

# Silverlight Deployment Guide

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Published: September 2007

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### Abstract

This guide helps you to plan and carry out a corporate deployment of Silverlight. The guide describes the system requirements and deployment methods, as well as the techniques to maintain and support Silverlight after deployment.



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# Silverlight Deployment Guide

The Silverlight™ Deployment Guide documents the options and processes involved in deploying Silverlight 1.0 to user's computers that are running Microsoft® Windows® XP with Service Pack 2 (SP2), Windows® Server® 2003, or Windows® Vista® in a network environment. Silverlight also installs on Apple Mac OS X, but Apple deployments are outside of the scope of this document.

To learn more about Silverlight, go to <http://www.microsoft.com/silverlight>.

This guide should be used during the planning phase of your Silverlight deployment project. The information provides key points of guidance for a deployment project. It is not intended as a step-by-step guide, and not all of the steps described in this guide are necessary for deploying Silverlight in every environment.

## Silverlight value proposition

Silverlight delivers the next generation of Microsoft .NET–based media experiences and rich interactive applications for internet browsers.  Silverlight compliments other Microsoft products such as ASP.NET, Windows Server and Windows® Media® to deliver unprecedented cross browser, cross platform rich interactive web application experiences. Silverlight architecture is consistent with Web 2.0 paradigms and it enables enterprise web developers to extend their skills and deliver better experiences.

The following are benefits of deploying Silverlight in an enterprise:

* Compatibility with Silverlight-enabled websites
* Ability to offer and consume media as part of the web experience on Windows and Macintosh operating systems
* Simple integration with existing Web technologies and assets such as ASP.NET and SharePoint® services
* Better user experience for web application without deployment considerations

For more information on why you should use Silverlight, please visit: <http://www.microsoft.com/silverlight/> and click on “Why Silverlight”.

## How to deploy Silverlight

The process of deploying Silverlight to your organization's users' computers is organized in this deployment guide as follows:

| **Step** | **Page** |
| --- | --- |
| Plan the deployment | [Part 1: Preparing for Deployment](#DSDOC_8b907bbd_8fff_4bbc_91cd_9ce0c6ec61) [Planning the Silverlight Deployment](#DSDOC_0371e087_d746_4143_99fb_9ac866cb59) details how to plan your deployment processes and strategies.  |
| Test the deployment strategy |  [Setting Up and Administering a Pilot Program](#DSDOC_c3c7bfa7_55e0_4f47_b62d_5d57ddfd64) describes the testing process for Silverlight deployment. |
| Deploy Silverlight | [Part 2: Deploying Silverlight](#DSDOC_dead6273_c1c0_4e70_b37a_5824f911cf)* [Manual Install options for Silverlight](#DSDOC_6de5565b_c9fc_41ee_b1c9_35a1bd9872) focuses on how to effectively use shared folders, Web, and e-mail procedures to deploy Silverlight. It also details the switches for the installation executable file.
* [Using Group Policy to Install Silverlight](#_Using_Group_Policy) details the procedures to deploy Silverlight using Group Policy.

 [Using SMS to Install Silverlight](#DSDOC_cf11da2e_1c6d_409d_a2de_5992298da3) explores methods for using Microsoft System Management Server (SMS) to deploy Silverlight. |
| Maintain Silverlight in your environment | [Part 3: Maintaining and Supporting Silverlight](#DSDOC_b7e9f016_a3e1_4c8e_8dce_e048f192ae) [Managing Settings Through Group Policy](#DSDOC_cc63243b_e057_4608_9206_0e9da66655) describes how to manage Silverlight in the Active Directory® services environment by using Group Policy. [Keeping Silverlight Updated](#DSDOC_457de51b_2af5_48a1_9a16_8a193ff50f) reviews system management, automatic update, and other tools to deploy updated versions of Silverlight to your users' computers. [Troubleshooting](#DSDOC_082495d9_84c1_474b_a6c0_e11c4c3459) helps you troubleshoot Silverlight installation, Group Policy settings, and features in your corporate environment. |

# Part 1: Preparing for Deployment

Part 1 of the Silverlight Deployment Guide describes how to deploy Silverlight to your organization. It includes information about planning for the deployment and performing a successful pilot program.

[Planning the Silverlight Deployment](#DSDOC_0371e087_d746_4143_99fb_9ac866cb59) details how to plan your deployment processes and strategies.

[Setting Up and Administering a Pilot Program](#DSDOC_c3c7bfa7_55e0_4f47_b62d_5d57ddfd64) discusses how to prepare your users for Silverlight through a training program and describes the testing process for Silverlight deployment.

# Planning the Silverlight Deployment

To install Silverlight successfully, you must carefully plan your deployment processes and strategies. This section of the deployment guide contains information about how to evaluate and plan your deployment, including:

|  |  |
| --- | --- |
| 1. Evaluating users' computers for compatibility with Silverlight | [System Requirements for Silverlight](#DSDOC_BKMK_101d179b2_1040_42a1_82e6_68de) |
| 2. Identifying your deployment method | [Select Your Deployment Method](#DSDOC_BKMK_201d179b2_1040_42a1_82e6_68de) |

## System requirements for Silverlight

The table below lists the minimum requirements your computer needs to run Silverlight. Silverlight will install on the 32-bit or 64-bit editions of any version of either Windows XP running Service Pack 2 (SP2), Windows Server 2003, or Windows Vista. Silverlight also installs on Apple Mac OS X, but Apple deployments are outside of the scope of this document. Silverlight will not install if the operating system or browser is not supported. Silverlight may install if some of the other minimum recommendations are not met although the Silverlight functionality will be significantly reduced or possibly non-operational.

