System Update Solution
Deployment Guide

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Preface

This deployment guide is intended for IT administrators or those who are responsible for deploying updates on computers in their organizations. The programs documented in this deployment guide are System Update, Update Retriever, and Thin Installer. System Update is a software program that you can use to help keep your system up-to-date. Update Retriever is an administrative program that you can use to customize the update process for your enterprise. Thin Installer is a smaller version of System Update, which is used as a standalone installation utility that runs without an installation process.

This guide provides information required for installing System Update on one or many computers, provided that licenses for the software are available for each client computer. The System Update application provides application help, which administrators and end users can consult for information about using the application. Information presented in this guide supports ThinkVantage® programs and does not support Lenovo® 3000 technology.

ThinkVantage Technologies and the deployment guides that accompany them are developed for IT professionals and the unique challenges that they encounter. If you have suggestions or comments, communicate with your Lenovo authorized representative. To learn more about the technologies that can help you lower the total cost of ownership and to check for periodic updates to this guide, visit the Lenovo Web site:

www.lenovo.com
Chapter 1. Overview

The programs documented in this deployment guide are System Update, Update Retriever and Thin Installer. This deployment guide explains the update process, defines each program, and how each program can be configured to fit your needs. In this deployment guide, you also will find installation procedures, application configurations, and best practices on how to use these programs in different environments.

System Update

System Update is a software program that helps you keep the software on your system up-to-date. Update packages are stored on Lenovo servers and can be downloaded from the Lenovo Help Center Web site. Update packages can be applications, device drivers, BIOS flashes, and software updates. When System Update connects to the repository folder, System Update automatically recognizes the machine type of your system, model number, and other system information to determine whether your system needs the available updates. System Update will display a pick list of update packages where you can select update packages to download and install. System Update can be configured to install packages either manually or automatically. System Update also provides a method to defer the installation of update packages. System Update can be configured to search and download update packages from any combination of the following locations:

- Lenovo Help Center Web site
- Repository folder on a local system
- Repository folder on a network share

Update Retriever

Update Retriever is a software program that enables you to search for and download updates from the Lenovo Help Center Web site to a network shared folder. You can configure System Update to search for update packages from a network shared folder instead of searching the Lenovo Help Center Web site. Update Retriever can help you with the following:

- Downloading updates for specific Lenovo systems, languages, and operating systems.
- Downloading update packages for more than one machine type.
- Importing update packages.

Managing the update process

The update process is a method to obtain, configure, and install update packages. To complete the update process, use the following programs:

- System Update on page 2: If you use System Update only, System Update will connect to the Lenovo Help Center Web site through an Internet connection.
- System Update and Update Retriever on page 2: If you use Update Retriever and System Update, Update Retriever enables you to search the Lenovo Help Center Web site for update packages, and then download those packages to your network. You can also create or edit update packages with Update Retriever to customize the update content relevant to your enterprise.
**System Update**

The following illustration shows the communication path of update packages from the Lenovo Help Center to a client system when using only System Update:

![Diagram](image1)

*Figure 1. Update process using System Update only*

**System Update and Update Retriever**

For multiple systems, you can use Update Retriever on an administrative system to download packages from the Lenovo Help Center to your network. System Update can be configured to obtain updates from a repository folder. Your repository folder provides the storage for update packages. This allows greater control of the updates that are available over your network. The following illustration provides the communication path of update packages from the Lenovo Help Center to your administrative system using Update Retriever:

![Diagram](image2)

*Figure 2. Using Update Retriever to control the update process*

The following illustration provides the communication path of update packages from an administrator system with Update Retriever to client systems with System Update:
For more information on configuring repository locations for package storage, see Chapter 3, “Configurations,” on page 13.

Deploying updates/packages to client systems
Instead of using a network share on a LAN, you can use a local system such as the administrator system for package storage. Once you have created a repository folder, you can then push the folder to client systems. This method will enable you to use Update Retriever on a designated machine to download updates to a repository folder and then push out the folder containing the update packages to client systems. When the client systems run System Update, System Update will obtain updates directly from the folder that you deployed. The following illustration provides the communication path of update packages from an administrative system to client systems:

Figure 3. Using Update Retriever on a local network

System Update and Update Retriever with customized update packages
For enterprises that choose to create custom update packages for client systems, use System Update and Update Retriever to manage the update process. As an administrator, you can use Update Retriever to download selected update packages from the Lenovo Help Center to a network share repository folder. You can use
Update Retriever to edit an existing package or create a new package in the repository folder. Update Retriever uses an XML Descriptor file to define when an update package is relevant and how to install the update package. For example, you can create an XML Descriptor file that enables a specific update to be downloaded and installed on a client system depending on the version of the software already installed or existing hardware devices found on the system. After using Update Retriever to customize update packages to fit the needs of your enterprise, import the update packages into the network share repository folder with Update Retriever.

On client systems, use System Update to search the network share repository folder for update packages. System Update can then download and install relevant packages from the network share repository folder to client systems. The following illustration shows the relationship between the Lenovo Help Center, System Update and Update Retriever when using Update Retriever to manage the update process:

Figure 5. Update process for client systems managed by administrators using Update Retriever

Non-Lenovo

By design, System Update and Update Retriever can be leveraged with non-Lenovo systems. Non-Lenovo systems are not configured to utilize the Lenovo Help Center Web site to download and install packages. If you are using a non-Lenovo system with System Update, use Update Retriever to download update packages to your network share repository or local system repository and then use System Update to search for packages on your network.
Chapter 2. Installation

This chapter provides you with installation instructions for System Update and Update Retriever. This chapter will also provide you with installation requirements, components and considerations. You can download System Update and Update Retriever from the following Web site:


For information on installing Thin Installer, go to “Downloading Thin Installer” on page 53.

Installation requirements

System Update is supported on the following operating systems:

- Microsoft® Windows® 7 Starter
- Windows 7 Business
- Windows 7 Home Basic
- Windows 7 Home Premium
- Windows 7 Ultimate
- Windows 7 Enterprise
- Windows 7 Professional
- Windows Vista®
- Windows XP Professional with Service Pack 2 or later
- Windows 2000 Professional with Service Pack 4

Note: System Update supports systems with Windows 2003 only if update packages are stored in a repository on your local network. Connection to the Lenovo Help Center Web site is not supported for Windows 2003.

Update Retriever is supported on the following operating systems:

- Windows 7 Starter
- Windows 7 Business
- Windows 7 Home Basic
- Windows 7 Home Premium
- Windows 7 Ultimate
- Windows 7 Enterprise
- Windows 7 Professional
- Windows Vista (32-bit and 64-bit)
- Windows XP Professional with Service Pack 2 or later
- Windows XP Home (32-bit only)
- Windows 2000 Professional with Service Pack 4
- Windows Server® 2003 Standard (32-bit and 64-bit)
- Windows Server 2003 Enterprise (32-bit and 64-bit)
- Windows Server 2003 SBS Standard (32-bit and 64-bit)
- Windows Server 2003 SBS Premium (32-bit and 64-bit)
- Windows Server 2003 R2 Standard (32-bit and 64-bit)
- Windows Server 2003 R2 Enterprise (32-bit and 64-bit)
• Windows Server 2008 Standard (32-bit and 64-bit)
• Windows Server 2008 Standard without Hyper-V (32-bit and 64-bit)
• Windows Server 2008 Enterprise (32-bit and 64-bit)
• Windows Server 2008 Enterprise without Hyper-V (32-bit and 64-bit)
• Windows Server 2008 DataCenter (32-bit and 64-bit)
• Windows Server 2008 DataCenter without Hyper-V (32-bit and 64-bit)
• Windows Web Server 2008 (32-bit and 64-bit)

.Net
System Update and Update Retriever require Microsoft.NET Framework 1.1 with Service Pack 1 or later (2.0 or later is recommended). You can download a compatible version of .NET Framework from the following Microsoft Web site:
http://update.microsoft.com/windowsupdate

Installation components
This section provides information on installation components for System Update and Update Retriever. These programs are installed with InstallShield.

System Update languages
The following table represents the languages and the language codes for System Update:

Table 1. System Update language codes

<table>
<thead>
<tr>
<th>Language</th>
<th>Identifier</th>
<th>Language Override Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Danish</td>
<td>1030</td>
<td>DA</td>
</tr>
<tr>
<td>Dutch (Standard)</td>
<td>1043</td>
<td>NL</td>
</tr>
<tr>
<td>English</td>
<td>1033</td>
<td>EN</td>
</tr>
<tr>
<td>Finnish</td>
<td>1035</td>
<td>FI</td>
</tr>
<tr>
<td>French</td>
<td>1036</td>
<td>FR</td>
</tr>
<tr>
<td>German</td>
<td>1031</td>
<td>DE</td>
</tr>
<tr>
<td>Italian</td>
<td>1040</td>
<td>IT</td>
</tr>
<tr>
<td>Japanese</td>
<td>1041</td>
<td>JP</td>
</tr>
<tr>
<td>Korean</td>
<td>1042</td>
<td>KO</td>
</tr>
<tr>
<td>Norwegian (Bokmal)</td>
<td>1044</td>
<td>NO</td>
</tr>
<tr>
<td>Portuguese (Brazilian)</td>
<td>1046</td>
<td>PT</td>
</tr>
<tr>
<td>Spanish</td>
<td>1034</td>
<td>ES</td>
</tr>
<tr>
<td>Swedish</td>
<td>1053</td>
<td>SV</td>
</tr>
<tr>
<td>Simplified Chinese</td>
<td>2052</td>
<td>CHS</td>
</tr>
<tr>
<td>Traditional Chinese</td>
<td>1028</td>
<td>CHT</td>
</tr>
</tbody>
</table>

System Update installs all the NLS (National Language Support) translated language packs. At start-up, System Update checks the Windows registry for a valid language value in the LanguageOverride field. If the LanguageOverride field has a valid value and the language pack is available on the system, then the value specified in the LanguageOverride field determines the NLS language loading for System Update. The registry location for the LanguageOverride field is:
If the LanguageOverride is empty, has an invalid value or the NLS language pack specified in the LanguageOverride field is not installed on the computer, then System Update gets the language code from the operating system regional settings. If System Update successfully loads the regional settings language, then that is the language System Update displays for the rest of the session.

If the language pack corresponding to the regional settings language is not on the system, then System Update will attempt to load the default language that the end user selected at installation time through the System Update installer. System Update gets the default language value from the DefaultLanguage field in the System Update location of the registry. If the default language pack is on the system, then the default language will be used for the rest of the session. If the DefaultLanguage field is empty, has an invalid value or if the language pack that corresponds to the default language is not on the system, then the default language is not used.

