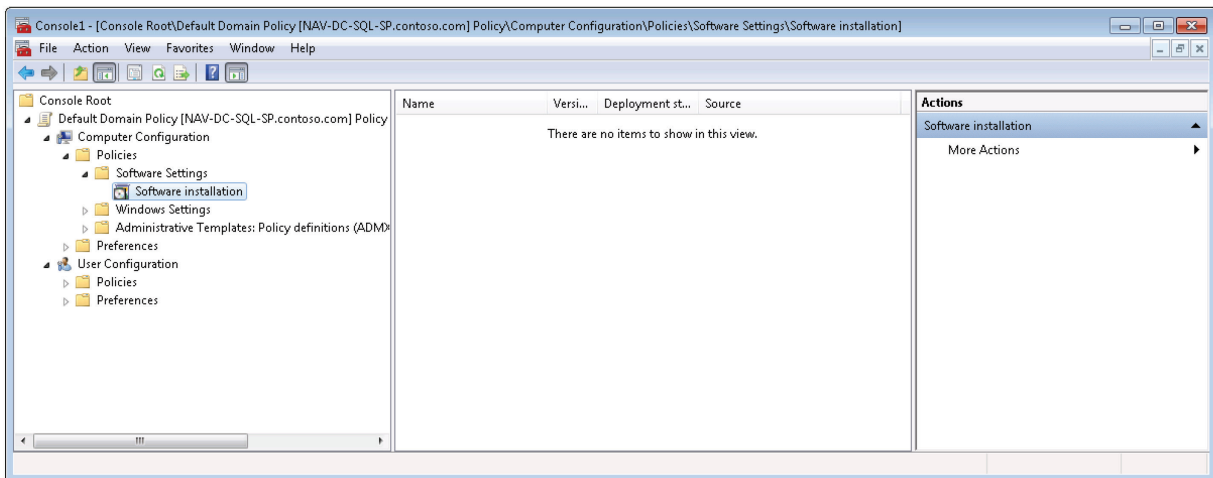


**Note:** You must be logged on to the computer with an account that has administrative credentials to use Group Policy Management Editor.

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# Installation and Configuration in Microsoft Dynamics® NAV 2013

The Group Policy Management Editor figure shows the Group Policy Management Editor console.



**FIGURE 7.2: GROUP POLICY MANAGEMENT EDITOR WINDOW**

The Group Policy snap-in contains the following major branches:

- Computer Configuration

Administrators can use Computer Configuration to set policies that are applied to the computer, regardless of who logs on to the computers. Computer Configuration typically contains sub-items for software settings, Windows settings, and Administrative Templates.


- User Configuration

Administrators can use User Configuration to set policies that apply to users, regardless of which computer they log on to. User Configuration typically contains sub-items for software settings, Windows settings, and Administrative Templates.

## Software Installation Extension

The Software Installation extension in the Group Policy Management Editor console is the key administrative tool for deploying software.

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 **Note:** The Software Installation extension is not available in local Group Policy Objects. It is available only in domain-wide Group Policy Objects. To manage a domain-wide Group Policy Object, you must use the Group Policy Management Editor console. You can only use the Group Policy Object Editor to manage the local group policies for a server.

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Group Policy Software Installation helps you specify how applications are installed and maintained within your organization. With Group Policy Software Installation, you can manage an application in a Group Policy Object. This is in turn associated with a particular Active Directory container – a site, a domain, or an organizational unit. This makes sure of the following:

- Administrators can control which software is available to users through the Windows Control Panel.
- Every computer or user in the domain or in any particular organizational unit receives the package and the software is automatically installed without any user interaction.

Applications can be managed in one of two modes: assigned or published.

- **Assign Software**

You can assign a program distribution to users or computers. If you assign the program to a user, it is installed when the user logs on to the computer. When the user first runs the program, the installation is completed.

If you assign the program to a computer, it is installed when the computer starts and is available to all users who log on to the computer. When a user first runs the program, the installation is completed.

- **Publish Software**

You can publish a program distribution to users. When the user logs on to the computer, the published program is displayed in the **Add/Remove Programs** dialog box (in the Windows Control Panel), and it can be installed from there.

A workable combination of these methods can be established to meet your software management goals.

### Software Distribution Points

To publish or assign a computer program, you must create a distribution point on the publishing server. The software distribution point (SDP) is a shared folder from which users and computers can install applications.

1. Log on to the server as an administrator.
2. Create a shared network folder where you will put the Microsoft Windows Installer package (.msi file) that you want to distribute.
3. Set permissions on the share to allow access to the distribution package.  
Authenticated Users: Read and Execute permissions

Administrators: Full Control

4. Copy or install the package to the distribution point.

## Supported Installation File Types

Group Policy Software Installation (GPSI) uses the Windows Installer service to maintain and manage the state of software installation. This service runs in the background and enables the operating system to manage software installation, based on information that is stored in the Windows Installer package.

Every time that you use the software installation extension of Group Policy to deploy an application, update, or upgrade package, you must first prepare the application for Windows Installer. If the application does not include a natively authored Windows Installer package (.msi), you must obtain one or create a .zap file.

GPSI supports the following file types:

- Windows Installer Packages (\*.msi): A Windows Installer package (.msi file) contains all the information that is needed for the Windows Installer to set up an application. It covers every conceivable situation: various platforms, different sets of previously installed products, earlier versions of a product, and many default installation locations. There are two types of Windows Installer Packages:
  - Native Windows Installer package files: This type of Windows Installer package is developed as a software component. The Windows Installer service can be fully used. The native Windows Installer package files include one product that has many features that can be installed individually.
  - Repackaged application files: Unlike the native Windows Installer package files, repackaged application files include one product that is installed as one feature.
- Transform files (\*.mst): Transform files are used to customize applications. They complement the ".msi" Windows Installer files in order to customize the installation. A transform is basically a record of changes that were made to the original package file. Transforms enable users to customize Windows Installer packages and the installation features when they publish or assign the application. Through transforms, users can include and exclude features for the installation.
- Patch files (\*.msp): Patch files are used to apply software fixes (patches or updates) to applications. They complement the .msi Windows Installer files.

- .zap files (\*.zap): Non-Windows Installer-based applications must use a .zap file to describe their existing Setup program. A .zap file is a text file (similar to .ini files) that provides information about how to install a program, the application properties, and the entry points that the application should install.

For more information about tools and procedures for authoring Windows Installer packages or repackaging existing applications for use with Windows Installer, see Step-by-Step Guide to Software Installation and Maintenance (<http://go.microsoft.com/fwlink/?LinkId=267427>).

### Software Deployment Process

The steps in the software deployment process vary, depending on whether the application is published or assigned.

#### Published Applications

This is the installation process for published applications:

1. The user logs on to a client computer that is running Windows 2000 or later versions.
2. In Control Panel, the user opens **Programs**.
3. The **Get Programs** function obtains the list of published software from Active Directory.
4. The user selects **Microsoft Dynamics NAV 2013**.
5. The **Programs** function obtains the location of the published software from Active Directory.
6. A request for software is sent to the Software Distribution Point.
7. The Windows Installer service is started, and it installs the requested Windows Installer package.
8. The user opens the newly installed application.

#### Assigned Applications

This is the sequence of the installation process for assigned applications:

1. The user logs on to a client computer that is running Windows 2000 or later versions.
2. The WinLogon process advertises applications on the user's Desktop or on the Start menu.
3. The user selects Microsoft Dynamics NAV 2013 from the Desktop or the Start menu.

4. The Windows Installer service retrieves the Windows Installer package.
5. A request for the software is sent to the Software Distribution Point.
6. The Windows Installer service is started, it installs the requested Windows Installer package, and it opens the application.

## Deploy Microsoft Dynamics NAV 2013

Now that you have familiarized yourself with the software deployment tools, the Windows Installer service, and the software deployment processes, you are ready to learn how to deploy software with Group Policy.