| **Windows-based PC Requirements** |  |
| --- | --- |
| Computer/processor | Intel Pentium III 450-megahertz (MHz) or faster, equivalent processor |
| Operating system  | Windows XP with SP2Windows 2003 ServerWindows Vista |
| Memory  | 128 MB  |
| Browser (must be this revision or later) | Microsoft Internet Explorer 6 or 7, Mozilla Firefox 1.5.0.8, or Firefox 2.0.*x* |

| **Macintosh Computer Requirements** |  |
| --- | --- |
| Computer/processor | * Power PC G3 500-megahertz (MHz) or faster processor OR
* Intel Core Duo 1.83-gigahertz (GHz) or faster processor
 |
| Operating system | Apple Mac OS X 10.4.8 or higher |
| Memory (only for Intel Processor) | 128 MB  |
| Browser (must be this revision or later) | Firefox 1.5.0.8, Firefox 2.0.x, and Apple Safari 2.0.4 |

## Select your deployment method

 The method you select for your organization's deployment will depend on your existing infrastructure, security requirements, and user location. You can use various methods to distribute Silverlight to your users. You can automate installations of Silverlight with preselected settings so that no user action is required, or you can allow users see the installation process on the screen.

You might want to use additional tools as part of the deployment process. Consider the following applications and how you can use them to support your deployment of Silverlight:

 Microsoft Systems Management Server can help you automate a large-scale deployment of Silverlight by distributing and installing Silverlight on your users' computers. This automated installation requires no intervention from you or your users. You can create a package definition (.sms) file that defines how Silverlight is installed on users' computers. Then you can create a job to distribute your package to users' computers. For more information about incorporating SMS into your deployment process, see [Using SMS to Install Silverlight](#DSDOC_cf11da2e_1c6d_409d_a2de_5992298da3) in this deployment guide.

* Group Policy is ideal to deploy Silverlight in small to medium sized organizations or where it is not being deployed to a large number of users simultaneously. Group policy allows flexibility to distribute Silverlight to individual or groups of users and computers as well as specific OUs. For more information about incorporating group policy in your deployment process, see [Using Group Policy to Install Silverlight](#_Using_Group_Policy) in this deployment guide.

 Manual Options exist in this section to lightly assist deployments in an environment not using group policy or SMS – such as environments using 3rd party software deployment tools. Install file selection and installation switches are covered here.

# Setting Up and Administering a Pilot Program

Before you deploy Silverlight to your users, test your installation of Silverlight in a lab, and then conduct the pilot program with a limited number of participants to refine your deployment configurations and strategies. This process will help you validate your deployment plan and ensure that you are ready for full-scale deployment.

## Conducting Lab Testing

Install Silverlight on the lab computers in the same way that you plan to install Silverlight on your users' computers. In some cases, this might mean setting up the network installation location on the server and then installing Silverlight on the lab computers from the server.

Automating your installation is an important step in reducing the cost of migration. You can choose to run the installation process from start to finish without user intervention. You can also install Silverlight from the server so that you do not need to configure individual computers. Complete any automation work in the lab before you conduct the pilot program.

After you install Silverlight on the lab computers, verify that the software runs correctly by visiting the website <http://www.microsoft.com/silverlight/>. The site will transition to an animation that notifies you that Silverlight was installed correctly.

 If desired, test internal or external Web sites that are critical to the business that will be accessed with your browser. During the testing process, maintain a record of all issues. These records will help you design solutions to correct the issues you encountered. Then verify each solution by using the same testing process in the lab. If you run into problems, see [Troubleshooting](#DSDOC_082495d9_84c1_474b_a6c0_e11c4c3459) in Part 3 of this deployment guide. This section provides information about commonly reported issues and solution strategies.

## Planning the pilot program

After you test the deployment process in the lab, plan your pilot program. This program provides a scaled-down version of the final deployment. The goal of the pilot program is to further test and refine deployment strategies and configurations in everyday use among a limited group of users.

To plan the pilot program, complete the following tasks:

 Select appropriate pilot group participants, and prepare them for the pilot program. Select groups that represent the diversity of your computer users. If your organization includes large user groups or groups with various computing environments or requirements, you might need to select several pilot groups.

 Create a document or database to track your progress and record issues that might require further action.

# Part 2: Deploying Silverlight

After planning and testing, the final step in the deployment process is rolling out your installation of Silverlight to your users. Part 2 of the Silverlight Deployment Guide describes the processes that are used to deploy Silverlight.

[Manual Install options for Silverlight](#DSDOC_6de5565b_c9fc_41ee_b1c9_35a1bd9872) provides some basic information about the install file selection, installation switches, and MSI/MSP extraction to assist deployments in an environment not using group policy or SMS.

[Using Group Policy to Install Silverlight](#_Using_Group_Policy) details the procedures to deploy Silverlight using Group Policy.

[Using SMS to Install Silverlight](#_Using_SMS_to) explores methods for using Microsoft System Management Server (SMS) to deploy Silverlight.

# Manual Install options for Silverlight

This section provides basic information for deploying Silverlight by providing file version information, installation switches, and MSI extraction. Deploying Silverlight through SMS or group policy can be performed silently without user intervention and is explained later in this document. This section may be useful for companies who do not have an Active Directory infrastructure or SMS and utilize a separate means for software distribution in the company or desire to deploy Silverlight to Apple clients.

## Selecting the right version of Silverlight

Silverlight is available for Windows XP, Windows Server 2003, Windows Vista, and Apple Mac OS X 10.4. The following table lists the operating systems supported by Silverlight, along with the Setup file name for each.

| **Operating system** | **File name** |
| --- | --- |
| Windows XP SP2, Windows Server 2003 or Windows Vista | Silverlight.1.0.exe |
| Apple Mac OS X | Silverlight.1.0.dmg |

All versions of Silverlight can be downloaded from the Silverlight Web site at <http://www.microsoft.com/silverlight/downloads.aspx>

## Installation Switches

The Silverlight install executable file has a number of different switches to customize the installation. The syntax of the setup file is as follows:

Silverlight.1.0beta.exe

/q = quiet install. This installs Silverlight without seeing the GUI.