If System Update is unable to load the language pack defined in the DefaultLanguage field, then it attempts to load the US English language pack. If the US English language pack is not on the system, then you will see a message that reads: System Update has found a critical problem and must close. This error message is in the US English language.

**Update Retriever languages**

Update Retriever function is similar to System Update but supports fewer translated languages. Update Retriever is available in the following languages:

<table>
<thead>
<tr>
<th>Language Identifier</th>
<th>Language Override Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>English 1033</td>
<td>EN</td>
</tr>
<tr>
<td>French 1036</td>
<td>FR</td>
</tr>
<tr>
<td>German 1031</td>
<td>DE</td>
</tr>
<tr>
<td>Japanese 1041</td>
<td>JP</td>
</tr>
<tr>
<td>Simplified Chinese 2052</td>
<td>CHS</td>
</tr>
</tbody>
</table>

The registry locations for the LanguageOverride fields are:
HKEY_LOCAL_MACHINE\SOFTWARE\Lenovo\Update Retriever\LanguageOverride

**Installation considerations**

System Update and Update Retriever are installed as standalone applications and deployed with default preferences for all configuration options. The installation scenarios listed below are supported as follows:

- **Clean installation**
  System Update and Update Retriever are installed with default preferences for their respective configurable options.

- **Upgrade or over-install (current version already exists)**
  The installer will remove the old version of System Update or Update Retriever and install the new version. Your network share repository folder and contents will be preserved.
When installing, a shortcut is added to the following Start menu folder for ThinkPad® systems:
Start Menu\Programs\ThinkVantage

For Lenovo systems, the following shortcut is added to the Start menu folder:
Start Menu\Programs\Lenovo Care

Preferences are stored as settings in the following Windows registry keys:
- For System Update:
  HKLM\Software\Lenovo\System Update
- For Update Retriever:
  HKLM\Software\Lenovo\Update Retriever

The default folder where application files are installed is the following:
- For System Update:
  %PROGRAMFILES%\Lenovo\System Update
- For Update Retriever:
  %PROGRAMFILES%\Lenovo\Update Retriever

**System Update standard installation procedures and command-line parameters**

System Update and Update Retriever all use the same command line parameters for installing the applications. The following example starts a non-silent command line installation for System Update or Update Retriever:

c:\> [System Update installation file name].exe

To do a silent command line extraction followed by an installation you use the -s parameter. The extract defaults to the Windows Temp folder.

c:\> [System Update installation file name].exe -s

To silently extract to a specific folder followed by an installation you would do the following:

c:\> [System Update installation file name].exe -s -fc:\tvt\tvusut

The f parameter in the -f causes the files to be extracted to the c:\tvt\tvusut folder.

You can use the -e parameter to extract the contents of the installation file. If you want the installation file to start the executable, specify the file name after the -e parameter (-e[System Update installation file name]). For examples where the file name is not specified, see following table:

**Table 3. Extract Command Scripts**

<table>
<thead>
<tr>
<th>Product</th>
<th>Command Line Example for Extraction</th>
<th>Comment</th>
<th>Extracted File To Execute to Start the Install based on Extraction Folder Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>System Update</td>
<td>SystemUpdate-setup.exe -fc:\tvt\tvusufolder -e</td>
<td>Extracts System Update to c:\tvt\tvusufolder</td>
<td>c:\tvt\tvusufolder\UninstallSU.exe</td>
</tr>
<tr>
<td>Update Retriever</td>
<td>UpdateRetriever-setup.exe -fc:\tvt\tvusutfolder -e</td>
<td>Extracts Update Retriever to c:\tvt\tvusufolder</td>
<td>c:\tvt\tvusutfolder\setup.exe</td>
</tr>
</tbody>
</table>
Windows Vista considerations

With considerations for Windows Vista, the System Update silent installation launches a User Account Control (UAC) message. You can find information on disabling and enabling the User Account Control message on the following Web site:


**Note:** If the UAC is active, a silent uninstall will not work with Windows Vista.

List of parameters

The applications are packaged as self-extracting installation files. Therefore the System Update installation file specifies the executable to start after the extraction. If you use the -a parameter, then any parameter following the -a will be passed to the installation file executable, and then prompts the execution to start after the extraction.

c:\>[System Update installation file name].exe -s -fc:\tv\tvsut -a [list of parameters]

The following table provides the values for the -a [list of parameters]:

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>/s</td>
<td>This parameter is used for silent mode. It suppresses the initialization window defined in the installation file to execute after the extract.</td>
<td>[System Update installation file name].exe -s -a /s</td>
</tr>
<tr>
<td>/v</td>
<td>This parameter passes the command line switches and values of public properties to the MSI file included in the installation file. This parameter is used to suppress the MSI file user interface. You would use this parameter in conjunction with other parameters and the executable file that installation file will start after the extraction when you want to do a silent installation. You can pass information to the MSI file using the command line to execute the installation file. All parameters within the double quote symbols (&quot;&quot;&quot;) after the /v parameter are passed to the MSI file.</td>
<td>[System Update installation file name].exe -s -a /s /v&quot; /qn</td>
</tr>
<tr>
<td>/L</td>
<td>This parameter specifies the language used by a multi-language installation program and requires a decimal language ID (where xxxx is a language ID code). For the languages code, see Table 1 on page 6</td>
<td>[System Update installation file name].exe -s -a /s /v&quot; /qn&quot; /L1033</td>
</tr>
</tbody>
</table>

The above command line will use English.
Table 4. List of parameters with -a (continued)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>/w</td>
<td>This parameter forces the executable defined in the installation file to execute after the extraction and to wait until the installation is complete before exiting.</td>
<td>[System Update installation file name].exe -a /w</td>
</tr>
<tr>
<td></td>
<td></td>
<td>If you extract the installation file contents first, and then want to use the /w parameter with the executable, the installation file will point to the folder to where file contents are extracted to and then starts the executable file specified in the installation file as the executable file to start after the extraction. For example: Setup.exe /w</td>
</tr>
</tbody>
</table>

Installing System Update or Update Retriever

Complete the following steps to install System Update or Update Retriever using a silent command:

1. Download Update Retriever to the administrator computer from the following Lenovo Web site:


2. Download System Update for the client system from the following Lenovo Web site:


3. Install System Update or Update Retriever silently by entering the following command for each program at the command prompt:

   ```
   setup.exe -s -a /s /v" /qn" /L1033
   ```

   The following example provides the install command with a pipe symbol that represents each space in the command. For each pipe symbol, replace with a space:

   ```
   setup.exe │-s │-a │/s │/v" │/qn" │/L1033
   ```

   L1033 is the language code for English. For information about using other language codes, see "System Update languages" on page 6.

   **Note:** After you install System Update or Update Retriever, restart your system to set the Scheduler function for either program. If you are not using the Scheduler function of System Update, or Update Retriever, a restart is not needed.

Uninstall

System Update and Update Retriever are uninstalled using Microsoft Windows Add/Remove programs. When the uninstall is complete, all program files and settings are deleted.

You can use the command line to uninstall System Update and Update Retriever. The following commands for each application are used for a silent uninstall.
The uninstall command for System Update is:
`MsiExec.exe /X{8675339C-128C-44DD-83BF-0A5D6ABD8297} /qn`

The uninstall command for Update Retriever is:
`MsiExec.exe /X{F25C538D-3F57-4AF4-80DD-B1D01558F038} /qn`

**Silent uninstall for Windows Vista**

To silently uninstall System Update that has been installed on the Windows Vista operating system, complete the following steps:

1. From the desktop main menu, click **Start** and then navigate to the Control Panel.
2. Click **User Accounts**.
3. Click **Turn User Account Control on or off**.
4. On the Windows permission dialog box, click **Continue**.
5. Remove the check mark from the check box for **Use User Account Control (UAC) to help protect your computer**, and then click **OK**.
6. Reboot your system.
7. From command prompt, type `MsiExec.exe /X{8675339C-128C-44DD-83BF-0A5D6ABD8297} /qn` and then press **Enter**.
Chapter 3. Configurations

This chapter provides you with conceptual information and procedures to configure connectivity settings, repository locations and the user interface.

Connection configurations

System Update and Update Retriever support three types of connectivity configuration: direct connection, static proxy connection, and auto-configuration script.

- **Direct connection**
  This type of configuration is used when no proxy is required to connect to the Internet. It means the application can connect directly to the Lenovo Help Center servers.

- **Static proxy connection**
  System Update and Update Retriever support two types of proxies, HTTP proxy and SOCKS proxy.
  - **Connection through HTTP proxy**
    In this type of configuration, System Update and Update Retriever connect to an HTTP proxy server to access the Internet. The proxy server connects to the Lenovo Help Center.
    
    **Note:** HTTP basic and NTLM authentications are supported.
    
    The following elements are obtained from the system configuration:
    - Proxy server name or IP address
    - Proxy server port
    The proxy server might require each client to authenticate before it can be granted access to the Internet. In that case, the end user must additionally provide a user name and password. The user name and password values can be set for the end user by the administrator.
    The HTTP proxy Authenticator uses the Login dialog whenever the HTTP and proxy Authenticator needs the end user to provide a user name and password in order to connect successfully to the Proxy server. SOCKS authentication is not supported.