This lesson discusses the steps of deploying Microsoft Dynamics NAV 2013 client software with Group Policy. The tasks to deploy software with Group Policy are as follows:

1. Plan and prepare the software deployment.
2. Set up a Software Distribution Point (SDP).
3. Create a Group Policy Object (GPO) and a Group Policy Object console for software deployment.
4. Specify the software deployment properties for the GPO.
5. Add Windows Installer packages to the GPO and select the package deployment method.
6. Set Windows Installer package properties.

### Plan and Prepare

Before you can start to deploy software with Group Policy, you must plan the deployment. When planning for software deployment, you should do the following:

- Review your organization's software requirements based on your overall organizational structure within Active Directory and your available GPOs.
- Determine how you want to deploy your applications (per user or per computer, assign or publish).
- Prepare your software by using a format that lets you manage it based on what your organization requires.
- Create a pilot to test the deployment.
- Test all the Windows Installer packages or repackaged software.



This table describes strategies and considerations for deploying software. Some of these strategies might seem contradictory, but select the strategies that meet your business goals.

Strategy	Considerations
Create OUs based on software management needs.	Lets you target applications to the appropriate set of users. Group Policy security settings are not required to target the appropriate set of users.
Deploy software close to the root in the Active Directory tree.	Makes it easy to provide all users in an organization with access to an application. This reduces administration because you can deploy a single GPO instead of re-creating that object in multiple containers in the Active Directory tree.
Deploy multiple applications with a single GPO.	Reduces administration overhead by letting you create and manage a single GPO instead of multiple GPOs.  The logon process is faster because a single GPO deploying 10 applications processes faster than 10 GPOs, each deploying one application. This is appropriate in organizations where users share the same core set of applications.
Publish or assign an application only one time in the same GPO or in a series of GPOs that might apply to a single user or computer.	Makes it easier to determine which instance of the application applies to the user or computer.

### Licenses and Software Guidelines

Software licenses are required for software written by independent software vendors and distributed by using Software Distribution Points. It is your responsibility to match the number of users who can access software to the number of licenses that are available.

It is also your responsibility to verify that you are working within the software guidelines provided by each independent software vendor.

## Software Preparation

Before you start the deployment, you must obtain the Windows Installer packages (.msi files) for the software. Perform any necessary modifications to the packages, and collect the transform (.mst) or patch (.msp) files. If you want to deploy multiple applications, you should determine the correct installation order.

## Set Up a Software Distribution Point

After you have finished planning and preparing for the software deployment, copy the software to a Software Distribution Points (SDP). A Software Distribution Point is a network location from which users can retrieve the software that they need.

To set up a software distribution point, follow these steps:

1. Create the folder for the software on the server that will be the SDP.
2. Share the folder on the network.
3. Set the appropriate permissions on the folder. Administrators must be able to change the files (Full Control), and users must only view (Read) the files from the shared SDP folder.
4. Copy the necessary software (Windows Installer packages, transformations, patches and other components) to the SDP.

Now you can use Group Policy to manage the software within the appropriate Group Policy object.

## Using Distributed File System to Manage SDPs

The Microsoft Distributed File System (DFS) gives users convenient access to shared folders that are distributed throughout a network. With DFS, you can make files distributed across multiple servers appear to users as if they are located in one place on the network. For a software deployment with Group Policy, you can set up DFS to automatically direct users to the nearest software distribution point.

The DFS technologies offer WAN-friendly replication and simplified, highly-available access to geographically dispersed files. Distributed File System is implemented as a role service of the File Services role. The two technologies in DFS are as follows:

- **DFS Namespaces** enable you to group shared folders that are located on different servers into one or more logically structured namespaces. Each namespace appears to users as a single shared folder with a series of subfolders. This structure increases availability and automatically connects users to shared folders in the same Active Directory Domain Services site, when it is available, instead of routing them over WAN connections.

- **DFS Replication** is an efficient, multiple-master replication engine that you can use to keep folders synchronized between servers across limited bandwidth network connections. It replaces the File Replication Service (FRS) as the replication engine for DFS Namespaces, and for replicating the AD DS SYSVOL folder in domains that use the Windows Server 2008 domain functional level.

For more information about how to install and set up Distributed File Services, see *DFS Step-by-Step Guide for Windows Server 2008* (<http://go.microsoft.com/fwlink/?LinkId=267428>).

### Create a Group Policy Object

As soon as you have set up your distribution point and copied the software to it, you can create a Group Policy Object to manage software installation. We recommend that you use a separate Group Policy Object (GPO) for software deployment. However, we do not recommend that you create a separate GPO for each application that you want to distribute.

You can either create a new Group Policy Object or change an existing Group Policy Object. When you create a new object, you can link it directly to a domain, site, or organizational unit in the Active Directory.

To create a new GPO and link it to a domain or OU, follow these steps:

1. Under **Administrative Tools**, open the **Group Policy Management** console.
2. Right-click the site, domain, or OU to which you want to apply the new Group Policy, and then click **Properties**.
3. Select **Create a GPO in this domain and Link it here**.
4. In the **New GPO** dialog box, enter the name for the new Group Policy Object. For example: Software Installation GPO.
5. Click **OK**.

By default, the new GPO is linked to the site, domain, or OU where it was created.

### Create an MMC for the Software Installation GPO

As soon as you have created your new GPO, you can edit the GPO by using the Group Policy Management Console (GPMC). The GPMC is a scriptable Microsoft Management Console (MMC) snap-in. It provides a single administrative tool for managing Group Policy across the enterprise. GPMC is the standard tool for managing Group Policy.

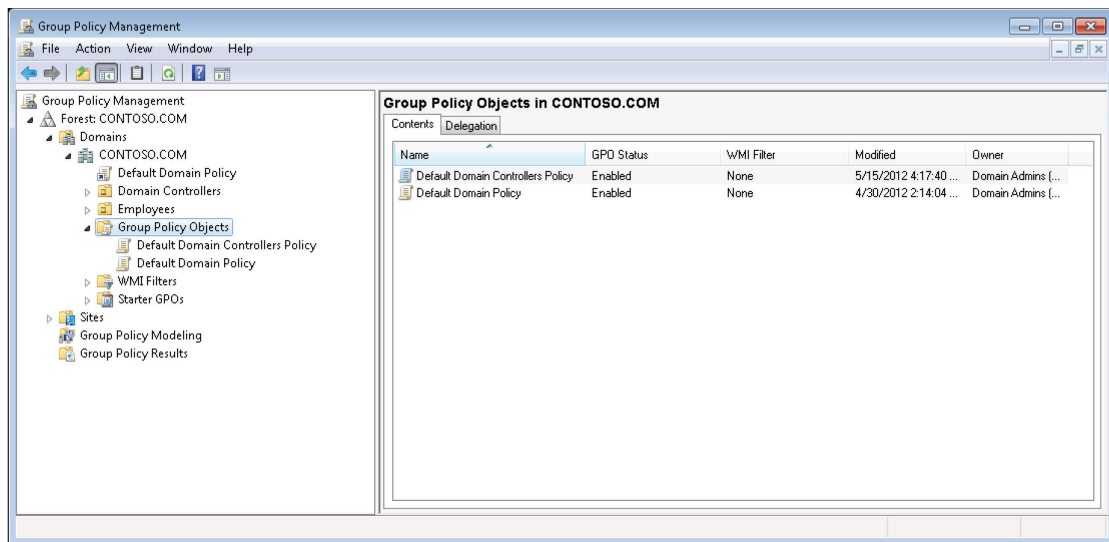
## Installation and Configuration in Microsoft Dynamics® NAV 2013

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The Group Policy Management Console integrates the Group Policy functionality that is provided by the following tools into a single console:

- Active Directory Users and Computers
- Active Directory Sites and Services
- Resultant Set of Policy
- ACL Editor
- GPMC Delegation Wizard

Administrators can perform core Group Policy tasks by using the GPMC instead of these other tools. The GPMC provides a comprehensive set of COM interfaces that can be used to programmatically access many of the operations supported by the console.