/qu = quiet uninstall. This uninstalls Silverlight without seeing the GUI.

# Using Group Policy to Install Silverlight

Group policy is ideal to deploy Silverlight in small to medium sized organizations or when it is not being deployed to a large number of users simultaneously. For large organizations, Silverlight is best deployed using SMS or another third-party software distribution tool. A limitation of the group policy deployment method is that it applies only to Microsoft operating systems, ignoring Apple operating system clients.

## Group Policy Scripts Extension Overview

The Group Policy infrastructure includes a Scripts extension that consists of the following components:

* A Microsoft Management Console (MMC) server-side extension of the Group Policy Object Editor MMC snap-in that is used for administering and configuring scripts. The administrator uses the scripts extension to specify scripts policy settings in a Group Policy object (GPO), and then links the GPO to the site, domain, or organizational unit to which the administrator wants to assign the scripts.

The Group Policy Object Editor snap-in includes two extensions for script deployment:

* + **Scripts (Startup/Shutdown).** Administrators use this extension to specify scripts that run when the computer starts up or shuts down. These scripts run as Local System. **Scripts (Startup/Shutdown)** is located under the **Computer Configuration\Windows Settings** node of Group Policy Object Editor.
	+ **Scripts (Logon/Logoff).** Administrators use this extension to specify scripts that run when the user logs on or logs off the computer. These scripts run as User, not as Administrator. **Scripts (Logon/Logoff)** is located under the User **Configuration\Windows Settings** node of Group Policy Object Editor.
* A client-side extension, which is a dynamic-link library (DLL) on the client computer that interacts with the Group Policy infrastructure and implements Group Policy scripts on the client computer. A separate process called Userinit.exe runs the scripts.

For more information about Group Policy Scripts extensions, see the [Scripts Extension Technical Reference](http://go.microsoft.com/fwlink/?LinkId=83122) of the Windows Server 2003 Group Policy Technical Reference on the Microsoft TechNet Web site. For information about Windows Script Host, see [Windows Script Host](http://go.microsoft.com/fwlink/?LinkId=83247) on the MSDN Web site.

|  |
| --- |
| http://technet2.microsoft.com/library/gallery/templates/MNP2.Common/images/important.gif **Important:**Group Policy provides the ability to affect configurations across hundreds and even thousands of computers in an organization. Therefore, it is critical that you rigorously test all new Group Policy configurations or deployments in a *non-production environment* before you move them into your production environment. For detailed information about staging Group Policy deployments, see [Staging Group Policy Deployments](http://technet2.microsoft.com/WindowsServer/en/library/e5288e42-62b8-4f9e-a665-95b6e02389a31033.mspx) in the *Designing a Managed Environment* book of the *Microsoft Windows Server 2003 Deployment Kit*.By default, the system lets combined sets of scripts run for up to 600 seconds (10 minutes) *only*. Administrators can use a policy setting to adjust this interval to ensure the startup script completes running. The **Maximum wait time for Group Policy scripts** policy setting specifies how long the system waits for scripts applied by Group Policy to run. This setting limits the total time allowed for all logon, startup, and shutdown scripts applied by Group Policy to finish running. As with any Group Policy deployment, you must fully test your startup scripts in a staging environment before deploying them to your production environment. Testing will help you determine the value to use for the **Maximum wait time for Group Policy scripts** policy for your particular network environment. Setting this value too low may cause the install to terminate prematurely. There are factors that may affect this value, such as network speed, client computer hardware, and other scripts running on the client computer. By fully testing this policy setting you can determine the appropriate value to use for your specific environment. The **Maximum wait time for Group Policy scripts** policy setting is available in the **Computer Configuration\Administrative Templates\System\Scripts** folder in Group Policy Object Editor. For information about configuring this policy setting, see [Specifying maximum time for startup scripts to run](#_Specifying_maximum_time). |

## Assigning computer startup scripts

Startup scripts run as Local System and have the full rights required to run as Local System.

|  |
| --- |
| http://technet2.microsoft.com/library/gallery/templates/MNP2.Common/images/note.gif**Note:**The following procedures assume you have already installed GPMC. You can download GPMC from the Microsoft Download Center site. See [Download Group Policy Management Console (GPMC)](http://go.microsoft.com/fwlink/?LinkId=58541) for more information. If you are using Windows Vista, GPMC is integrated into the operating system.You must be logged on as a member of the Domain Administrators security group, the Enterprise Administrators security group, or the Group Policy Creator Owners security group to complete these procedures. |

The following sections provide a sample script and instructions for installing Silverlight.

Sample Script Requirements:

* The target computer must be running Windows XP, Windows Server 2003, or Windows Vista.
* A Read-only network share containing the Silverlight.exe installer
* A Read-write network share for storing centralized log files

## Example Script

|  |
| --- |
| setlocalREM \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*REM Environment customization begins here. Modify variables below.REM \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*REM Set DeployServer to a network-accessible location containing the Silverlight installerset DeployServer=\\server\share\SilverlightREM Set InstallerName to the name of your copy of the Silverlight installerset InstallerName=Silverlight.1.0.exeREM Set LogLocation to a central directory to collect log files.Set LogLocation=\\server\share\SilverlightLogsREM \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*REM Deployment code begins here. Do not modify anything below this line.REM \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*reg query HKEY\_LOCAL\_MACHINE\SOFTWARE\Microsoft\Silverlightif %errorlevel%==1 (goto DeploySilverlight) else (goto End)REM If 1 returned, the product was not found. Run setup here.:DeploySilverlightstart /wait %DeployServer%\%InstallerName%echo %date% %time% Setup ended with error code %errorlevel%. >> %LogLocation%\%computername%.txt REM If 0 or other was returned, the product was found or another error occurred. Do nothing.:EndEndlocal |

In this example, script logging information is written to *computername.txt* file. A return code of 0 in the log file indicates that the installation completed successfully. For more information about other error codes for Windows Installer processes for Silverlight products, see the [Windows Installer Error Code Reference](http://msdn2.microsoft.com/en-us/library/aa368542.aspx) on the Microsoft Developer Network website and the [troubleshooting section](#_Silverlight_installation_and) of this deployment guide.