  - **Connection through a SOCKS proxy**
    In this type of configuration, System Update and Update Retriever connect to a SOCKS server and then the SOCKS server connects to the Lenovo Help Center.
    The following elements must be configured:
    - Server name or IP address
    - Server port
    
    **Note:** Only SOCKS 4 without authentication is supported.
Configuring System Update

Configurations for System Update can be done through the registry, Active Directory®, or the start.reg file. If you are configuring just one system, you can use the registry to configure System Update. If you are configuring multiple systems, you can use Active Directory to configure policies for System Update. If your enterprise does not use Active Directory, Lenovo provides the start.reg file that you can configure and then deploy to multiple systems. For additional information about each configuration method, see the following sections:

- "Configuring System Update with the registry"
- "Configuring System Update with Active Directory" on page 28
- "Configuring System Update with start.reg" on page 35

Configuring System Update with the registry

To edit registry configurations, close the System Update application. If System Update is running while changes are made in the registry, the old registry entries will be recovered. After the first launch of System Update, the configurable items for System Update that can be modified are in the following registry locations:

Table 5. Registry locations

<table>
<thead>
<tr>
<th>Setting</th>
<th>Registry location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disable the System Update billboard, see “UC Settings configurable items” on page 15.</td>
<td>HKLM\SOFTWARE\Lenovo\System Update\Preferences\UCSettings\General</td>
</tr>
<tr>
<td>Disable registration on billboard</td>
<td>HKLM\Software\Lenovo\Registration\RegStatus</td>
</tr>
<tr>
<td>Disable System Updates user interface, see “UC Settings configurable items” on page 15.</td>
<td>HKLM\SOFTWARE\Lenovo\System Update\Preferences\UCSettings\General</td>
</tr>
<tr>
<td>RetryLimit for HTTPSHelloSettings, see “UC Settings\HTTPSHelloSettings configurable items” on page 16.</td>
<td>HKLM\SOFTWARE\Lenovo\System Update\Preferences\UCSettings\HTTPSHelloSettings</td>
</tr>
<tr>
<td>RetryWaitTime for HTTPSHelloSettings, see “UC Settings\HTTPSHelloSettings configurable items” on page 16.</td>
<td>HKLM\SOFTWARE\Lenovo\System Update\Preferences\UCSettings\HTTPSHelloSettings</td>
</tr>
<tr>
<td>Disable System Update Web upgrade (Update Thyself), see “UC Settings\HTTPSHelloSettings configurable items” on page 16.</td>
<td>HKLM\SOFTWARE\Lenovo\System Update\Preferences\UCSettings\HTTPSHelloSettings</td>
</tr>
<tr>
<td>RetryLimit for HTTPSPackageSettings, see “UC Settings\HTTPSPackageSettings configurable items” on page 17.</td>
<td>HKLM\SOFTWARE\Lenovo\System Update\Preferences\UCSettings\HTTPSPackageSettings</td>
</tr>
<tr>
<td>RetryWaitTime for HTTPSPackageSettings, see “UC Settings\HTTPSPackageSettings configurable items” on page 17.</td>
<td>HKLM\SOFTWARE\Lenovo\System Update\Preferences\UCSettings\HTTPSPackageSettings</td>
</tr>
<tr>
<td>Proxy server connection, see “Proxy server configurations” on page 18.</td>
<td>HKLM\Software\Lenovo\System Update\Preferences\UserSettings\Connection</td>
</tr>
<tr>
<td>DebugEnable, see “User Settings\General configurations” on page 18.</td>
<td>HKLM\SOFTWARE\Lenovo\System Update\Preferences\UserSettings\General</td>
</tr>
<tr>
<td>DisplayInformationScreen, see “User Settings\General configurations” on page 18.</td>
<td>HKLM\SOFTWARE\Lenovo\System Update\Preferences\UserSettings\General</td>
</tr>
</tbody>
</table>
Table 5. Registry locations (continued)

<table>
<thead>
<tr>
<th>Setting</th>
<th>Registry location</th>
</tr>
</thead>
<tbody>
<tr>
<td>DisplayLicenseNotice, see “User Settings\General configurations” on page 18</td>
<td>HKLM\SOFTWARE\Lenovo\System Update\Preferences\UserSettings\General</td>
</tr>
<tr>
<td>DisplayLicenseNoticeSU, see “User Settings\General configurations” on page 18</td>
<td>HKLM\SOFTWARE\Lenovo\System Update\Preferences\UserSettings\General</td>
</tr>
<tr>
<td>ExtrasTab, see “User Settings\General configurations” on page 18</td>
<td>HKLM\SOFTWARE\Lenovo\System Update\Preferences\UserSettings\General</td>
</tr>
<tr>
<td>IgnoreLocalLicense, see “User Settings\General configurations” on page 18</td>
<td>HKLM\SOFTWARE\Lenovo\System Update\Preferences\UserSettings\General</td>
</tr>
<tr>
<td>IgnoreRMLicCRCSize, see “User Settings\General configurations” on page 18</td>
<td>HKLM\SOFTWARE\Lenovo\System Update\Preferences\UserSettings\General</td>
</tr>
<tr>
<td>NotifyInterval, see “User Settings\General configurations” on page 18</td>
<td>HKLM\SOFTWARE\Lenovo\System Update\Preferences\UserSettings\General</td>
</tr>
<tr>
<td>RepositoryLocation1, see “User Settings\General configurations” on page 18</td>
<td>HKLM\SOFTWARE\Lenovo\System Update\Preferences\UserSettings\General</td>
</tr>
<tr>
<td>UNCMaxAttempts, see “User Settings\General configurations” on page 18</td>
<td>HKLM\SOFTWARE\Lenovo\System Update\Preferences\UserSettings\General</td>
</tr>
<tr>
<td>Scheduler Frequency, see “User Settings\Scheduler” on page 22</td>
<td>HKLM\SOFTWARE\Lenovo\System Update\Preferences\UserSettings\Scheduler</td>
</tr>
<tr>
<td>Scheduler Notify Options, see “User Settings\Scheduler” on page 22</td>
<td>HKLM\SOFTWARE\Lenovo\System Update\Preferences\UserSettings\Scheduler</td>
</tr>
<tr>
<td>Scheduler RunAt, see “User Settings\Scheduler” on page 22</td>
<td>HKLM\SOFTWARE\Lenovo\System Update\Preferences\UserSettings\Scheduler</td>
</tr>
<tr>
<td>Scheduler RunOn, see “User Settings\Scheduler” on page 22</td>
<td>HKLM\SOFTWARE\Lenovo\System Update\Preferences\UserSettings\Scheduler</td>
</tr>
<tr>
<td>SchedulerAbility, see “User Settings\Scheduler” on page 22</td>
<td>HKLM\SOFTWARE\Lenovo\System Update\Preferences\UserSettings\Scheduler</td>
</tr>
<tr>
<td>SchedulerLock, see “User Settings\Scheduler” on page 22</td>
<td>HKLM\SOFTWARE\Lenovo\System Update\Preferences\UserSettings\Scheduler</td>
</tr>
<tr>
<td>SearchMode, see “User Settings\Scheduler” on page 22</td>
<td>HKLM\SOFTWARE\Lenovo\System Update\Preferences\UserSettings\Scheduler</td>
</tr>
</tbody>
</table>

**Attention:** To edit registry configurations, close the System Update application. If System Update is running while changes are made in the registry, the old registry entries will be recovered.

**UC Settings configurable items**
The following table and example provides the settings and values for the general configurable items of the UC Settings key:
### Table 6. UC Settings\General

<table>
<thead>
<tr>
<th>Configurable item</th>
<th>Description</th>
<th>Value</th>
<th>Action</th>
</tr>
</thead>
</table>
| Billboard\LiveFeed | You can use this setting to disable the live feed to the System Update billboard. | Default: Lenovo Live Feed | • Default - Displays the live feed image on the System Update user interface.  
• Blank - Displays the default billboard image on the System Update user interface. |
| General\Disable | Disables the System Update user interface. Use this setting when you want to configure System Update using the Command Prompt. | Default value: NO | • If YES, the System Update user interface will not display.  
• If NO, the System Update user interface will not be disabled. |

### Example:
```
\GENERAL
\LiveFeed = Blank
\Disable = NO
```

### UC Settings\HTTPSHelloSettings configurable items

The following table and example provides the settings and values for the HTTPSHelloSettings for the UC Settings key:

### Table 7. UC Settings\HTTPSHelloSettings

<table>
<thead>
<tr>
<th>Configurable item</th>
<th>Description</th>
<th>Value</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>RetryLimit</td>
<td>Maximum number of times that System Update will try to connect to the Lenovo Help Center Web site.</td>
<td>Default value: 0</td>
<td>System Update will stop trying to connect to the Lenovo Help Center Web site after the connection attempts reach the maximum number of tries entered in this value.</td>
</tr>
<tr>
<td>Possible values:</td>
<td>Any valid integer</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RetryWaitTime</td>
<td>Maximum time before System Update tries to connect to the Lenovo Help Center Web site after the previous attempt fails.</td>
<td>Default value: 0</td>
<td>System Update will wait the number of seconds specified in this value when attempting to connect to the Lenovo Help Center Web site after the previous attempt fails.</td>
</tr>
<tr>
<td>Possible values:</td>
<td>Any valid integer</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 7. \UC Settings\HTTPSHelloSettings (continued)

<table>
<thead>
<tr>
<th>Configurable item</th>
<th>Description</th>
<th>Value</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>ServerName</td>
<td>This setting will disable the System Update application upgrade function (Update Thyself).</td>
<td>The default value is pre-configured to connect to the Lenovo Help Center Web site.</td>
<td>System Update checks the Lenovo Help Center Web site for updates for itself, even if it is connecting to a local system or network share repository. You can disable the Web upgrade for System Update by clearing this value. Possible values: Server name or empty</td>
</tr>
</tbody>
</table>

Example:
```
\HTTPSHelloSettings
\RetryLimit = 2
\RetryWaitTime = 2
\ServerName = https://
```

**Note:** When System Update connects to the Lenovo Help Center Web site, it communicates with different servers. The RetryLimit and RetryWaitTime for the HTTPSHelloSettings are values that control the connection between System Update and the server it downloads update packages from.

**UC Settings\HTTPSPackageSettings configurable items**

The following table and example provides the settings and values for the HTTPSPackageSettings for the UC Settings key:

Table 8. \UC Settings\HTTPSPackageSettings

<table>
<thead>
<tr>
<th>Configurable item</th>
<th>Description</th>
<th>Value</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>RetryLimit</td>
<td>Maximum number of times that System Update will try to connect to the Lenovo Help Center Web site.</td>
<td>Default value: 0</td>
<td>System Update will stop trying to connect to the Lenovo Help Center Web site after the connection attempts reach the maximum number of tries entered in this value. Possible values: Any valid integer</td>
</tr>
<tr>
<td>RetryWaitTime</td>
<td>Maximum time before System Update tries to connect to the Lenovo Help Center Web site after the previous attempt fails.</td>
<td>Default value: 0</td>
<td>System Update will wait the number of seconds specified in this value when attempting to connect to the Lenovo Help Center Web site after the previous attempt fails. Possible values: Any valid integer</td>
</tr>
</tbody>
</table>

Example:
```
\HTTPSHelloSettings
\RetryLimit = 2
\RetryWaitTime = 2
```
**Note:** The RetryLimit and RetryWaitTime for the HTTPSPackageSettings are values that control the connection between System Update and the server used to search for update packages.