**FIGURE 7.3: GROUP POLICY MANAGEMENT WINDOW**

The GPMC does not replace the Active Directory Users and Computers snap-in and the Active Directory Sites and Services snap-in. The GPMC is intended for Group Policy administration, whereas the Active Directory snap-ins are intended for directory administration tasks such as creating user, computer, and group objects.

The Default Domain Policy GPO and Default Domain Controllers Policy GPO are important to the health of any domain. As a best practice, you should not edit the Default Domain Controllers Policy GPO or the Default Domain Policy GPO, except in the following cases:

- Account policy settings are required to be configured in the Default Domain GPO.
- You must modify the policy settings in the Default Domain Controllers Policy GPO because you installed applications on domain controllers requiring modifications to User Rights or Audit policy settings.

You can start GPMC by using several methods.

- Press the Windows logo key + R to open the **Run** dialog box. Type "gpmc.msc" in the text box, and then click **OK**.
- Click **Start > All Programs > Accessories > Run**. Type "gpmc.msc" in the text box, and then click **OK**.
- Click **Start > All Programs > Accessories > System Tools > Control Panel > System and Security > Administrative Tools > Group Policy Management**.
- On the Windows Taskbar, click **Start**. In the **Search programs and files** box, type "Group Policy Management", press **Enter**, and then click the **Group Policy Management** link in the list.

To edit a Group Policy Object, right-click the Group Policy that you want to edit in the GPMC and select **Edit**.

Instead of using the GPMC to edit a Group Policy Object, you can also create a separate MMC for one or more specific Group Policy Objects.

To create an MMC for a GPO, follow these steps:

1. Click **Start > Run**.
2. In the **Run** dialog box, type "mmc" and then click **OK**.
3. Click **File > Add/Remove Snap-In**.
4. In the **Available snap-ins** list, select **Group Policy Management Editor**.
5. Click **Add**.
6. In the **Select Group Policy Object** dialog box, click **Browse** to find the GPO.
7. In the **Browse For A Group Policy Object** dialog box, click the **All** tab.
8. Select the GPO to edit.
9. Click **OK**.

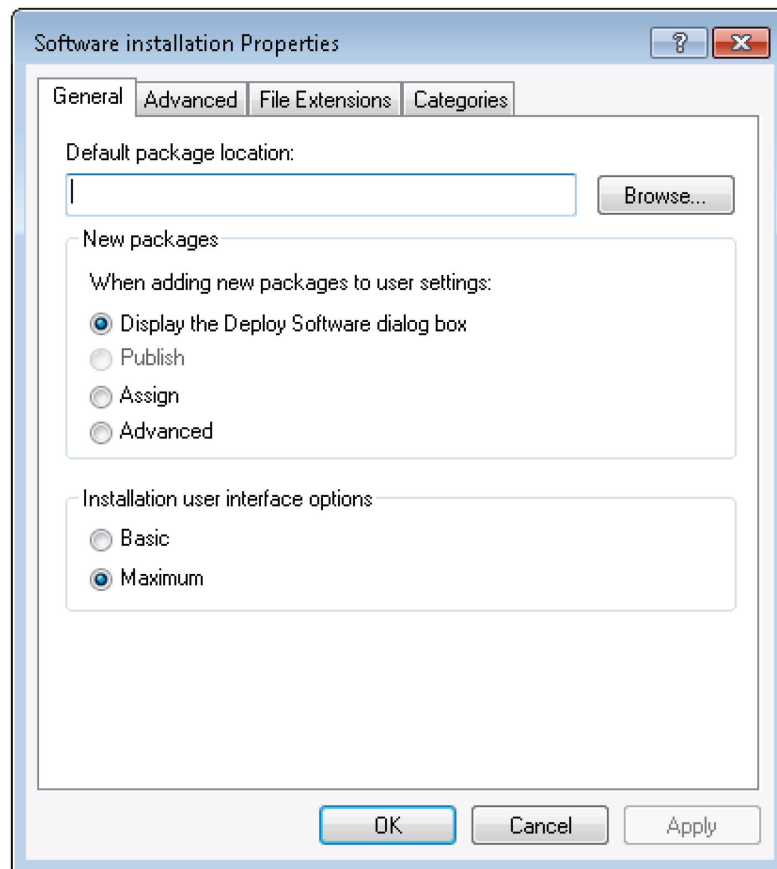
10. Click **Finish** to close the **Select Group Policy Object** dialog box.
11. Click **OK** to close the **Add or Remove Snap-ins** dialog box.
12. In the MMC, click **File > Save As**.
13. Select a path for the console.
14. In the **File Name** box, type a name.
15. Click **Save**.

You can now use the MMC to directly access and edit the GPO.

### Specify Software Installation Properties

After you create your GPO for software installation, you can start to define your software deployment. First, enter several default settings for the software to install.

You can configure default settings for software installation on a per-GPO basis. To specify software installation defaults for the selected GPO, use the **Software Installation Properties** dialog box, shown in the Software Installation Properties Window figure.



**FIGURE 7.4: SOFTWARE INSTALLATION PROPERTIES WINDOW**

To open this window, follow these steps:

1. Open the GPO for software installation in Group Policy Management Editor. (If you have created a separate MMC for the GPO, you can use that console to edit the GPO.)
2. In the **User Configuration** or **Computer Configuration** node, click **Policies > Software Settings**.
3. Right-click the **Software Installation** node, and then click **Properties**.

The **Software Installation Properties** window has four tabs: **General**, **Advanced**, **File Extensions**, and **Categories**.

In the **General** and **Advanced** tabs, specify how you want all Windows Installer packages in the GPO to be deployed and managed.

In the **File Extensions** tab, specify which application is installed when users open a file that has an unknown file name extension. If multiple applications are associated with a specific file name extension, you can also set an installation priority for the applications. (The application that has the highest priority is installed first.) File name extensions are managed on a per-GPO basis, so changing the priority in a GPO affects only the users who have that GPO applied.

In the **Categories** tab, designate categories for organizing assigned and published applications to make it easier for users to locate the appropriate applications under **Programs** (or **Add/Remove Programs**) in Control Panel. You can, for example, make separate categories for productivity applications and development applications.

### Setting Default Location for Software

In the **General** tab of the **Software Installation Properties** dialog box, you must enter the default location for software packages in the selected GPO. To do this, type the Uniform Naming Convention (UNC) path (`\\<servername>\<sharename>`) to the software distribution point for the Windows Installer packages (.msi files) in the GPO in the **Default Package Location** box.