## Deploying Computer Startup Scripts

**To set up scripts on the domain controller**

* Copy the script and dependent files to the Netlogon shared folder or another shared folder on the domain controller from which you want the script to run.

|  |
| --- |
| http://technet2.microsoft.com/library/gallery/templates/MNP2.Common/images/note.gif**Note:**The target computer account needs Read permission to the Silverlight source files location, and Read and Write permissions to the log file location. The log file can be stored on the local computer. |

**To assign computer startup scripts**

|  |  |
| --- | --- |
| 1.  | Click **Start**, click **Control Panel**, click **Administrative Tools**, and click **Group Policy Management**. |
| 2.  | In the console tree, double-click Group Policy Objects in the forest and domain that contains the Group Policy object (GPO) that you want to edit. This is located in *Forest name*/**Domains**/*Domain name*/**Group Policy Objects**.  |
| 3.  | Right-click the GPO you want to use to assign scripts and click **Edit**. This opens the Group Policy Object Editor console. |
| 4.  | In Group Policy Object Editor, in the console tree, click **Scripts (Startup/Shutdown)**. This is located in the **Computer Configuration\Windows Settings** node. |
| 5.  | In the details pane, double-click **Startup**.  |
| 6.  | In the **Startup Properties** dialog box, click **Add**.  |
| 7.  | In the **Add a Script** dialog box, do the following:* In **Script Name**, type the path to the script, or click **Browse** to search for the script file in the Netlogon shared folder on the domain controller.
* In **Script Parameters**, type the parameters you want to use as you would type them on the command line. For example, if your script included parameters called //logo (display banner) and //I (interactive mode), type: **//logo //I**.
 |
| 8.  | In the **Startup Properties** dialog box, specify the options you want to use. The following options are available:* **Startup Scripts for Group Policy object**. Lists all the scripts that are currently assigned to the selected Group Policy object. If you assign multiple scripts, the scripts are processed in the order that you specify. To move a script up in the list, select the script and click **Up**. To move a script down in the list, select the script and click **Down**.
* **Add**. Opens the **Add a Script** dialog box, where you can specify additional scripts to use.
* **Edit**. Opens the **Edit Script** dialog box, where you can modify script information, such as name and parameters.
* **Remove**. Removes the selected script from the **Startup Scripts** list.
* **Show Files**. Displays the script files that are stored in the selected Group Policy object.
 |

## Specifying maximum time for startup scripts to run

**To set the maximum time for startup scripts to run**

1. Click **Start**, click **Control Panel**, click **Administrative Tools**, and click **Group Policy Management**.
2. In the console tree, double-click **Group Policy Objects** in the forest and domain that contains the Group Policy object (GPO) that you want to edit. This is located in Forest name/**Domains**/Domain name/**Group Policy Objects**.
3. Right-click the GPO you want to use to assign scripts and click **Edit**. This opens the **Group Policy Object Editor** console.
4. In **Group Policy Object Editor**, in the console tree, navigate to **Computer Configuration\Administrative Templates\System\Scripts**.
5. On the details pane (left side of the console), double-click the **Maximum wait time for Group Policy scripts** policy setting, click **Enabled**, enter the value you want to use in the **Seconds** scroll-down box, and then click **OK**.

|  |
| --- |
| http://technet2.microsoft.com/library/gallery/templates/MNP2.Common/images/important.gif Important:Make sure you fully test startup scripts in a staging, non-production environment *before* you deploy them to your production environment. |

# Using SMS to Install Silverlight

## Overview: Automating the deployment of Silverlight

Using Microsoft Systems Management Server (SMS) to automate your deployment can help eliminate desktop visits and human error by electronically distributing your Silverlight package over the network from a central location to users' computers. You can choose the group of users' computers on which you want to automatically install the package and the dates and times when you want the installation to occur. This flexibility can help you avoid network congestion and ensure that the deployment occurs after users have had sufficient time to receive training and prepare for the installation.

SMS installs the Silverlight software without requiring user interaction (silent install), and it can install the software with administrative credentials even if a user without administrative credentials is logged on by running in the context of the SYSTEM account. Users do not need to log on to servers or computers that are based on Microsoft Windows NT to perform updates. This makes SMS ideal for off-hours distribution or distribution to security-enabled servers. SMS provides status reports so that you know when the software has been successfully installed.

For more information about SMS, please see the product documentation at: <http://www.microsoft.com/technet/sms/>

## Preparing to automatically deploy Silverlight

## Step 1: Creating an SMS package for Silverlight

Complete the following steps to create the SMS package (this is the actual package that SMS uses for distribution).