**Proxy server configurations**

The following table and example provides the configurable items for the proxy server connections:

*Table 9. User Settings|Connection*

<table>
<thead>
<tr>
<th>Configurable Item</th>
<th>Description</th>
<th>Value</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>User</td>
<td>The user name to use for the connection.</td>
<td>Default value: None Possible values: Any string</td>
<td>This value will be used only for connection type proxy.</td>
</tr>
<tr>
<td>Password</td>
<td>The password to use for the connection.</td>
<td>Default value: None Possible values: Any string</td>
<td>This element is used only for a connection type of Proxy (HTTP proxy) when the proxy server requires authentication. System Update will connect to the HTTP proxy server defined in the server element above using the user name defined in the User element. The end user is prompted for this information when the information is needed.</td>
</tr>
</tbody>
</table>

Example:
```
\Connection\User = Billiek
\Password = ************
```

**User Settings|General configurations**

The following table and example provides the settings and values for the general user settings configurable items:
<table>
<thead>
<tr>
<th>Configurable item</th>
<th>Description</th>
<th>Value</th>
<th>Action</th>
</tr>
</thead>
</table>
| **ContentMode**   | Specifies which update packages System Update will search for. | Default value: Active | - If Active, System Update will search the Update Retriever repository for the update packages in active status.  
- If Test, System Update will search the Update Retriever repository for the update packages in test status. |
|                   |             |       | Note: If there is no database.xml file in the Update Retriever repository folder, System Update will ignore the value of ContentMode and search for all the update packages. |
| **DebugEnable**   | This setting is used to log process results. | Default value: NO | - If YES, then System Update will log process results to a file named Applicability RulesTrace.txt.  
- If NO, then System Update will not log process results. |
| **DisplayInformationScreen** | Enables you to skip the User Information panel of System Update. | Default value: YES | - If YES, then the User Information panel will be displayed.  
- If NO, then the User Information panel will not be displayed. |
| **DisplayLicenseNotice** | Enables you to skip the license notice that is displayed before the update packages pick list is populated. | Default value: YES | - If YES, then the license notice screen will be displayed prior to the update packages pick list.  
- If NO, then the license notice screen will not be displayed. |
Table 10. User Settings\General (continued)

<table>
<thead>
<tr>
<th>Configurable item</th>
<th>Description</th>
<th>Value</th>
<th>Action</th>
</tr>
</thead>
</table>
| DisplayLicenseNoticeSU                  | Enables you to skip the license notice that is displayed on the Schedule Updates panel of System Update. | Default value: YES | • If YES, then the license notice will be displayed prior to saving the changes on the Schedule Updates panel.  
  • If NO, then the license notice will not be displayed and the changes will be saved directly to the Windows Registry sub-key. |
|                                        |                                                                             | Possible values: |                                                                      |
|                                        |                                                                             | • YES            |                                                                      |
|                                        |                                                                             | • NO             |                                                                      |
| ExtrasTab                               | Will show or hide the Extras tab on System Update.                          | Default value: YES | • Set the value to YES to show the Extras tab.  
  • Set the value to NO to hide the Extras tab. |
|                                        |                                                                             | Possible values: |                                                                      |
|                                        |                                                                             | • YES            |                                                                      |
|                                        |                                                                             | • NO             |                                                                      |
| IgnoreLocalLicense                       | **Note:** By implementing this setting, you are accepting the End User License Agreement and the Terms and Conditions on behalf of the end user. Do not use this setting if you do not have the authority to accept the End User License Agreement and the Terms and Conditions on behalf of the end user. | Default value: NO | • Set the value to YES to hide the license dialog when a repository is used to store update packages.  
  • Set the value to NO to show the license dialog when a repository is used to store update packages.  
  • Set the value to YES to hide the license dialog when System Update is downloading and installing an update package located in a repository folder such as the network share repository.  
  • Set the value to NO to show the license dialog when System Update is downloading and installing an update package located in a repository folder such as the network share repository.  
  • Set the value to YES to hide the license dialog when a repository is used to store update packages.  
  • Set the value to NO to show the license dialog when a repository is used to store update packages. |
<p>|                                        |                                                                             | Possible values: |                                                                      |
|                                        |                                                                             | • YES            |                                                                      |
|                                        |                                                                             | • NO             |                                                                      |</p>
<table>
<thead>
<tr>
<th>Configurable item</th>
<th>Description</th>
<th>Value</th>
<th>Action</th>
</tr>
</thead>
</table>
| IgnoreRMLicCRCSize        | Use this setting to enable or disable the following functions when System Update downloads packages from the Lenovo Help Center Web site: | Default value: YES    | • Set the value to YES and System Update ignores these files and does not check for size or corruption.  
• Set the value to NO and System Update checks for file size and corruption.  
Note: System Update does not check file size and corruption of readme files and license agreement files when you download packages from a local repository even if you set this value to NO. |
|                           | • **CRC** - checks for file corruption of readme and license agreements files when you download packages from the Lenovo Help Center Web site. | Possible values:  
• YES  
• NO |                                                                                                                                  |
| NotifyInterval            | Sets the amount of time between restart notifications if you download and install packages that require a reboot. | Default value: 300 (seconds) | If this value is set at the default of 300 seconds, then you are prompted with a restart notification every 300 seconds when you begin to download and install a package that forces a reboot and defer the download and installation process. System Update will use the default value when invalid settings are used. For example, if you set the value to anything over 86,400 seconds (24 hours), System Update will use the default value of 300 seconds.  
Possible values:  
Between 60 seconds and 86,400 seconds |
Table 10. User Settings\General (continued)

<table>
<thead>
<tr>
<th>Configurable item</th>
<th>Description</th>
<th>Value</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>RepositoryLocation1</td>
<td>Use this setting to indicate the repository folder path. The key value name</td>
<td>Default value:</td>
<td>System Update will search for update packages in the folder specified in this value.</td>
</tr>
<tr>
<td></td>
<td>should be “Repository Location%N%”, where %N% is a number between</td>
<td>SUPPORTCENTER</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(include) 1 and 20.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Possible values:</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• SUPPORTCENTER</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• A folder path</td>
<td></td>
<td></td>
</tr>
<tr>
<td>UNCMaxAttempts</td>
<td>Use this setting to indicate the maximum number that of</td>
<td>Default value: 2</td>
<td>System Update will attempt the number of tries set in this value when connecting to a network share folder.</td>
</tr>
<tr>
<td></td>
<td>tries that System Update will attempt when connecting to a network share</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>folder before it fails.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Possible values: Any valid integer</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Example:
```
\GENERAL
\CheckLocalCRC = YES
\DebugEnable = NO
\DisplayInformationScreen = YES
\DisplayLicenseNotice = YES
\DisplayLicenseNoticeSU = YES
\ExtrasTab = NO
\IgnoreLocalLicense = NO
\IgnoreRMLicCRCSize = NO
\NotifyInterval = 300
\RepositoryLocation1 = SUPPORTCENTER
\UNCMaxAttempts = 2
```

**User Settings\Scheduler**

Using the scheduler function, you can configure System Update to search for update packages at designated intervals. To improve download speeds of packages from the Lenovo servers, change the **RunOn** setting to a day that fits the needs of your enterprise. Do this when you install System Update.

The default values and settings for the System Update scheduler are provided in the following table:
## Table 11. User Settings\Scheduler

<table>
<thead>
<tr>
<th>Configurable item</th>
<th>Description</th>
<th>Value</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>SchedulerAbility</td>
<td>The setting of this property value determines if the Scheduler is activated to automatically run or not.</td>
<td>Default value: YES</td>
<td>If YES, the Scheduler will run based on the settings. If NO, the Scheduler will not run.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Possible values: • YES • NO</td>
<td></td>
</tr>
<tr>
<td>SchedulerLock</td>
<td>The setting of this property determines if the Schedule Updates item is visible to you or not.</td>
<td>Default value: SHOW</td>
<td>If SHOW, the Schedule Updates option is available on the left navigation panel. If HIDE, the Schedule Updates option is not visible to the end user. If DISABLE, the Schedule Updates option on the left navigation panel is displayed grayed out (disabled). If LOCK, you can open the Scheduled Updates panel, but the settings are disabled and cannot be changed.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Possible values: • SHOW • HIDE • DISABLE • LOCK</td>
<td></td>
</tr>
<tr>
<td>SearchMode</td>
<td>The type of updates the scheduler will search for.</td>
<td>Default value: RECOMMENDED</td>
<td>When set to CRITICAL, the updates to search will only be CRITICAL. If it is set to RECOMMENDED, it will search the CRITICAL and RECOMMENDED updates. When set to ALL, the relevant updates will be retrieved.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Possible values: • CRITICAL • RECOMMENDED • ALL</td>
<td></td>
</tr>
<tr>
<td>NotifyOptions</td>
<td>You can choose the notification options you want to receive from the System Update scheduler.</td>
<td>Default value: NOTIFY</td>
<td>When the setting is DOWNLOADANDINSTALL, the scheduler will download and install the updates without end user intervention. When the setting is DOWNLOAD, the scheduler downloads the updates and notifies you when the updates are ready to install.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Possible values: • DOWNLOADANDINSTALL • DOWNLOAD • NOTIFY • DOWNLOADANDINSTALL -INCLUDEREBOOT</td>
<td></td>
</tr>
</tbody>
</table>
Table 11. User Settings|Scheduler (continued)

<table>
<thead>
<tr>
<th>Configurable item</th>
<th>Description</th>
<th>Value</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Note:</strong> If you use ‘Recommended’ in the search mode, ‘NOTIFY’ is the only option available. All other settings will stop the execution of System Update.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Frequency</strong></td>
<td>The interval in which the scheduler is set to run: Weekly or Monthly.</td>
<td>Default value: <strong>MONTHLY</strong></td>
<td>This setting along with the SchedulerRunEvery are used to set how often System Update must be run. If the value of this setting is “WEEKLY”, the interval will be calculated in weeks. If the value of this setting is “MONTHLY”, the interval will be calculated in months.</td>
</tr>
<tr>
<td><strong>Possible values:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• <strong>MONTHLY</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• <strong>WEEKLY</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>RunOn</strong></td>
<td>The specific day when the System Update scheduler must run.</td>
<td>Default value: 1</td>
<td>When the scheduled time has been reached, System Update runs on the specified day. When the frequency is Weekly, the possible values for this setting are: SUNDAY, MONDAY,... SATURDAY. When the frequency is Monthly, the possible values for this setting are from 1 to 28.</td>
</tr>
<tr>
<td><strong>Possible values:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 to 28</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>RunAt</strong></td>
<td>The specific time when the System Update scheduler must run. This value is specified in hourly intervals.</td>
<td>Default value: 11</td>
<td>When the scheduled time has been reached, System Update runs on the specified time.</td>
</tr>
<tr>
<td><strong>Possible values:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Any number from 0 to 23 (0 indicates 12AM and 23 indicates 11PM)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Example:
```
\SCHEDULER\SchedulerAbility = NO
\SchedulerLock = SHOW
\SearchMode = CRITICAL
\NotifyOptions = NOTIFY
\Frequency = WEEKLY
\RunOn = MONDAY
\RunAt = 12
```
Note: To edit registry configurations, close the System Update application. If System Update is running while changes are made in the registry, the old registry entries will be recovered.