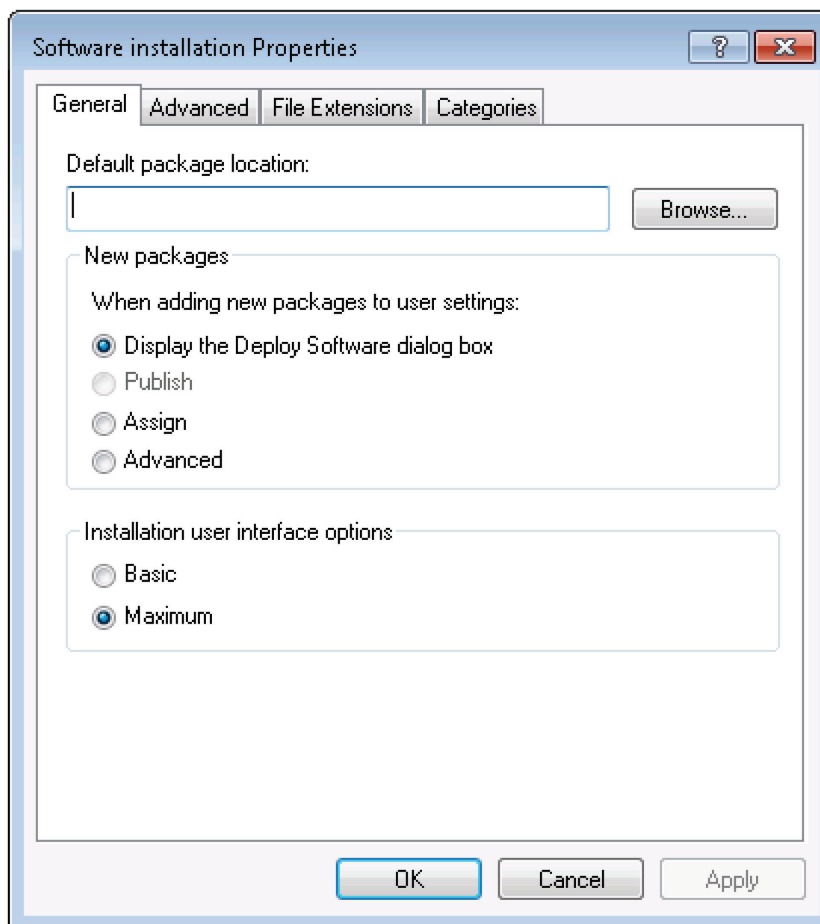


**Note:** You must browse for the software distribution point that you created in the previous section in relation to the network share location, instead of the local drive on the server. This makes sure that you are managing software from the network share location that users can access. Users typically cannot access the package from the local drive of the server.

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## Setting Options for New Packages and User Interface

To control what happens when you add a new package to the selected GPO, you use the **General** tab in the **Software Installation Properties** dialog box, and set options in the **New packages** frame. The default behavior is that the **Deploy Software** dialog box appears every time, and the administrator can select one of the choices from that dialog box.




**FIGURE 7.5: GENERAL TAB**

The following table lists the options for **New packages** frame:

Option	Description
<b>Display the Deploy Software</b> dialog box	Select this option to specify that when you add new packages to the GPO, the <b>Deploy Software</b> dialog box appears. This lets you decide whether to assign, publish, or configure package properties. This is the default setting.



Option	Description
<b>Publish</b>	<p>Select this option to specify that when you add new packages to the GPO, they are published by default with standard package properties.</p> <hr/> <p> <b>Note:</b> Packages can be published only to users, not computers. If this is an installation under the <b>Computer Configuration</b> node of the Group Policy Management Editor console, the <b>Publish</b> choice is unavailable.</p>
<b>Assign</b>	<p>Select this option to specify that when you add new packages to the GPO, they are assigned by default with standard package properties. Packages can be assigned to users and computers.</p>
<b>Advanced</b>	<p>Select this option to specify that when you add new packages to the GPO, the <b>Properties</b> dialog box for the package appears. This lets you configure all properties for the package.</p>

If you plan to deploy several packages to a GPO as published without transforms, you can select **Publish** in the **New Packages** frame, and every package that is deployed is automatically published. If you plan to add a package with a transform (customization or .mst file), you must select **Advanced**.



**Note:** You cannot add or change transforms (.mst files) after the software is deployed.

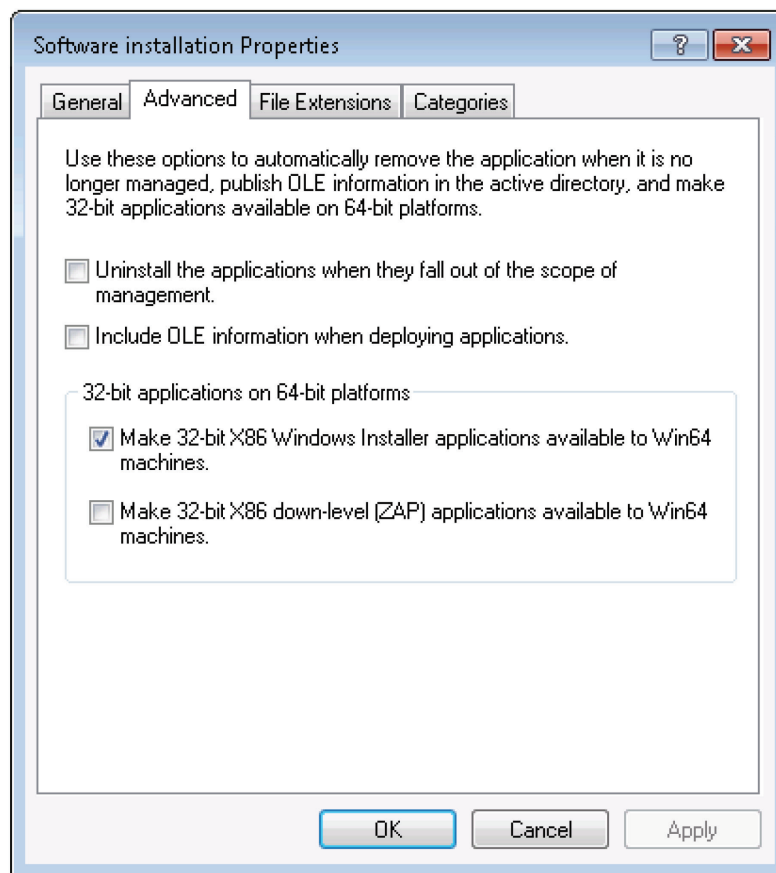
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This setting is most useful when an administrator is adding several applications at one time. For example, if an administrator is adding five applications to this GPO and they are all to be published without a transforms, then the administrator could set this to **Publish**.

Similarly, the options in the **Installation user interface options** frame let the administrator set how much of the user interface (UI) the Windows Installer presents to a user during installation. The **Basic** UI (the default option) only presents progress bars and messages. No user choices are presented other than **Cancel**. The **Maximum** UI option shows the UI (including all messages and windows) that the author of the Windows Installer package defined.

### Setting Advanced Options

You can use the options on the **Advanced** tab of the **Software Installation Properties** window to automatically remove the application when it is no longer managed, to publish OLE information to the Active Directory, and to make 32-bit applications available on 64-bit platforms.



**FIGURE 7.6: ADVANCED TAB**

Select any of these options, to be applied to all packages in the GPO:

- **Uninstall the applications when they fall out of the scope of management:** select this option to remove the application if it no longer applies to users or computers.
- **Include OLE information when you deploy applications:** select this option to specify whether to deploy information about COM components with the package.
- **Make 32-bit X86 Windows Installer applications available to Win64 computers:** select this option to specify whether 32-bit Windows Installer applications (.msi files) can be assigned or published to 64-bit computers.
- **Make 32-bit X86 down-level (ZAP) applications available to Win64 computers:** select this option to specify whether 32-bit application files (.zap files) can be assigned or published to 64-bit computers.