Create an SMS package for Silverlight

|  |
| --- |
| 1. To open the SMS Administrator Console, click Start, point to All Programs, point to Systems Management Server, and then click SMS Administrator Console.2. In the left pane, expand Site Database.3. Right-click Packages, click New, and then click Package.4. Click the General tab, and type the name of the package, its version, its publisher, its language, and a descriptive comment. (The only required value on this tab is Name.)6. Click the Data Source tab.7. On the Data Source tab, select the This Package Contains Source Files check box.8. Under Source Directory, click Set to open the Set Source Directory dialog.9. Type the path to the Silverlight Setup files, or click Browse to locate the directory. Click OK to return to the Data Source tab.10. Click the Distribution Settings tab. Select your preferred priority and sender.11. Click OK to create the package. |

Every SMS package must include at least one program to define the command line parameters to use when running the Setup. Some packages will have multiple programs.

Create a program

|  |
| --- |
| 1. To open the SMS Administrator Console, click Start, point to All Programs, point to Systems Management Server, and then click SMS Administrator Console.2. In the left pane, expand Site Database, expand Packages, and then expand your Silverlight package.3. Right-click Programs, click New, and then click Program.4. In the General tab, enter a descriptive name for the program.5. In Command line, enter the exact command line to be used when this program is run. Most deployments will use one of the following command lines. See the [installation switches](#_Installation_Switches) section for more information.1. **Silverlight.1.0.exe**
2. **Silverlight.1.0.exe /q** (Silent Install - recommended)

6. In the Run drop-down list, select the Normal option to determine how the Setup window will be displayed when the program is run.7. In the After running drop-down list, select the option that describes the action to take after the program has completed. The recommended setting is “No Action Required”.8. Click the Requirements tab. Enter the information for the Silverlight software requirements that apply to this program. Use the drop-down lists to determine how much disk space should be available for the setup (10 MB), the maximum amount of time to let the program run (3 minutes), and the operating systems that are supported by this program. This can be determined by examining the [Microsoft Silverlight System Requirements](http://www.microsoft.com/silverlight/system-requirements.aspx) page.9. Click the Environment tab. In the Program can run drop-down list, select **Whether or not a user is logged on**. This will install Silverlight as mandatory and silent. 10. Under Run mode, click the option that describes the required user permission level and choose Run with administrative rights.11. Click the Advanced tab. Under When this program is assigned to a computer, select Run once for the computer.12. Click OK to save the program. |

## Step 2: Selecting the SMS distribution servers

Your SMS distribution servers are the distribution points for your SMS package. SMS copies all the files from the package source folder to a folder on your SMS distribution servers. Setup runs from these SMS distribution servers to support the users on your network.

To select the SMS distribution servers

|  |
| --- |
| 1. On the SMS Administrator Console, in the left pane under Packages, right-click the SMS package that you designated for Silverlight, and then click Distribution points.2. On the New Distribution Points Wizard welcome page, click Next.3. On the Copy Package page, select your distribution servers from the Distribution points list, and then click Finish. |

## Step 3: Creating and running a job to distribute the SMS package

After you create the SMS package for Silverlight, you must create a job to distribute it. This job includes:

 The list of users' computers that will receive the SMS package for Silverlight. This is defined in SMS as a collection. Every computer in a collection will receive an advertisement for the SMS job when it is assigned.

 The schedule for running the package.

 An advertisement for the package, which will be sent to the users' computers.

To create and run a job to distribute the SMS package

|  |
| --- |
| 1. On the SMS Administrator Console, in the left pane, expand Site Database.2. Right-click Advertisements, point to New, and then click Advertisement.3. In the Advertisement Properties dialog box, select values for the following fields: Name. The name for the job. Comment. A description of the package. This field is optional. Package. The SMS package for Silverlight that you created in [Step 1: Creating an SMS package for Silverlight](#DSDOC_BKMK_2cf11da2e_1c6d_409d_a2de_5992) earlier in this section. Program. The Silverlight executable file, which is part of the package that you built in [Step 1: Creating an SMS package for Silverlight](#DSDOC_BKMK_1cf11da2e_1c6d_409d_a2de_5992) earlier in this section. **Collection.** Provide the name you desire for the collection to which you want to deploy the package, such as “Silverlight”.4. Click the Schedule tab, and then select the dates and times when you want the package to run. If you want to mandatory force the package installation, specify the date and time of installation under “mandatory assignments”.5. Click the **Advanced Client** tab, and then for “When a distribution point is available locally”, select “Run Program from a Distribution Point” & for “When no distribution point is available locally”, select “Download Program from a remote distribution point” |

When the job runs, you can view it by clicking Advertised Programs in the Windows Control Panel. The job also creates an error log file (Iesmswrap.mif), which is located in the \Windows\Temp folder. You can perform a search for \*.mif to locate the file.

## The installation process

At the scheduled date and time, SMS sends the package to the specified users' computers. When these computers recognize that the package is available, the installation process begins.

Silverlight Setup performs the following tasks:

Pre-requisite check (see [Installation Requirements](#_System_requirements_for) in this document)

Ensure a later version isn’t installed

Uninstall previously installed version if present

Install the product

Write Silverlight registry keys

Create files in %ProgramFiles%\Microsoft Silverlight\

# Part 3: Maintaining and Supporting Silverlight

Part 3 of the Silverlight Deployment Guide describes the processes used to maintain and support Silverlight in your organization after your initial deployment.

[Managing Browser Settings Through Group Policy](#DSDOC_cc63243b_e057_4608_9206_0e9da66655) describes how to manage Silverlight and administer system policies and restrictions in your Active Directory environment by using Group Policy Administrative Templates and the Silverlight Maintenance extension.

[Keeping Silverlight Updated](#DSDOC_457de51b_2af5_48a1_9a16_8a193ff50f) reviews system management, automatic update, and other tools to deploy updated versions of Silverlight to your users' computers.

[Troubleshooting](#DSDOC_082495d9_84c1_474b_a6c0_e11c4c3459) helps you troubleshoot Silverlight packages, Silverlight installation, and Group Policy settings in your corporate environment.