Repository configurations
The default for System Update is to obtain update packages from the Lenovo Help Center Web site. You can change the setting to enable System Update to search and download update packages from a local system repository folder or a network share repository folder individually. You can also configure System Update to search multiple locations for packages from Lenovo Help Center Web site, a local system repository, and a network share repository folder.

Creating a local system repository: System Update has the capability to search for update packages that are stored locally on a client or administrator system, or external media.

Using %ANYDRV%: The %ANYDRV% variable can be used instead of specifying a drive letter when setting the repository path. To create a local system repository folder using %ANYDRV%, complete the following steps:
1. Create a new folder on a local hard disk drive to be used as the repository, for example:
   %ANYDRV%\SystemUpdate3_x\
2. Navigate to the following registry entry:
   HKLM\SOFTWARE\Lenovo\System Update\Preferences\UserSettings\General\RepositoryLocation1
3. Replace the default SUPPORTCENTER value with the file path of the repository that you created in Step 1, for example:
   %ANYDRV%\SystemUpdate3_x\

Using %XMEDIA%: The %XMEDIA% variable can be used to detect the repository location path on external media connected to the system such as a CD, DVD, USB storage device, hard disk drive, or diskettes. To create a local system repository folder using %XMEDIA% complete the following steps:
1. Create a new folder on a local hard disk drive to be used as the repository, for example:
   %XMEDIA%\SystemUpdate3_x\
2. Navigate to the following registry entry:
   HKLM\SOFTWARE\Lenovo\System Update\Preferences\UserSettings\General\RepositoryLocation1
3. Replace the default SUPPORTCENTER value with the file path of the repository that you created in Step 1, for example:
   %XMEDIA%\SystemUpdate3_x\

Creating a network share repository: To create a network share repository folder that will be used to store update packages on a network share, complete the following steps:
1. Create a new folder on a network share to be used as the repository.
2. Share the new repository folder using the UNC (Universal Naming Convention) path. The UNC path provides connectivity to all computers that have been mapped to the repository. The format for a UNC path is:
   \Server\Share\For example: \Server_X\TVSU_repository\
3. Set the access permissions of the new repository folder to read only access for end users. Administrator functions will require read and write access.

4. On client systems, navigate to the following registry entry:

```
HKLM\SOFTWARE\Lenovo\System Update\Preferences\UserSettings\General\RepositoryLocation1
```

The default for this registry entry is SUPPORTCENTER. This default setting enables System Update to search for update packages on the Lenovo Help Center Web site. When you change this setting to a network share repository that you have created on your network, client systems with System Update will be able to search for packages on your network. To change this setting, replace the SUPPORTCENTER value with your server and share name, for example:

```
\Server_X\TVSU_repository
```

**Note:** Distributed File System (DFS), a storage management solution, can be used when configuring the network share repository.

**Working with multiple repositories:** This multiple repository capability ensures that you are getting the latest version of an update package while offering greater flexibility of package storage. When using multiple repositories, System Update searches for update packages in the order of the repositories defined in the registry. System Update searches each repository location and retrieves the latest version of an update package. Packages on the Lenovo Help Center Web site will be the most current version. If a repository location is not found, System Update will search the next numerical repository location. For example, if you remove the folder that points to RepositoryLocation1, System Update will search RepositoryLocation2, and then RepositoryLocation3.

The following illustration shows the relationship between the Lenovo Help Center, a local system, a network share and System Update when using multiple repositories:

In this example, System Update will search the Lenovo Help Center Web site first, followed by the repository folder on the local system, and then the repository folder on the network share:
Creating and configuring multiple repositories with the registry: To create and configure multiple repository locations, complete the following steps:

1. Create a new folder on a local hard disk drive to be used as the repository, for example:
   %ANYDRV%\SystemUpdate3_x\  
2. Create a new folder on a network share to be used as the repository.
3. Share the new repository folder using the UNC path. The UNC path provides connectivity to all computers that have been mapped to the repository. The format for the System Update UNC path is:
   \Server\Share\  
   For example: \Server_X\TVSU_repository\  
4. Set the access permissions of the new repository folder to read only access for end users. Administrator functions will require read and write access.
5. Navigate to the following registry location:
   HKLM\SOFTWARE\Lenovo\System Update\Preferences\UserSettings\General\  
   \Note: There will be a default key for the RepositoryLocation1 entry.
6. From the Registry Editor main menu, click Edit and then click New.
7. Scroll down and click String Value and then type RepositoryLocation2.
8. Repeat step 4 and create another string value and then type RepositoryLocation3.
9. Double-click the RepositoryLocation2 string.
10. Type the file path for your local system repository, for example:
    %ANYDRV%\SystemUpdate3_x\  
11. Double-click the RepositoryLocation3 string.
12. Type the network share repository path of your server and share, for example:  
    \Server_X\TVSU_repository\  

   \Note: To edit registry configurations, close the System Update application. If System Update is running while changes are made in the registry, the old registry entries will be recovered.

   UNC: The user name and password used by System Update and Update Retriever to access a network shared should only be used by System Update and Update Retriever. If you map the repository location or log on to it using the same user name and password that is used by System Update or Update Retriever the MapDrv utility used to connect to the network share will not be able to access the network share repository. Should this occur, System Update and Update Retriever will fail in the attempt to access the network share repository.

For more information, see "Using the MapDrv utility" on page 81.

Version control for System Update
When new releases of System Update are available, System Update connects to the Lenovo Help Center Web site, detects and downloads the new version, and then installs that version. This process is done automatically, without user interaction, but can be disabled. For information on disabling the upgrade, see "UC Settings\HTTPSHelloSettings configurable items” on page 16.
If you want to control the version of System Update available to your users, you can use your network repository to store specific versions of System Update. Storing packages locally will enable the System Update application to search for upgrades within your network repository. This version control function is compatible with System Update 3.02 and future releases.

To configure the registry for System Update version control, complete the following steps:

1. Download SSClientCommon.zip from the following Lenovo Web site: 
2. Create a folder to be used as a repository that will store update packages. For example:
   \Server_X\TVSU_repository\ 
3. Extract the files from the SSClientCommon.zip file to your repository folder. For example:
   \Server_X\TVSU_repository\SSClientCommon\ 
4. Install System Update on the client system.

   Note: This version control function is compatible with System Update 3.02 and future releases.
5. On the client system, navigate the registry to the following location:
   HKLM\SOFTWARE\Lenovo\System Update\Preferences\UCSettings\HTTPSHelloSettings 
6. Double-click ServerName. 
7. In the Value Data field on the Edit String dialog box, replace the http server address with the UNC path of your repository. For example:
   \Server_X\TVSU_repository\ 
8. Click OK. 
9. On the client system, navigate the registry to the following location:
   HKLM\SOFTWARE\Lenovo\System Update\Preferences\UserSettings\General 
11. In the Value Data field on the Edit String dialog box, replace the http server address with the UNC path of your repository. For example:
    \Server_X\TVSU_repository\ 
12. Click OK.

**Configuring System Update with Active Directory**

Active Directory is a directory service. The directory is where information about end users and resources is stored. The directory service allows access so you can manipulate those resources. Active Directory provides a mechanism that gives administrators the ability to manage computers, groups, end users, domains, security policies, and any type of user-defined objects. The mechanism used by Active Directory to accomplish this is known as Group Policy. With Group Policy, administrators define settings that can be applied to computers or users in the domain.

The following examples are settings that Active Directory can manage for System Update:
- Scheduler settings
- Mapped Network Drive settings
**Administrative (ADM) template files**

The ADM (Administrative) template file defines policy settings used by applications on the client computers. Policies are specific settings that govern the application behavior. Policy settings also define whether the end user will be allowed to set specific settings through the application.

Settings defined by an administrator on the server are defined as policies. Settings defined by an end user on the client computer for an application are defined as preferences. As defined by Microsoft, policy settings take precedence over preferences. When System Update checks for a setting, it will look for the setting in the following order:

- Computer policies
- Computer preferences

As described previously, computer and user policies are defined by the administrator. These settings can be initialized through the start.reg file or through a Group Policy in Active Directory. Computer preferences are set by the end user on the client computer through options in the applications interface.

**Note:** If you are using an ADM file and Group Policy to set policy settings for System Update, ensure you are using the ADM file release specifically for each version. For example, if you are customizing policies for System Update 3.2, you must use the ADM file designed for System Update 3.2.

**Adding Administrative Templates (ADM file):** To add an ADM file into Group Policy, complete the following steps:

1. On your server, launch Active Directory.
2. Click on `servername.com` and then click **Properties**.
3. On the Group Policy tab, highlight the New Group Policy Object and click **Edit** button.

   **Note:** You can also run gpedit.msc and it will launch the Group Policy editor.

4. Under Computer Configuration, right click on **Administrative Templates**.
5. Press the **Add** button and then select the ADM file for System Update.
6. Press the **Close** button on the Add/Remove Templates dialog box.
7. Click the Administrative Templates tab under the Computer Configuration. A new tab named ThinkVantage is present. Under the ThinkVantage tab there will be a System Update tab. All the available settings can be configured now for this machine.

   **Note:** For Windows 2000, if User Configuration policies are not visible in Group Policy when you add a new ADM file, close Group Policy and then reopen Group Policy. For Windows XP and Windows Vista, if ThinkVantage policies for System Update are duplicated when you add a new ADM file, close Group Policy and then reopen Group Policy.

**Defining manageable settings:** The following example shows settings in the Group Policy editor using the following hierarchy:

- Computer Configuration>Administrative Templates>ThinkVantage>
- System Update>UserSettings>General>RepositoryLocation1

The ADM files indicate where in the registry the settings will be reflected. These settings will be in the following registry locations:

- `HKLM\Software\Lenovo\System Update`
**Group Policy settings**

The following tables provide policy settings for the Computer Configuration for System Update.