### Setting File Extensions Options

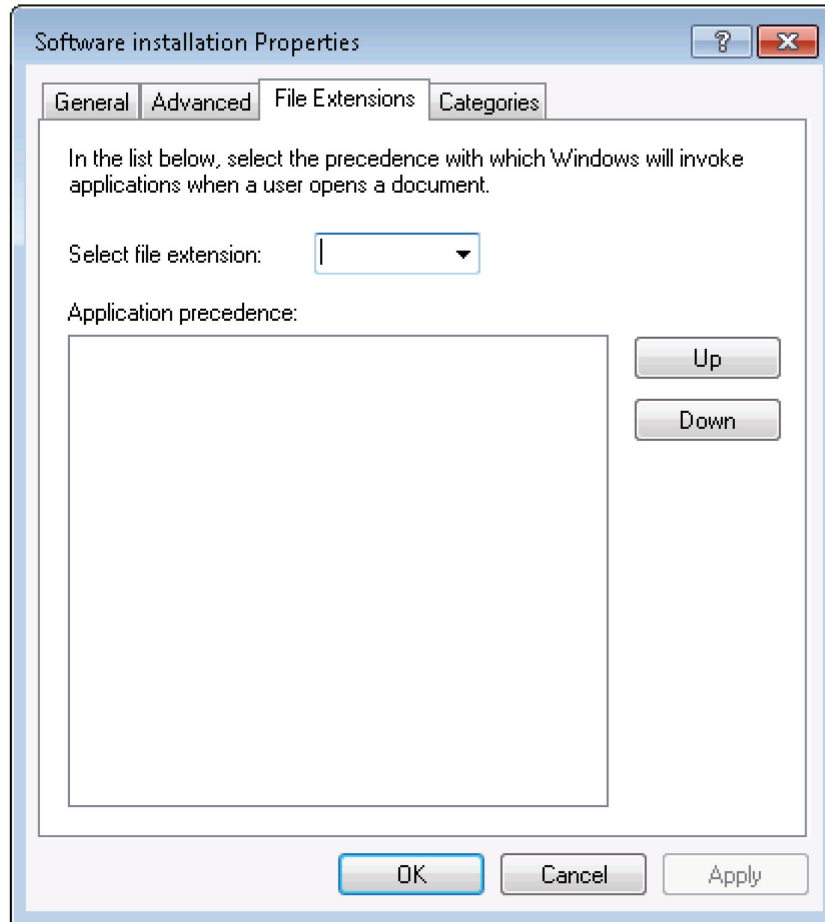
You can use the **File Extensions** tab to select the file name extension for which you want to specify an automatic software installation. This means that when a specific application is not already installed, selecting this option causes the application to be automatically installed when the user opens a file that has this file association, for example, by double-clicking the file.



**Note:** *If a user opens a file that has an unknown file name extension and there is no software application associated to this file name extension in the **Software Installation Properties** window, the user sees the **Open With** dialog box and is asked to select the best alternative from the software already present on his or her computer.*

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You can associate multiple applications to the same file name extension. In addition, you can define the precedence or priority with which Windows starts applications when a user opens a document that has the selected extension. For example, when you deploy both Microsoft Visual Studio 2010 and Microsoft Office SharePoint Designer by using Group Policy, both applications can edit ASPX files that have the .aspx extension. To configure the file name extension priority so that users who are managed by this GPO always install Microsoft Office SharePoint Designer, set Microsoft Office SharePoint Designer as the application that has the highest priority for the .aspx extension. When a user who is managed by this GPO has installed neither Microsoft Visual Studio 2010 nor Microsoft Office SharePoint Designer, Software Installation installs Microsoft Office SharePoint Designer and opens the file for editing when the user double-clicks an ASPX file.

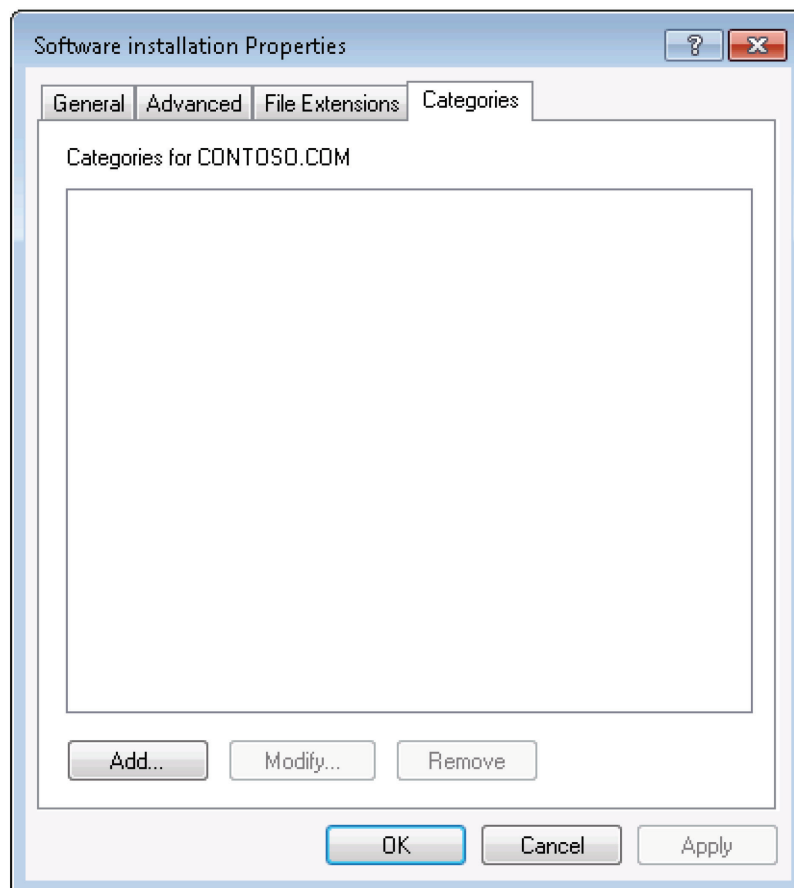


**FIGURE 7.7: FILE EXTENSIONS TAB**

You can use the **Application precedence** list to change the priority of an application. Move the application that has the highest precedence to the top of the list by using the **Up** and **Down** buttons. The application at the top of the list is automatically installed if a document that has the selected file name extension is invoked before the application is installed.

## Setting Category Options

When an organization has a large amount of software to manage, administrators can create categories for software. These categories can then be used to filter the software in the **Programs** (or **Add/Remove Programs**) in Control Panel. For example, you could create a category called **Productivity Applications** and include software such as word processing and database management applications.



**FIGURE 7.8: CATEGORIES TAB**

Although there is a **Categories** tab on the **Software installation Properties** dialog box, categories are established on a per-domain basis. This means the domain administrator can create and edit the categories from any of the **Software installation Properties** pages for any GPO in the domain. Administrators can then use these categories with software that they are managing within any GPO in the domain. There are no default or supplied categories.



**Best Practice:** Because Categories are established per domain instead of per GPO, an organization should standardize the Categories and create them in a centralized manner.

To create a new category, click **Add**, enter the name of the application category, and then click **OK**. To modify the name of an existing category, select the category, click **Modify**, modify the name, and then click **OK**. To remove a category, select the category and then click **Remove**.

### Add Software Packages to the GPO

Now you are ready to add the software packages that you want to deploy to the software installation GPO. When you add a software package to the GPO, you must specify how it will be deployed (published or assigned).



**Best Practice:** Before you add any software package to the GPO, you must decide whether you want to deploy the application per user or per computer, and whether you want to publish or assign it.

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To modify or update the software application, any modifications must be associated with the Windows Installer package at deployment time instead of when the Windows Installer is actually using the package. Transform (.mst) and update (.msp) files are applied to Windows Installer packages (which have the .msi file name extension) in an order specified by the administrator. This order must be determined before the application is assigned or published.