# Managing Silverlight Settings Through Group Policy

If you use an Active Directory environment to administer the computers in your network, Group Policy provides a comprehensive set of policy settings to manage Silverlight after you have deployed it to your users' computers. You can use the Administrative Template policy settings to establish and lock registry-based policies for Silverlight options.

## Group Policy overview

Group Policy is a collection of settings that are used to define and manage configurations for groups of users and computers in an Active Directory environment. Group Policy enables you to define a Silverlight configuration and other software and system configurations as part of Group Policy objects (GPOs). The GPOs are linked to hierarchical Active Directory containers such as sites, domains, or organizational units. They enable you to manage your Silverlight and other system configurations for multiple users on any computer that is joined to the domain.

Note

You must be a member of the Administrators group to work with GPOs.

For more information about Group Policy, see:

 Windows Server 2003 Group Policy

(<http://go.microsoft.com/fwlink/?LinkId=56544>)

 Managing Windows XP Service Pack 2 Features Using Group Policy

(<http://go.microsoft.com/fwlink/?LinkId=55587>)

 Group Policy Frequently Asked Questions

 (<http://go.microsoft.com/fwlink/?LinkId=59182>)

 Group Policy Settings Reference for Windows Vista

(<http://go.microsoft.com/fwlink/?LinkId=54020>)

 Implementing Common Desktop Management Scenarios with the Group Policy Management Console

(<http://go.microsoft.com/fwlink/?LinkId=75316>)

 Windows Vista Security Guide

(<http://go.microsoft.com/fwlink/?LinkId=74028>)

## Using Administrative Template settings to manage Silverlight

This section describes how to use registry-based Administrative Template policy settings in Group Policy to manage Silverlight on users' computers that are running Windows Server 2003, Windows XP with SP2, or Windows Vista.

For an overview of the concepts and architecture of the Administrative Templates, see <http://go.microsoft.com/fwlink/?LinkID=29910>.

Important

The Silverlight control’s Automatic Update policy can be set per-user or per-machine. If an administrator sets a per-machine setting, then this overrides the per-user setting. We recommend that you manage Silverlight by using the Administrative Template settings in Group Policy whenever possible because these settings are always written to a secure per-machine key in the registry. This means that users cannot change settings by using the Silverlight user interface or by modifying the per-user update mode registry key.

### ADM and ADMX file template settings

The text below can be used to create an ADM or ADMX file for Silverlight settings. For more information about how to create and use ADM or ADMX files, see the articles:

How to create custom administrative templates in Windows 2000

<http://support.microsoft.com/kb/323639>

[Managing Group Policy ADMX Files Step-by-Step Guide](http://download.microsoft.com/download/3/b/a/3ba6d659-6e39-4cd7-b3a2-9c96482f5353/Managing%20Group%20Policy%20ADMX%20Files%20Step%20by%20Step%20Guide.doc)

How to create a Central Store for Group Policy Administrative Templates in Window Vista
<http://support.microsoft.com/kb/929841>

**ADM file**:

|  |
| --- |
| CLASS MACHINE CATEGORY !!SL\_PARAMS KEYNAME "HKEY\_LOCAL\_MACHINE\Software\Microsoft\Silverlight\" POLICY !!SET\_AUPDATE EXPLAIN !!AUPDATE\_HELP PART !!AUpdateBox DROPDOWNLIST NOSORT REQUIRED VALUENAME UpdateMode ITEMLIST NAME !!Automatic VALUE "0"  NAME !!Prompt VALUE "1"  NAME !!Disable VALUE "2" DEFAULT END ITEMLIST END PART END POLICY END CATEGORY[strings]SL\_PARAMS="Silverlight"SET\_AUPDATE="Change Automatic Update Behavior"AUPDATE\_HELP="When this policy is enabled, it will control the Silverlight control’s automatic update behavior. If the policy is disabled, it will not change the default behavior and the control will update automatically over the internet. The Silverlight control’s automatic update mechanism is independent of both the Windows Update and Microsoft Update mechanisms. Silverlight can be configured to use one of three automatic update modes: \n\nAutomatic - Automatically detects, downloads, and installs updates \nPrompt for updates - Detects when an update is available and prompts if you would like to download and install the update \nTurn off auto updates - Does not check for or automatically download updates. This option should be used in most corporate environments if you are using SMS, , software update services (SUS), or another enterprise software management solution."AUpdateBox="Update Mode: "Automatic="Automatically download"Prompt="Prompt for updates"Disable="Turn off auto updates" |

**ADMX file**:

|  |
| --- |
| <policyDefinitions revision="1.0" schemaVersion="1.0"> <policyNamespaces> <using prefix="windows" namespace="Microsoft.Policies.Windows" /> </policyNamespaces> <supersededAdm fileName="Silverlight.adm" /> <resources minRequiredRevision="1.0" /> <categories> <category name="SL\_PARAMS" displayName="$(string.SL\_PARAMS)" /> </categories> <policies> <policy name="SET\_AUPDATE" class="Machine" displayName="$(string.SET\_AUPDATE)" explainText="$(string.AUPDATE\_HELP)" presentation="$(presentation.SET\_AUPDATE)" key="Software\Microsoft\Silverlight\"> <parentCategory ref="SL\_PARAMS" /> <supportedOn ref="SUPPORTED\_WindowsXPSP2\_Or\_WindowsNET"/> <elements> <enum id="AUpdateBox" valueName="UpdateMode" required="true"> <item displayName="$(string.Automatic)"> <value> <string>0</string> </value> </item> <item displayName="$(string.Prompt)"> <value> <string>1</string> </value> </item> <item displayName="$(string.Disable)"> <value> <string>2</string> </value> </item> </enum> </elements> </policy> </policies></policyDefinitions> |