**User Settings:** This table provides policies for the user settings of System Update:

*Table 12. Computer Configuration>Administrative Templates>ThinkVantage[System Update>User Settings*

<table>
<thead>
<tr>
<th>Policy</th>
<th>Setting</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ContentMode</td>
<td>Active</td>
<td>System Update will search the Update Retriever repository for the update packages in active status.</td>
</tr>
<tr>
<td></td>
<td>Test</td>
<td>System Update will search the Update Retriever repository for the update packages in test status.</td>
</tr>
<tr>
<td>Connection</td>
<td>User</td>
<td>The user name to use for the connection.</td>
</tr>
<tr>
<td></td>
<td>Password</td>
<td>The password to use for the connection. It stores the encrypted password of proxy.</td>
</tr>
</tbody>
</table>
### Table 12. Computer Configuration>Administrative Templates>ThinkVantage[System Update>User Settings (continued)]

<table>
<thead>
<tr>
<th>Policy</th>
<th>Setting</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>General</strong></td>
<td><strong>Repository Location</strong></td>
<td>This setting determines where update packages will be downloaded and installed from. The default setting is SUPPORTCENTER and enable System Update to download updates from the Lenovo Help Center. You can also specify a repository path on a network shared drive, that when specified will enable System Update to search for update packages in the network share repository. For more information on setting up repositories, see <a href="#">Repository configurations</a> on page 25.</td>
</tr>
<tr>
<td><strong>UNC Max Attempts</strong></td>
<td></td>
<td>Maximum number of local repository authentication attempts allowed.</td>
</tr>
<tr>
<td><strong>DisplayLicenseNoticeSU</strong></td>
<td></td>
<td>Use this setting to skip the license notice that is displayed on the Schedule Updates panel. If the setting is YES, then the license notice is displayed prior to saving changes on the Schedule Updates panel of System Update. If the setting is NO, then the license notice will not be displayed.</td>
</tr>
<tr>
<td><strong>Ignore Local License</strong></td>
<td></td>
<td>• Set the value to NO to show the license dialog when a repository is used to store update packages.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Set the value data to YES to hide the license dialog when a repository is used to store update packages. If you obtain packages directly from the Lenovo Help Center and do not use a repository for update package storage, the IgnoreLocalLicense value is ignored and the license dialog will be displayed.</td>
</tr>
<tr>
<td><strong>IgnoreRMLicCRCSize</strong></td>
<td></td>
<td>Use this setting to enable or disable the following functions when System Update downloads packages from the Lenovo Help Center Web site:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• <strong>CRC</strong> - checks for file corruption of readme files and License agreements when you download packages from the Lenovo Help Center Web site.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• <strong>File size</strong> - checks for the file size of readme and license agreement files.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Set the value to YES and System Update ignores these files and does not check for size or corruption.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Set the value to NO and System Update checks for file size and corruption.</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Note</strong>: System Update does not check file size and corruption of readme files and license agreement files when you download packages from a local repository even if you set this value to NO.</td>
</tr>
<tr>
<td>Policy</td>
<td>Setting</td>
<td>Description</td>
</tr>
<tr>
<td>-----------------</td>
<td>-----------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>NotifyInterval</td>
<td></td>
<td>If this value is set at the default of 300 seconds, then you are prompted with a restart notification every 300 seconds when you begin to download and install a package that forces a reboot and defer the download and installation process. System Update uses the default value when invalid settings are used. For example, if you set the value to anything over 86,400 seconds (24 hours), System Update uses the default value of 300 seconds. You can change the time interval value from 60 seconds up to 86,400 seconds (24 hours).</td>
</tr>
</tbody>
</table>
| Scheduler       | Scheduler Ability     | Turns the System Update scheduler on or off:  
• YES sets System Update to run on the schedule specified.  
• NO sets System Update to not run on a schedule.                                                                                               |
|                | Scheduler Lock        | Determines whether the ‘Schedule updates’ option is available in the System Update user interface:  
• SHOW makes the item visible and active.  
• HIDE removes the item from the interface.  
• DISABLE makes the item visible, but disables it (the item is greyed-out).                                                        |
| Scheduled Mode  |                       | Determines the type of packages on which System Update takes action:  
• When this value is set to Monthly, System Update will search updates on the day of ‘Day Of The Month’.  
• When set to Weekly, System Update will search on the day of ‘Day Of The Week’.                                                                     |
| Day Of The Month|                       | Use this setting to set the day of the month for when System Update will search for new updates. Default: 1                                                                                     |
| Day Of The Week |                       | Use this setting to set the day of the week for when System Update will search for new updates. Default: Monday                                                                                       |
| Hour            |                       | Use this setting to set the time of day for when System Update will search for new updates. Valid values: 0 - 23. Default: 0 and represents midnight (12AM) while 23 represents 11PM.                                                  |
| TaskParameters  |                       | The parameters to pass to the command that is run for the scheduled System Update task. Default: '/CM -search R -action LIST -scheduler' For more information on command line parameters, see Appendix A, “Command line parameters,” on page 71. |
### Table 12. Computer Configuration>Administrative Templates>ThinkVantage>System Update>User Settings (continued)

<table>
<thead>
<tr>
<th>Policy</th>
<th>Setting</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mapped Network Drive</td>
<td>UNC</td>
<td>UNC location for the mapped network drive (format \server\share). Default: none</td>
</tr>
<tr>
<td></td>
<td>User</td>
<td>Use the mapdrv.exe /view command to create an encrypted value for this field. Default: none.</td>
</tr>
<tr>
<td></td>
<td>Password</td>
<td>Use mapdrv.exe /view command to create an encrypted value for this field. Default: none.</td>
</tr>
</tbody>
</table>

**UCSettings:** This table provides the settings for the General policy of System Update.

### Table 13. Computer Configuration>Administrative Templates>ThinkVantage>System Update>UCSettings>General

<table>
<thead>
<tr>
<th>Policy</th>
<th>Setting</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>General</td>
<td>Billboard\LiveFeed</td>
<td>System Update checks the Live Feed to get the billboard setting. You can remove the billboard function from System Update by clearing this value.</td>
</tr>
<tr>
<td>General</td>
<td>Disable</td>
<td>This flag is used to determine if System Update should ignore requests for System Update to be run. If this flag is NO, System Update will run normally. If it is YES, System Update will not run.</td>
</tr>
<tr>
<td>General</td>
<td>Extras Tab</td>
<td>The Extras Tab enables you to easily find the right software, hardware, and solutions to help you keep your system up-to-date and performing to its fullest capacity. System Update analyzes your system and then recommends solutions that can be used to enhance your system. When enabled, YES is default value and will enable you to see the extra tab. You can disable the Extras Tab by changing the value to NO.</td>
</tr>
</tbody>
</table>

This table provides the policy setting for the Update Thyself function of System Update.

### Table 14. Computer Configuration>Administrative Templates>ThinkVantage>System Update>UCSettings>HTTPSHelloSettings

<table>
<thead>
<tr>
<th>Policy</th>
<th>Setting</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>HTTPSHelloSettings</td>
<td>Update Thyself</td>
<td>System Update checks the Lenovo Help Center Web site for updates for itself, even if it is connecting to a network share repository. You can remove the Update Thyself function from System Update by clearing this value.</td>
</tr>
</tbody>
</table>

**Note:** To make the policy settings take effect immediately after you configure the settings for the ADM file, complete the following steps:

1. From the Windows **Start** menu, click **Run**.
2. Type `gpedit.msc /force` and then click **OK**.
Managing network share repositories with Active Directory®

This section provides a description of the policy settings for the network share repository. Setting these policies will prompt an end user for a user name and password when the System Update end user interface is launched or when a scheduled update occurs. When an end user authenticates into a domain and has appropriate rights to access the network share repository, then no prompt for the user name and password is displayed on the System Update end user interface.

Complete the following steps to set the policies for the network share repository:

Active Directory enables you to edit policy settings with the Group Policy editor. To customize the settings for network share repository folder, add the Administrative Template (ADM file) for System Update into the Group Policy editor.

Complete the following steps to add the ADM file and to customize the settings:


   **Note:** If you are using an ADM file and Group Policy to set policy settings for System Update, ensure you are using the ADM file released specifically for each version. For example, if you are customizing policies for System Update 3.1, you must use the ADM file designed for System Update 3.1.

2. On your server, launch Active Directory.

3. Click on servername.com and then click Properties.

4. On the Group Policy tab, highlight the New Group Policy Object and click Edit button.

   **Note:** You can also run gpedit.msc and it will launch the Group Policy editor.

5. Right click Administrative Templates.

6. Select Add/Remove Templates.

7. Press the Add button and then select the tvsu.adm file.

8. Press the Close button on the Add/Remove Template dialog box. The ThinkVantage tab is created.

   **Note:** Under the ThinkVantage tab there is a System Update tab. If you do not see the applicable policy, ensure your Group Policy editor is set to display all policy settings.

9. Navigate the Group Policy editor to the following location:
   Computer Configuration\Administrative Templates\ThinkVantage \System Update\User Settings\General\Repository Location

10. Double-click Repository Location.

11. In the Local Repository Location 1 field, change the value from SUPPORTCENTER to your network repository share, for example: \

12. Click Apply.

   **Note:** To push policy settings immediately after you configure the settings for the ADM file, complete the following steps:
   a. From the Windows Start menu, click Run.
   b. Type gpedit.msc /force and then click OK.
Setting policies for multiple repositories: Use the following example to set the policies in Group Policy when using multiple repositories:
1. After adding the Administrative Template for System Update, navigate Group Policy Object Editor to the following location:
   Computer Configuration\Administrative Templates\ThinkVantage\System Update\User Settings\General\Repository Location
2. Double-click Repository Location.
3. In the Local Repository 2 field, type the file path for your local system repository, for example:
   %ANYDRV%\SystemUpdate3_x\n
4. In the Local Repository 3 field, type the network share repository path of your server and share, for example:
   \Server_X\TVSU_repository\n
5. Click Apply.

System Update version control using Active Directory
If you want to control the version of System Update available to your users, you can use your network repository to store specific versions of System Update. Storing packages locally will enable the System Update application to search for upgrades within your network repository. To configure Active Directory for System Update version control, complete the following steps:
1. Download SSClientCommon.zip from the following Lenovo Web site:
2. Extract the SSClientCommon.zip file to your repository folder.
3. After adding the Administrative Template for System Update, navigate the Group Policy Object Editor to the following location:
   Computer Configuration\Administrative Templates\ThinkVantage\System Update\UCSettings\HTTPSHelloSettings
4. Double-click Update Thyself.
5. Click Enabled.
6. In the Update Thyself text box, type the UNC path of your repository. For example:
   \Server_X\TVSU_repository\n
   Note: If your repository folder requires authentication, set the polices for the Mapped Network Drive. For information about Mapped Network Drive policies, see “Group Policy settings” on page 30.
7. Click OK.
8. Deploy these settings to client systems.