To add a software package to the software installation GPO and select the deployment method, follow these steps:

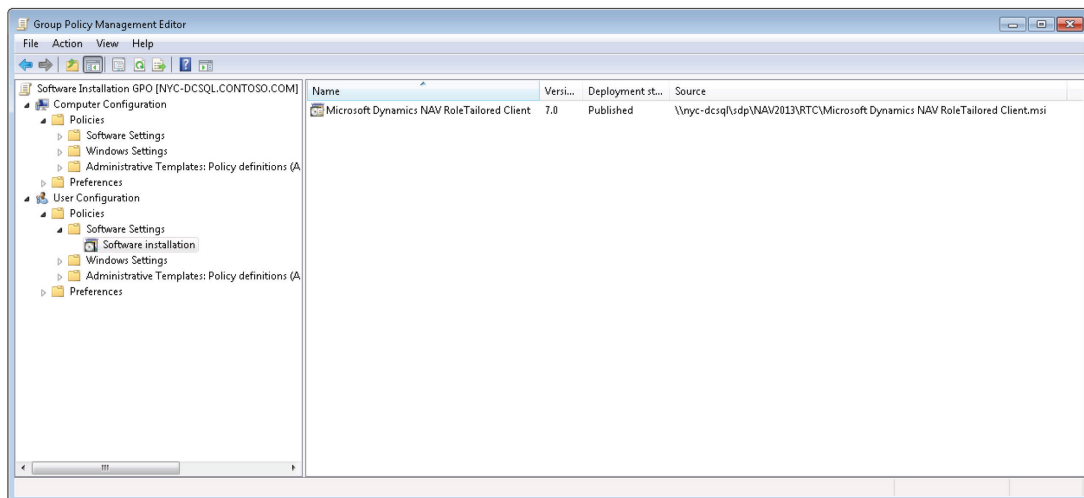
1. Open the GPO for software installation in Group Policy Management Editor. (If you have created a separate MMC for the GPO, you can use that console to edit the GPO.)
2. In the **User Configuration** or **Computer Configuration** node, click **Policies > Software Settings**.
3. Right-click the **Software Installation** node, and then select **New > Package**.
4. In the **Open** dialog box, select the UNC path (`\\<servername>\<sharename>`) of the software distribution point that contains the Windows Installer package.
5. Click **Open**.
6. In the **Deploy Software** dialog box, select the deployment method:

Deployment Method	Description
<b>Published</b>	Select this option to publish the Windows Installer package to users without applying modifications to the package.

Deployment Method	Description
<b>Assigned</b>	Select this option to assign the Windows Installer package to users or computers without applying modifications to the package.
<b>Advanced</b>	Select this option to set properties for the Windows Installer package, including published or assigned options and modifications.

7. Click **OK**.

If you selected Published or Assigned, the Windows Installer Package is successfully added to the GPO and appears in the details pane. If you selected Advanced, the **Properties** dialog box for the Windows Installer package appears. In the dialog box, you can set properties for the Windows Installer package, such as deployment options and modifications. The figure, Software Installation GPO Containing the Client for Windows as a Published Application, shows an example.



**FIGURE 7.9: SOFTWARE INSTALLATION GPO CONTAINING THE CLIENT FOR WINDOWS AS A PUBLISHED APPLICATION**

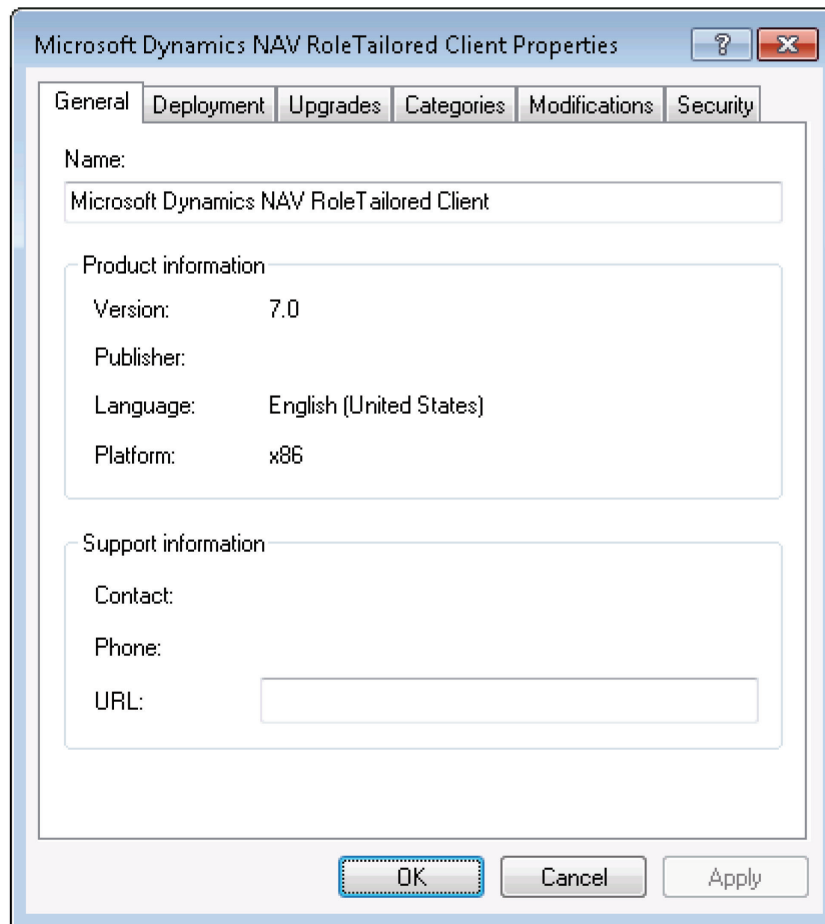
### Set Software Package Properties

In this step, you can fine-tune the deployment of each application by setting Windows Installer package properties in the **Properties** dialog box for the package.

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The Setting Software Package Properties figure shows the **Properties** dialog box for a published application.



**FIGURE 7.10: SETTING SOFTWARE PACKAGE PROPERTIES WINDOW**

To open the **Properties** dialog box, right-click the software package in the details pane of the GPO and select **Properties**. The **Properties** dialog box for the Windows Installer package contains the following tabs: **General**, **Deployment**, **Upgrades**, **Categories**, **Modifications**, and **Security**.

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 **Note:** When you add a software package to the GPO and select **Advanced** in the **Deploy Software** dialog box, the **Properties** dialog box appears immediately.

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On the **General** tab, you can change the default name of the package and designate a support URL. Users can select the support URL from the **Programs and Features** (or **Add Or Remove Programs**) window to be directed to a support webpage. A support URL can contain helpful information such as frequently asked questions and can help reduce calls to a help desk or support team.



In the **Deployment** tab, you can change the way the application is deployed and the user interface options. In the **Deployment Type** section, you can select the deployment option:

Deployment Type	Description
<b>Published</b>	<p>Select this option to enable users in the selected site, domain, or OU to install the application by using either <b>Add Or Remove Programs</b> in Control Panel or application installation by file activation.</p> <p>If this is an application under the Computer Configuration node, the <b>Published</b> option is unavailable, because packages can only be assigned to computers, not published.</p>
<b>Assigned</b>	<p>Select this option to enable users in the selected site, domain, or OU to receive this application the next time that they log on (for assignment to users) or when the computer restarts (for assignment to computers).</p>

In the **Deployment Options** section of the **Deployment** tab, you can select the following options:

Deployment Option	Description
<b>Auto-install this application by file extension activation</b>	<p>Select this option to use the application precedence for the file name extension as determined in the <b>File Extensions</b> tab of the <b>Software Installation Properties</b> dialog box.</p> <p>The application is automatically installed when a user opens a file that is associated with the application.</p> <p>If this is an application under the Computer Configuration node, the check box appears selected and dimmed, because by default the application is installed automatically.</p>

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Deployment Option	Description
<b>Uninstall this application when it falls out of the scope of management</b>	Select this option to remove the application when the associated GPO is no longer applicable for the user or computer.  This typically happens when users log on or computers start if there is relocation to a site, domain, or OU for which the application is not deployed.
<b>Do not display this package in the Add/Remove Programs control panel</b>	Select this option to specify that the application is not displayed in the <b>Programs and Features</b> (or <b>Add/Remove Programs</b> ) item in Control Panel.
<b>Install this application at logon</b>	Select this option to specify that this package should be fully installed instead of just advertised by a shortcut.  This option is available only for assigned applications.  Avoid this option if the computer or user to which the application is assigned has a slow connection because the startup and logon procedures require a long time when the application is first assigned.

In the **Installation user interface options** area, select one of the following:

- **Basic** to provide only a basic display to users during the installation process.
- **Maximum** to provide all installation messages and screens to users during the package installation.