**ADML file**:

|  |
| --- |
| <policyDefinitionResources revision="1.0" schemaVersion="1.0"> <displayName>enter name here</displayName> <description>enter description here</description> <resources> <stringTable> <string id="SL\_PARAMS">Silverlight</string> <string id="SET\_AUPDATE">Change Automatic Update Behavior</string> <string id="AUPDATE\_HELP">When this policy is enabled, it will control the Silverlight control’s automatic update behavior. If the policy is disabled, it will not change the default behavior and the control will update automatically over the internet. The Silverlight control’s automatic update mechanism is independent of both the Windows Update and Microsoft Update mechanisms. Silverlight can be configured to use one of three automatic update modes: \n\nAutomatic - Automatically detects, downloads, and installs updates \nPrompt for updates - Detects when an update is available and prompts if you would like to download and install the update \nTurn off auto updates - Does not check for or automatically download updates. This option should be used in most corporate environments if you are using SMS, , software update services (SUS), or another enterprise software management solution.</string> <string id="AUpdateBox">Update Mode: </string> <string id="Automatic">Automatically download</string> <string id="Prompt">Prompt for updates</string> <string id="Disable">Turn off auto updates</string> </stringTable> <presentationTable> <presentation id="SET\_AUPDATE"> <dropdownList refId="AUpdateBox" noSort="true" defaultItem="2">Update Setting: </dropdownList> </presentation> </presentationTable> </resources></policyDefinitionResources> |

### Registry-based Silverlight policy settings

The Silverlight control’s automatic update mechanism is independent of both the Windows Update and Microsoft Update mechanisms. Silverlight can be configured to use one of three automatic update modes:

1. Auto Updates - Automatically detects, downloads, and installs updates. This is the default setting after an install. The client will attempt to request files from Microsoft at most one time per day to detect if there is a newer version of the Silverlight client. If there is a newer version, it will automatically download and install the update without any user intervention required.
2. Prompted Updates - Detects when an update is available and prompts if you would like to download and install the update. This uses the same detection location and schedule as the Auto Updates option.
3. No Updates - Does not check for or automatically download updates. This option should be used in most corporate environments if you are using SMS, software update services (SUS), or another enterprise software management solution.

If using the Silverlight updater you will need to give the client computer access to the following domains:

* go.microsoft.com
* silverlight.dlservice.microsoft.com
* rs.update.microsoft.com
* slupdate.dlservice.microsoft.com
* www.microsoft.com

These settings are available in the custom ADM or ADMX file you created as referenced above. The registry setting that the administrative template files contain is:

Key path: HKEY\_LOCAL\_MACHINE\Software\Microsoft\Silverlight\

Value Name: UpdateMode

Value Type: DWORD

Valid Values:

Auto Updates 0x00000000

Prompted Updates   0x00000001

No Updates              0x00000002

You can locate this setting in the following policy path for your GPOs:

| **Category** | **Description** |
| --- | --- |
| Computer Configuration\Administrative Templates\Silverlight | Contains settings to enable or disable standard Silverlight configurations. |

### Modifying registry-based Silverlight policy settings

You can modify the Silverlight policy settings that apply to individual computers.

To modify registry-based Silverlight policy settings

|  |
| --- |
| 1. Open Group Policy Object Editor by using one of the methods described in the Group Policy product documentation (<http://go.microsoft.com/fwlink/?linkid=67717>). The method you use will depend on the GPO that you want to manage. One way to open Group Policy Object Editor is to click Start, click Run, and then enter Gpedit.msc.2. Double-click <Group\_Policy\_object\_name> Policy, and then double-click Computer Configuration.3. Double-click Administrative Templates, double-click Windows Components, and then double-click Silverlight.4. In the left pane, click the category you want to work with, and then in the right pane, double-click the item that you want to edit.5. Click the Setting tab, and then configure the policy setting. Typical choices for a setting are Not Configured, Enabled, or Disabled. Some settings require you to make additional selections or enter additional information. |

# Keeping Silverlight Updated

After you deploy Silverlight in your corporate network, you can use the following tools to distribute updated versions of Silverlight to your users' computers:

 [Automatic Updates](#_Automatic_Updates). The Silverlight control includes an automatic update feature which will automatically install updates on machines running Windows operating system. To disable Automatic Updates of Silverlight, see the administrative settings section above.

 [Software Update Methods](#DSDOC_BKMK_SoftwareDist457de51b_2af5_48a). Use system update management tools such as Systems Management Server or the software distribution capabilities in Group Policy to update Silverlight on users' computers.

## Automatic Updates

You can configure Silverlight to automatically update itself while it is in use. Every twenty-four hours, the version of Silverlight that is installed on your users’ browser compares itself against the most current Silverlight version that is available for download. If the version on the web is newer than the version on users’ computers then Silverlight will automatically update itself.

On Windows operating systems, the default functionality is to automatically find, download, and install updates. The control can be configured to prompt the user before downloading and installing updates. Alternatively, automatic updates can be disabled as described in the administrative settings section above.

Note

Your users must have local administrative privileges on their computers to install an updated version of Silverlight on Windows XP and 2003. However, updates can be installed to disable non-admin patching on Windows Vista you must use the DisableLUAPatching policy as described here: <http://msdn2.microsoft.com/en-us/library/aa368302.aspx>.

Note

Your users must have internet access to find and download updates through the Silverlight updater.

By using the Administrative Templates policy setting Automatically check for Silverlight updates, you can disable automatic checks for Silverlight updates. For more information about changing the Automatic Update settings, see [Managing Silverlight Settings Through Group Policy](#_Managing_Silverlight_Settings).

## Software update methods

If you already manage software distribution and updates on your network by using Systems Management Server (SMS) or Group Policy Software Installation, you can use these tools for ongoing deployments of Silverlight.