Note: System Update version control is compatible with System Update 3.02 and future releases.

Configuring System Update with start.reg
Configurable items will initially be set when System Update starts. The start.reg file is used to update the Windows registry and is located in the folder where System Update was installed. The registry fields are initially set based on the contents of the start.reg file. The installed start.reg file has the default configuration used by System Update.
For organizations that do not have Active Directory, System Update can be configured through the registry using the start.reg file. Complete the following steps to change the repository locations in the registry:

1. Download the full version of System Update and the start.reg file from the following Lenovo Web site:
   

2. Update `RepositoryLocation1` in the start.reg file. If you are not using a network repository, the default is `SUPPORTCENTER` for the `RepositoryLocation1` setting. The following example shows the default settings:

   ```
   [HKEY_LOCAL_MACHINE\SOFTWARE\Lenovo\System Update\Preferences\UserSettings\General]
   "DisplayInformationScreen"="YES"
   "DisplayLicenseNotice"="YES"
   "DisplayLicenseNoticeSU"="YES"
   "AskBeforeClosing"="YES"
   "UNCMaxAttempts"="2"
   "DebugEnable"="NO"
   "ExtrasTab"="YES"
   "IgnoreLocalLicense"="NO"
   "RepositoryLocation1"="SUPPORTCENTER"
   "IgnoreRMLicCRCSize"="YES"
   "NotifyInterval"="300"
   
   [HKEY_LOCAL_MACHINE\SOFTWARE\Lenovo\System Update\Preferences\UserSettings\Scheduler]
   "SchedulerAbility"="YES"
   "SchedulerLock"="SHOW"
   "NotifyOptions"="NOTIFY"
   "SearchMode"="RECOMMENDED"
   "Frequency"="MONTHLY"
   "RunOn"="1"
   "RunAt"="11"
   ```

   For a network repository configuration, change the `RepositoryLocation1` value to the path to your repository. The following example shows a network repository configuration:

   ```
   [HKEY_LOCAL_MACHINE\SOFTWARE\Lenovo\System Update\Preferences\UserSettings\General]
   "DisplayInformationScreen"="YES"
   "DisplayLicenseNotice"="YES"
   "DisplayLicenseNoticeSU"="YES"
   "AskBeforeClosing"="YES"
   "UNCMaxAttempts"="2"
   "ContentMode"="Active"
   "DebugEnable"="NO"
   "ExtrasTab"="YES"
   "IgnoreLocalLicense"="NO"
   "RepositoryLocation1"="\\Server_X\TVSU_repository\"
   "IgnoreRMLicCRCSize"="YES"
   "NotifyInterval"="300"
   ```

   **Note:** To set the network share repository directory in the registry using the start.reg file, backslash \\ characters in the directory’s path should be preceded by another backslash.

   For example:

   ```
   "\\\\Server_X\\TVSU_repository\" instead of "\\Server_X\\TVSU_repository\"
   ```
Attention: The start.reg file will be deleted after the first execution of System Update. To make the start.reg settings the default settings that are restored in the event the registry settings ever get corrupted, rename the start.reg file to default.reg and save it into the following path:

c:\Program Files\Lenovo\System Update\default

Configuring multiple repository locations using the start.reg file

The following example provides the start.reg file configuration when using multiple repositories:

[HKEY_LOCAL_MACHINE\SOFTWARE\Lenovo\System Update \Preferences\UserSettings\General]
"DisplayInformationScreen"="YES"
"DisplayLicenseNotice"="YES"
"DisplayLicenseNoticeSU"="YES"
"AskBeforeClosing"="YES"
"UNCMaxAttempts"="2"
"DebugEnable"="NO"
"ExtrasTab"="YES"
"IgnoreLocalLicense"="NO"
"RepositoryLocation1"="SUPPORTCENTER"
"RepositoryLocation2"="%ANYDRV%\SystemUpdate3_x\"
"RepositoryLocation3"="\\Server_X\TVSU_repository\"
"IgnoreRMLicCRCSize"="YES"
"NotifyInterval"="300"

System Update version control with start.reg

If you want to control the version of System Update available to your users, you can use your network repository to store specific versions of System Update. Storing packages locally will enable the System Update application to search for upgrades within your network repository. System Update version control is compatible with System Update 3.02 and future releases. To configure the start.reg file for System Update version control, complete the following steps:

2. Create a folder to be used as a repository that will store update packages.
   
   Note: Set the access permissions of the new repository folder to read only access for end users. Administrator functions will require read and write access.

3. Extract the SSClientCommon.zip file to your repository folder.
4. Run the Administrator Tools package. When you run the Administrator Tools package, the start.reg file will be placed in the following directory path:
   C:\SWTOOLS\TOOLS\Z703_Admin003
5. Edit the "ServerName" string in the start.reg file by replacing the existing http server name with the path of your repository folder. The following example shows the default settings:

```
[HKEY_LOCAL_MACHINE\SOFTWARE\Lenovo\System Update \Preferences\UCSettings\HTTPSHelloSettings]
"RetryLimit"="0"
"RetryWaitTime"="0"
"ServerName"="https://download.boulder.ibm.com/ibmdl/pub/pc/pccbbs/agent/
"BlockSize"="4096"
"Domains"=hex(7):2e,00,6c,00,65,00,6e,00,6f,00,76,00,6f,00,2e,00,63,00,6f,00,6d,00,00,00,00,00,6f,00, 6d,00,00,00,2e,00,69,00,62,00,6d,00,2e,00,63,00,6f,00,6d,00,00,00,00,00,6f,00,6d,00,00,00,00,00
```

The following example shows the "ServerName" setting that has been changed to a repository path:
[HKEY_LOCAL_MACHINE\SOFTWARE\Lenovo\System Update
\Preferences\UCSettings\HTTPSHelloSettings]
"RetryLimit"="0"
"RetryWaitTime"="0"
"ServerName"="\\Server_X\TVSU_repository""
"BlockSize"="4096"
"Domains"=hex(7):2e,00,6c,00,65,00,6e,00,6f,00,76,00,6f,00,2e,00,63,00,6f,00,6d,00,00,6f,00,6d,00,00,6e,00,6f,00,2e,00,63,00,6f,00,6d,00,00,00,00,00

Note: To set your repository path in the registry using the start.reg file, backslash \ characters in the directory's path should be preceded by another backslash.
For example:
\\Server_X\TVSU_repository\  instead of  Server_X\TVSU_repository\  

Attention: The start.reg file will be deleted after the first execution of System Update. To make the start.reg settings the default settings that are restored in the event the registry settings ever get corrupted, rename the start.reg file to default.reg and save it into the following path:
c:\Program Files\Lenovo\System Update\default

If you have finished customizing the start.reg file, deploy this registry file to client systems using external media such as a memory key or CD.

System Update billboard and the start.reg file
If you are using the start.reg file to deploy configurations, you can use the following setting to disable the live feed for the System Update billboard:
[HKEY_LOCAL_MACHINE\SOFTWARE\Lenovo\System Update\Preferences\UCSettings\Billboard]
"LiveFeed"="Blank"

When the LiveFeed setting is Blank, the default billboard image will display on the user interface.

Attention: The start.reg file will be deleted after the first execution of System Update. To make the start.reg settings the default settings that are restored in the event the registry settings ever get corrupted, rename the start.reg file to default.reg and save it into the following path:
c:\Program Files\Lenovo\System Update\default
Chapter 4. Working with System Update

This chapter provides information on working with update packages, using the System Update program, and the Web upgrade for System Update.

About System Update

When you search for updates using System Update, the request goes to a repository or the Lenovo Help Center (depending on how System Update is configured). In response, System Update provides a list of new candidate updates. System Update then checks to determine which of the candidate updates are applicable to the hardware and software on your computer and displays a list of applicable updates. System Update will also display packages in order of severity that are related to other packages. Once you select updates of interest, System Update downloads the updates from the repository or from the Lenovo Help Center, and then provides an installation method. If two or more packages are related, System Update downloads and installs all packages.

Designed to help you keep your system up-to-date, System Update provides the following functions:

- Get new updates
- Install deferred updates
- Schedule updates

Extras tab

As a feature of the System Update program, the Extras tab enables you to easily identify the applicable software, hardware, and solution offerings to help you keep your entire system performing to its fullest capacity.

System Update analyzes your system, and then recommends solutions that can be used to enhance your system. Examples of what the Extras tab may recommend:

- Memory upgrades
- Printer recommendations
- Warranty recommendations

System Update billboard

On various panels of the System Update user interface is a live feed billboard image provided by Lenovo for customer registration. If you click on this image, the registration process will begin. If you register, you will receive important information about your system from Lenovo. You can turn this live feed off by clearing the value in the registry. For more information on configuring this setting with the registry, the ADM file, or the start.reg file, see Chapter 3, “Configurations,” on page 13.

Note: The registration function is available to users in United States only.
Working with update packages

An update package is made by bundling several files together. Updates packages consist of a self-extracting installer program, an XML Descriptor file that defines the update, and one or more NLS translated readme files. An update may also optionally include one or more NLS translated license files and one or more external detection files. Applicable update packages must match the triplet on the client system. Triplets are the combination of the machine type, operating system, and language.

Note: If you have multiple machine type/model numbers selected on the Update Retriever main window, all packages common to the multiple systems that you select on the Applicable Updates window will result in a check mark next to each system. Clearing the check box for one system will clear the check boxes for all of the systems.

Downloading and installing updates

The following list provides the three different methods you can use to download and install update packages:

- Lenovo Help Center Web site
- Locally on a client system
- Network shared drive

The following sections define each method in detail, so that you can provide the best configuration for your organization.

Using the Lenovo Help Center Web site

You can manually initiate a check for new updates using System Update. System Update notifies you that the following information is communicated to determine the applicable update packages for your system:

- Machine type
- Operating system
- Language

System Update will then provide a selectable list of updates. You will have the option to defer updates, so you can download the update package but install it at a later time, or you can download and install the update packages immediately. Once you select the updates to download and confirm the selections, the updates are downloaded and installed your system.

Using a repository on a client system

You can set up your computer to store update packages locally. Do this by creating a folder on your computer to be used as the repository, and then change the repository path in the registry that points to that repository on your local computer.