You can click **Advanced** to open the **Advanced Deployment Options** dialog box and set any of the following options:

Option	Description
<b>Ignore language when deploying this package</b>	Select this option to specify whether to deploy the package even if it is in a different language.

Option	Description
<b>Make this 32-bit X86 application available to Win64 computers</b>	Select this option to specify whether the 32-bit program is assigned or published to 64-bit computers.
<b>Include OLE class and product information</b>	Select this option to specify whether to deploy information about COM components with the package.

In the **Upgrades** tab, you can select the software package(s) the current package will upgrade. The **Upgrades** tab does not appear for packages created from application files (.zap files).

On the **Categories** tab, you can select the categories under which the application is listed in the **Get Programs** (or **Add/Remove Programs**) item in Control Panel. This makes it easier for users to find the application. To link a category to the application, select the category in the **Available categories** list and then click **Select**. To remove an application from a category, select the category in the **Selected categories** list and then click **Remove**.

In the **Modifications** tab, you can indicate the modifications (transforms or updates) you want to apply to the package and specify the order in which the modifications apply to the package:

- To add modifications, click **Add**. In the **Open** dialog box, browse to find the transform file (.mst) or update file (.msp), and then click **Open**. You can add multiple modifications.
- To remove modifications, click the modification that you want to remove and then click **Remove**. Repeat this step until each unwanted modification is removed.
- To set the order of modifications, select a modification and then click **Move Up** or **Move Down**. Modifications are applied according to the order specified in the list.



**Note:** Do not click **OK** in the **Modifications** tab until you have finished configuring the modifications. When you click **OK**, the package is assigned or published immediately. If the modifications are not configured correctly, you have to uninstall or upgrade the package with a correctly configured version.

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Finally, in the **Security** tab, you can indicate permissions for the software installation. Permissions set for software installation pertain only to the package installation. Administrators who manage the application installation should have the **Full Control** permission set to **Allow**. Users who use the software assigned or published by the application should have the **Read** permission set to **Allow**.

When you are finished setting the properties, click **OK** to apply the new settings.

## Best Practices

Here are several best practices for administrators who want to deploy software through Group Policy:

- Test all software installation packages before you deploy them.
- Use and enforce standard configurations for applications if you can do this.
- Create the software installation GPO as high in the Active Directory hierarchy or tree as you can. Software should be deployed close to the root in the Active Directory tree because it lets administrators use one GPO to deploy software to multiple users.
- A Windows Installer package should be assigned or published only one time in a GPO.
- Create application categories when there are lots of published applications in your organization. This makes it easier for users to find applications in the **Get Programs** (or **Add/Remove Programs**) item in Control Panel.

## Remove Applications Deployed Through Group Policy

Published applications that are installed can be uninstalled in two ways:

- Automatically through Group Policy.
- Manually, by uninstalling the application from the **Programs and Features** (or **Add/Remove Programs**) item in Control Panel.

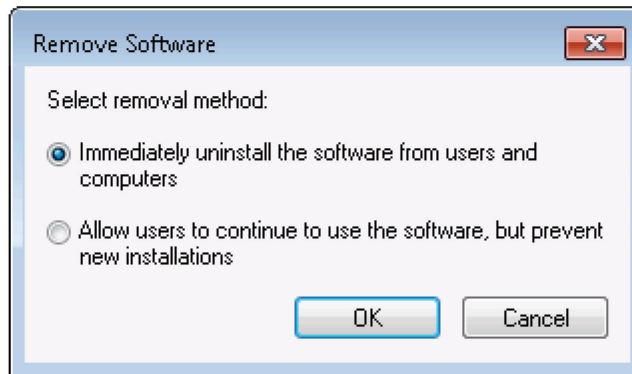
We recommend that you do not install these applications manually, because this makes it more complex to redeploy the application through Group Policy.

To remove an application through Group Policy, follow these steps:

1. Open the GPO for software installation in Group Policy Management Editor. (If you have created a separate MMC for the GPO, you can use that console to edit the GPO.)
2. In the **User Configuration** or **Computer Configuration** node, click **Policies > Software Settings > Software Installation**.
3. Right-click the application you want to remove, and select **All Tasks > Remove**.
4. In the **Remove Software** dialog box, select one of the two removal methods:

Removal Method	Description
<b>Immediately uninstall the software from users and computers</b>	This option immediately removes the software when the computer is restarted or the next time the user logs on to the computer.
<b>Let users continue to use the software, but prevent new installations</b>	This option prevents new instances of the application from being installed. But it still permits users who have already installed the application to continue using it.

5. Click **OK** to remove the application from the GPO.



**FIGURE 7.11: REMOVE SOFTWARE DIALOG BOX**

## Lab 7.1: Microsoft Dynamics NAV 2013 Deployment

### Scenario

Tim is preparing to deploy Microsoft Dynamics NAV 2013 RoleTailored client and Web client in the company domain. Instead of installing the clients on all computers either manually or with Remote Desktop, Tim wants to use a Group Policy to install the applications automatically. Tim plans to have the Web client installed on all computers in the domain. The RoleTailored client is then made available for installation. Tim wants to create a software distribution point and a new Group Policy Object (known as Software Installation GPO). He then wants to copy both clients to the software distribution point and add the clients to the GPO. Tim has verified that the .NET Framework 4.0 is installed on every computer in the domain.

### Objectives

Deploy Microsoft Dynamics NAV 2013 client through Group Policy.

### Exercise 1: Deploy Microsoft Dynamics NAV Clients

#### *Exercise Scenario*

Tim wants to create a new software distribution point and copy the client software to it. Next he plans to add a new GPO and add the clients to it.

#### **Task 1: Log On the Server**

##### *High Level Steps*

1. Logon to the server as Administrator.

##### *Detailed Steps*

1. Logon to the server as Administrator.
  - a. On the Desktop, press Ctrl+Alt+Del.
  - b. In the **Password** field, type the password for the Administrator user:  
"Passw0rd".
  - c. Press **Enter**.

### Task 2: Create a New SDP

#### *High Level Steps*

1. Open a Command Prompt.
2. Create a new SDP folder.
3. Create subfolders for the Microsoft Dynamics NAV 2013 client software.
4. Set permissions for the SDP folder.

#### *Detailed Steps*

1. Open a Command Prompt.
  - d. On the Windows Taskbar, click **Start > Run**.
  - e. In the **Run** dialog box, type "cmd" and then click **OK**.
2. Create a new SDP folder.
  - a. At the Command Prompt, type "md \sdp" and press **Enter**.
3. Create subfolders for the Microsoft Dynamics NAV 2013 client software.
  - a. At the Command Prompt, type "md \sdp\NAV2013" and press **Enter**.
  - b. Type **Exit**, and press **Enter** to close the Command Prompt.
4. Set permissions for the SDP folder.
  - a. Open Windows Explorer.
  - b. Click **Computer** to see a list of available drives.
  - c. Select Drive C.
  - d. In the right-side pane, right-click the SDP folder and select **Share with > Specific People**.
  - e. In the **File Sharing** dialog box, in the **Choose people on the network to share with** box, type "Domain Users", and then click **Add**.
  - f. Click **Share**.
  - g. Click **Done**.
  - h. Close Windows Explorer.

### Task 3: Copy the Software to the SDP

#### *High Level Steps*

1. Insert the Microsoft Dynamics NAV 2013 DVD in the DVD drive.
2. Copy the RoleTailored client software to the SDP.
3. Copy the Web client software to the SDP.