Note

If any of these options are used, the built-in automatic update method should be disabled as referenced in the [Registry-based Silverlight policy settings](#_Registry-based_Silverlight_policy) section.

#### Systems Management Server

SMS is a dedicated, flexible system to use for updates and software deployment. It provides robust features to facilitate scheduling, managing, and reporting for your Silverlight distributions in large-scale corporate environments.

For more information about using SMS for the distribution of Silverlight, see [Using SMS to Install Silverlight](#DSDOC_cf11da2e_1c6d_409d_a2de_5992298da3) in this deployment guide.

Security Updates for Silverlight will also be available through the Inventory Tool for Microsoft Updates. To help customers determine the update compliance of managed system.  This tool provides integration with updates offered by Windows Update and Microsoft Update.  For more information on this tool see the [SMS 2003 Inventory Tool for Microsoft Updates page](https://www.microsoft.com/technet/sms/2003/downloads/tools/msupdates.mspx).

#### Group Policy Software Installation

The Group Policy Software Installation extension leverages the Windows Installer service that is part of the Windows operating system. Based on your instructions, Windows Installer installs, repairs, and removes software in .msi files. The Silverlight Setup file is an executable (.exe) file. Therefore, you must use an .msi packaging tool to package Silverlight for Group Policy deployment.

For more information about the Software Installation extension of Group Policy, see <http://go.microsoft.com/fwlink/?LinkId=83294>.

#### Windows Server Update Services (WSUS)

If you use WSUS 2.0 SP1 or later, you can centrally manage the distribution of Silverlight updates to computers on your corporate network that are running:

 Windows Server 2003 with SP1

 Windows XP with SP2

 Windows Vista

For more information about using WSUS, see <http://go.microsoft.com/fwlink/?LinkId=45140>.

#### Scripted or Manual

If SMS, WSUS, or Group policy is not available in your environment, it is possible to follow the manual process you chose for your initial deployment except utilize the /q switch for the installation executable file. By using this switch, it will allow a silent upgrade of Silverlight. For more information about the manual methods of deployment and installation switches for Silverlight, see [Manual Install options for Silverlight](#DSDOC_6de5565b_c9fc_41ee_b1c9_35a1bd9872) in this deployment guide.

# Troubleshooting

This section of the deployment guide provides information about troubleshooting the deployment of Silverlight in a corporate environment. Troubleshooting topics are categorized into the following areas:

 [Silverlight installation and uninstallation](#DSDOC_BKMK_Install082495d9_84c1_474b_a6c)

 [Disabiling Silverlight in IE 7](#_Disabling_Silverlight_add-on)

## Silverlight installation and uninstallation

Following are ways to help you troubleshoot installing and uninstalling Silverlight on your users' computers.

### Silverlight Install process fails

If the install fails, you can troubleshoot errors by using the Setup log files:

 SilverlightMSI####.txt - MSI engine

* SilverlightUI####.txt - UI wrapper on top of MSI

Each installation creates a log file, which collects information about that particular installation. If a Silverlight log file already exists, setup renames the existing log as a .bak file and creates a new log file.

When you do the install (GUI or command line) or uninstall with the /qu option, the log files are created in the folder associated with the %TEMP% variable (typically, the C:\Windows\Temp folder). The files document the entire process from the moment the exe starts running until the installation or uninstall is complete.

The UI wrapper log can be useful for troubleshooting installation failures. During most installation scenarios this log will contain a return code for the installation. The return code can be used to determine whether an installation error occurred and to gain more information about the error. The return code will be written near the bottom of the SilverlightUI####.txt file and will be preceded by the text “Process returning code”.

| **Return Code** | **Meaning** |
| --- | --- |
| 0 | Installation was completed successfully |
| 1508 | Installation was completed successfully. However, users of the machine must restart their browser instances to apply these changes. |
| Other | An installation error has occurred. To learn more about the error you should visit the information page for this error by appending the return code to the following URL:[http://go.microsoft.com/fwlink/?LinkID=87096&errorID=<returnCode](http://go.microsoft.com/fwlink/?LinkID=87096&errorID=%3creturnCode)>Example:If your UI log file includes the line Process returning code 3010Then you should visit http://go.microsoft.com/fwlink/?LinkID=87096&errorID=3010 |

### Unable to uninstall Silverlight

In most cases, you can uninstall Silverlight on your users' computers that are running Windows XP with SP2 or Windows Server 2003 with SP1 by using the Add or Remove Programs tool in Control Panel or in Windows Vista by going into **Programs and Features** in Control Panel.

If you cannot use Add or Remove Programs or **Programs and Features** in Control Panel to uninstall Silverlight, the uninstall information might not be on the computer. Re-install the control to replace the uninstall information and then try uninstalling again.

## Disabling Silverlight add-on in Internet Explorer® 7

To isolate browser issues that might be related to the Silverlight add-on, you can selectively disable the add-on in Internet Explorer 7.

To disable a browser add-on

|  |
| --- |
| 1. Click the Tools menu, click Manage Add-ons, and then click Enable or Disable Add-ons.
2. Change the “Show” Drop-down box to “Add-ons that have been used by Internet Explorer”
3. Click **AgControl Class,** click Disable, and then click OK.
 |

Alternatively, you can turn off all add-ons temporarily in Internet Explorer 7 by starting in No add-ons mode.

To start Internet Explorer 7 in No add-ons mode

|  |
| --- |
| 1. Click Start, click All Programs, and then click Accessories. 2. Click System Tools, and then click **Internet Explorer** (No Add-ons). |

Note

You can also start Internet Explorer without add-ons by right-clicking the Internet Explorer icon on the desktop and then clicking Start Without Add-ons. Or start Internet Explorer with no add-ons or toolbars by running the command iexplore.exe -extoff.