#### *Detailed Steps*

1. Insert the Microsoft Dynamics NAV 2013 DVD in the DVD drive.
  - a. Open the DVD drive by pressing the Eject button on the physical drive.
  - b. Put the DVD on the tray.
  - c. Press the Close button to close the DVD drive.
2. Copy the RoleTailored client software to the SDP.
  - a. Open Windows Explorer.
  - b. Click **Computer** in the left pane to see a list of available drives.
  - c. Select the DVD drive that contains the product DVD.
  - d. In the root folder of the selected drive, right-click the **RoleTailored Client** folder and select **Copy**.
  - e. In Windows Explorer, browse to the newly created SDP folder on the local hard disk.
  - f. Right-click the **NAV2013** folder, and select **Paste**.
3. Copy the Web client software to the SDP.
  - a. Select the DVD drive that contains the product DVD.
  - b. In the root folder of the selected drive, right-click the **WebClient** folder and select **Copy**.
  - c. In Windows Explorer, browse to the newly created SDP folder on the local hard disk.
  - d. Right-click the **NAV2013** folder, and select **Paste**.



#### **Task 4: Create a New GPO**

##### ***High Level Steps***

1. Open Group Policy Management console.
2. Create a new GPO.

##### ***Detailed Steps***

1. Open Group Policy Management console.
  - a. On the Windows Taskbar, click **Start**.
  - b. In the **Search programs and files** box, type "Group Policy Management".
  - c. Click the corresponding link in the list.
2. Create a new GPO.
  - a. In the Group Policy Management console, right-click the CONTOSO.COM domain and select **Create a GPO in this domain and Link it here**.
  - b. In the **New GPO** dialog box, in the **Name** field, type "Software Installation GPO".
  - c. Click **OK** to create the GPO.

#### **Task 5: Add Clients to the GPO**

##### ***High Level Steps***

1. Select the newly created GPO.
2. Add the RoleTailored client package to the GPO.
3. Add the Web client package to the GPO.
4. Close Group Policy Management Editor console.
5. Close Group Policy Management console.

##### ***Detailed Steps***

1. Select the newly created GPO.
  - a. In the Group Policy Management console, select the **Group Policy Objects** node.
  - b. Right-click the **Software Installation GPO**, and select **Edit**.
2. Add the RoleTailored client package to the GPO.
  - a. In the Group Policy Management Editor console, click **User Configuration**.
  - b. Click **Policies > Software Settings**.
  - c. Right-click the Software Installation extension, and select **New > Package**.

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- d. In the **Open** dialog box, in the **File Name** field, type "\\NAV-DC-SQL-SP\SDP\NAV2013\RoleTailored Client\Microsoft Dynamics NAV RoleTailored Client.msi".
  - e. Click **Open**.
  - f. In the **Deploy Software** dialog box, select **Published**.
  - g. Click **OK**.
3. Add the Web client package to the GPO.
    - a. In the Group Policy Management Editor console, click **User Configuration**.
    - b. Click **Policies > Software Settings**.
    - c. Right-click the Software Installation extension, and select **New > Package**.
    - d. In the **Open** dialog box, in the **File Name** field, type "\\NAV-DC-SQL-SP\SDP\NAV2013\WebClient\Microsoft Dynamics NAV 2013 Webclient.msi".
    - e. Click **Open**.
    - f. In the **Deploy Software** dialog box, select **Assigned**.
    - g. Click **OK**.
  4. Close Group Policy Management Editor console.
    - a. In the Group Policy Management Editor console, click **File > Exit**.
  5. Close Group Policy Management console.
    - a. In the Group Policy Management console, click **File > Exit**.

## **Exercise 2: Create a GPO Console for the Software Installation GPO**

### ***Exercise Scenario***

Tim wants to create an MMC so he can directly edit the newly created Software Installation GPO.

### **Task 1: Create an MMC**

#### ***High Level Steps***

1. Open Microsoft Management Console.
2. Add a snap-in.
3. Save the console.
4. Close the console window.

#### ***Detailed Steps***

1. Open Microsoft Management Console.
  - a. On the Windows Taskbar, click **Start > Run**.
  - b. In the **Run** box, type "mmc" and press **Enter**.
2. Add a snap-in.
  - a. In Microsoft Management Console window, click **File > Add/Remove Snap-ins**.
  - b. In the **Add or Remove Snap-ins** dialog box, in the **Available snap-ins** list, select **Group Policy Management Editor**.
  - c. Click **Add**.
  - d. In the **Select Group Policy Object** dialog box, click **Browse**.
  - e. In the **Browse for a Group Policy Object** dialog box, click the **All** tab.
  - f. In the **All Group Policy Objects stored in this domain** list, select the **Software Installation GPO**.
  - g. Click **OK**.
  - h. In the **Select Group Policy Object** dialog box, click **Finish**.
  - i. In the **Add or Remove Snap-ins** dialog box, click **OK**.

3. Save the console.
  - a. In **Microsoft Management Console** window, click **File > Save As**.
  - b. In the **Save As** dialog box, in the **Save in** drop-down list, select **Desktop**.
  - c. In the **File Name** field, type the name for the console window: "Software Installation GPO".
  - d. Click **Save**.
4. Close the console window.
  - a. In the console window, select **File > Exit**.

## Module Review

### **Module Review**

- The tasks for deploying software with Group Policy are as follows: plan and prepare the software deployment, set up a Software Distribution Point (SDP), create a GPO, specify the software installation properties for the GPO, add Windows Installer packages to the GPO, and set Windows Installer package properties.
- For a software deployment with Group Policy, you can set up Distributed File System (DFS) to automatically direct users to the nearest SDP.
- You can define software deployment properties that affect all Windows installer packages in a GPO.
- You can also define software deployment properties that affect individual Windows Installer packages in a GPO.

### **Test Your Knowledge**

Test your knowledge with the following questions.

1. Which tool can you use to edit domain-wide Group Policy Objects?
  - ( ) Active Directory Users and Computers
  - ( ) The Group Policy Object Editor snap-in in Microsoft Management Console
  - ( ) The Group Policy Management Editor snap-in in Microsoft Management Console
  - ( ) Microsoft Windows Registry
2. What is a Software Distribution Point?
  - ( ) A local folder that contains software applications.
  - ( ) A shared network folder used to deploy software applications through Group Policy.
  - ( ) A snapshot of a running computer system's hard disk made before installation of a new software application.
  - ( ) A public Microsoft website where you can download updates and service packs.

3. What is true about published and assigned applications?
- Both published and assigned applications can be deployed to users and computers.
  - Published applications are installed automatically. Assigned applications can be installed at any time by the user.
  - Assigned applications are installed automatically. Published applications can be installed at any time by the user who uses the Programs (or Add/Remove Programs) item in Control Panel.
  - Published applications have a Windows Installer package. Assigned applications do not.
4. Which files can be deployed using the Software Installation extension?
- \*.exe files
  - \*.bat files
  - \*.msi files
  - \*.cmd files
  - \*.pif files

## Test Your Knowledge Solutions

### Module Review and Takeaways

1. Which tool can you use to edit domain-wide Group Policy Objects?
  - Active Directory Users and Computers
  - The Group Policy Object Editor snap-in in Microsoft Management Console
  - The Group Policy Management Editor snap-in in Microsoft Management Console
  - Microsoft Windows Registry
  
2. What is a Software Distribution Point?
  - A local folder that contains software applications.
  - A shared network folder used to deploy software applications through Group Policy.
  - A snapshot of a running computer system's hard disk made before installation of a new software application.
  - A public Microsoft website where you can download updates and service packs.
  
3. What is true about published and assigned applications?
  - Both published and assigned applications can be deployed to users and computers.
  - Published applications are installed automatically. Assigned applications can be installed at any time by the user.
  - Assigned applications are installed automatically. Published applications can be installed at any time by the user who uses the Programs (or Add/Remove Programs) item in Control Panel.
  - Published applications have a Windows Installer package. Assigned applications do not.

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4. Which files can be deployed using the Software Installation extension?

\*.exe files

\*.bat files

\*.msi files

\*.cmd files

\*.pif files