Using a repository on a network share

You can download and install new updates from a repository that resides on a network share. System Update will retrieve the end user credentials (user name and password) needed for authentication from the application properties as encrypted strings. If a user name and password does not exist, System Update will still attempt to connect to the network share but will prompt the user to provide a user name and password.
Note: The user name and password properties can be managed by Active Directory. Since the user name and password must be encrypted when used as an application property, an administrator can use a Lenovo supplied utility called MapDrv to generate encrypted strings for the user name and password using a software key. For additional information about the MapDrv utility, see “Map Drive utility” on page 80.

The following keys are used to store the user name and password:

HKLM\Software\Lenovo\MND\TVSUAPPLICATION\UNC=<network share>

HKLM\Software\Policies\Lenovo\MND\TVSUAPPLICATION\UNC=<network share>

HKLM\Software\Lenovo\MND\TVSUAPPLICATION\Pwd=<encrypted password>

If an Active Directory policy is used, these values are stored at:

HKLM\Software\Policies\Lenovo\MND\TVSUAPPLICATION\UNC=<network share>

HKLM\Software\Policies\Lenovo\MND\TVSUAPPLICATION\User=<encrypted username>

HKLM\Software\Policies\Lenovo\MND\TVSUAPPLICATION\Pwd=<encrypted password>

Working with license agreements

Upon searching for update packages, System Update will provide update packages to download and install. Update packages can contain license agreements. If you store update packages in a repository, you can save time and effort by using silent command scripts and by configuring System Update to recognize these license agreements automatically. To configure System Update to recognize license agreements automatically, set the following registry value to YES:

HK\LOCAL_MACHINE\SOFTWARE\Lenovo\System Update\Preferences\UserSettings\General\IgnoreLocalLicense

Note: Using silent command scripts to recognize license agreements works only if you use a repository to store update packages. If you obtain packages directly from the Lenovo Help Center Web site, silent command scripts will not be effective.

Using System Update

When using System Update to search for update packages, System Update will display search results in four categories: Critical, Recommended, Optional, and Extra. This categorization also defines the severity level of the package. For a description of each category see the following:

- Critical packages are considered mandatory for your system to function properly. Failure to install these packages could result in data loss, system malfunction or hardware failure. You can choose to have critical updates downloaded and installed automatically on a scheduled basis. Examples of critical packages:
  - A hard disk drive firmware update that if not applied could result in hard disk drive failure.
  - A BIOS upgrade that if not applies will result in system lags.
  - A software patch to an application that if not applied could result in data loss on your system.

- Recommended packages are recommended by Lenovo and will ensure your system is working at optimal performance. This severity level should be the default for most drivers. Examples of recommended packages:
- A video driver that corrects an issue that may cause blue screen.
- BIOS update that contains minor fixes that may impact a small set of customers.
- A power management driver that will allow a mobile system to get the most out of its battery life.

• Optional packages will improve your computing experience, but are not necessary. Examples of optional packages:
  - A tool that enables you to migrate files from one system to another such as ThinkVantage® Rescue and Recovery®. Rescue and Recovery is not needed for your system to operate, but provides benefit if you choose to install it.
  - Any BIOS or driver upgrade that has been updated only to support newer systems and contains no fixes.

• Extra packages can consist of software, hardware, or solution offerings to help you keep your entire system performing to its fullest capacity. Examples of Extra packages:
  - Memory upgrades
  - Printer recommendations
  - Warranty recommendations

**Scheduling the search for updates**

You have the option to manually initiate the search for new updates or schedule an automatic search for new updates at a specified time interval. When you enable the automatic search for updates, you can define the package type, the frequency and time of day that System Update searches for new updates. If performing an automatic search, you can configure the application with one of the following notification options:

For critical, recommended, and optional updates:

• Provides notification when new updates are found so that you can manually initiate the download and install.
• Downloads and installs the new updates and provides notification when complete.
• Automatically downloads updates and notifies you when the updates are ready to install.

**Automatic search for new updates**

You can configure System Update to search for new updates available to your system on a specified schedule. If new updates are found, you are notified with a balloon message. When you click the balloon message, System Update is launched showing the new updates. You can also launch System Update by double-clicking on the system tray icon.

If the system tray icon is right clicked, two options are available: **Launch** and **Exit**. Selecting **Launch** will start System Update and display the new updates. Selecting **Exit** will remove the system tray icon so that you are no longer notified that new updates exist until the next scheduled check for new updates.

When you configure System Update to search for new updates automatically on a scheduled basis, the following options are available:

• **Schedule:**
  You can choose to search for new updates weekly or monthly. For weekly checks, a day of the week and time must be selected. For monthly checks, a date in the month and time must be selected.
• **Notification:**
  You can choose to be notified when new updates are found and have the choice to either download the update or defer the download until another time. For critical updates only, additional options are available to automatically download or download and install all new updates and get notified after downloading or installation is complete.

**Automatic search for new updates with download**
You can configure System Update to automatically search for and download new updates available to your system on a specified schedule. If new updates are found, those updates are automatically downloaded to the local cache of deferred updates and you are notified through balloon help. When you click the balloon, System Update is launched showing the new updates that were downloaded and are ready to install. You can also launch System Update by double-clicking on the system tray icon.

If the system tray icon is right clicked, two options are available: **Launch** and **Exit**. Selecting **Launch** will launch System Update and display the new updates. Selecting **Exit** will remove the system tray icon so that you are no longer notified that new updates were downloaded until the next scheduled check for new updates.

**Automatic search for new updates with download and install**
You can configure System Update to automatically search for, download and install new updates available to your system on a specified schedule. If new updates are found, those updates are automatically downloaded and installed your system. When the installs are complete, you are notified through balloon help. When you click the balloon, System Update is launched showing the updates that were installed and the results. You can also launch System Update by double-clicking on the system tray icon.

If you right click on the system tray icon, two options are available: Launch and Exit. Selecting Launch will launch System Update and display the results screen. Selecting Exit will remove the system tray icon so that you are no longer notified that new updates were installed until the next scheduled check for new updates.

**Viewing the download and installation history**
You can view a history of updates that are downloaded, and installed on your system. For each update, the results of the download and installation are noted as either successful or failed.

**Hiding and restoring hidden updates**
Updates can be hidden, which means those specific updates will not be displayed as applicable in the future. You can hide specific versions of the update.

**Working with updates that force a reboot**
When installing multiple updates and one of the updates forces or requires a reboot, System Update will automatically continue installing at the next update after the reboot.

**Keyboard shortcuts**
The following table provides the keyboard shortcuts for the main functions of System Update:
Table 15. Keyboard shortcuts

<table>
<thead>
<tr>
<th>Function</th>
<th>Shortcut</th>
</tr>
</thead>
<tbody>
<tr>
<td>Get new updates</td>
<td>CTRL+U</td>
</tr>
<tr>
<td>Install deferred updates</td>
<td>CTRL+D</td>
</tr>
<tr>
<td>Schedule updates</td>
<td>CTRL+S</td>
</tr>
<tr>
<td>View installation history</td>
<td>CTRL+H</td>
</tr>
<tr>
<td>Restore hidden updates</td>
<td>CTRL+R</td>
</tr>
<tr>
<td>Close</td>
<td>CTRL+E</td>
</tr>
<tr>
<td>Context Help</td>
<td>F1</td>
</tr>
</tbody>
</table>
Chapter 5. Working with Update Retriever

This chapter provides information about setting up, upgrading, and using Update Retriever.

About Update Retriever

Update Retriever enables you to download update packages from the Lenovo Help Center Web site to a network share repository folder. Your repository folder provides the storage for update packages. Once configured, System Update can search your repository for update packages. This allows greater control of the updates that are available over your network.

You can manually initiate the search for updates or schedule an automatic search for new packages on a specified time interval. If performing an automatic search, you can configure Update Retriever to provide notification when new updates are found so you can manually initiate the download or to automatically download the new updates and provide notification when downloading is complete.

Update Retriever setup

Complete the following steps for the first time setup requirements of Update Retriever:

1. Launch Update Retriever.
   
   Note: When you launch Update Retriever, you must be logged on as a user who belongs to a local administrator group.

2. On the Welcome screen, complete the following First time setup requirements:
   
   a. Type the repository path for the shared drive used as the network share repository in the repository path field.
      
      The administrator can set up the repository location the first time Update Retriever is launched. It can be changed in the future by using Modify Settings in the Navigation Panel.

   b. Type the user name and password for the shared drive used as the network share repository in the user name and password fields.

3. On the Get new updates panel, click Add.

4. On the Add new systems panel, complete the following steps for the triplet settings:
   
   a. Type the applicable machine type. You can find the machine type on the bottom of a notebook computer or on the rear of a desktop computer.

   b. Select the applicable operating system from the drop-down menu.

   c. Select the applicable language from the drop-down menu.

   d. Click Add and then click Save.

5. On the Get New Updates panel, select the check box for the applicable machine type. To import all machine type packages, select the check box Select all.

6. Click Next and then click Finish to search for the applicable update packages. Update Retriever will place the update packages in the designated repository folder.
**Attention:** If you find duplicate update packages in the network share repository, these packages have different package contents. Select all packages with corresponding names for a given machine type when you are managing the contents of the network share repository.

**Note:** If you install Update Retriever on a notebook computer running Microsoft Vista in one country and download packages when in another country, the license files with that package may not display correctly. To avoid this problem, do not download packages in any country except the one that you installed Update Retriever in.

---

**Using Update Retriever**

The following sections provide information on using Update Retriever to search for update packages, view download history, and restore hidden updates.

**Search for updates with Update Retriever**

With Update Retriever, you can manually initiate the search for update packages, or schedule an automatic search for new update packages on a specified time interval. If you are performing an automatic search for critical updates, you can configure the application to provide notification when new updates are found (so you can manually initiate the download) or to automatically download the new updates and provide notification when the downloading is complete.

If you are performing an automatic search for recommended updates, you can configure the application to provide notification when new updates are found so you can manually initiate the download.

**Manual check for new updates**

You can manually initiate a search for new updates using a wizard-like interface. Update packages are specific to the triplet value of each client system. A triplet is the combination of the machine type (MT), operating system, and operating system language. For systems with various triplets, updates are assigned to matching machine types, operating systems, and language values. The triplet value for an update is saved in the repository when the update is downloaded from the Lenovo Help Center Web site by Update Retriever.

An example of a triplet value is: Windows XP, 2373, US English.

Once a triplet value is specified, Update Retriever searches the Lenovo Help Center Web site and displays a list of packages targeted to the specified triplet value. After you search for updates, there will be a brief time interval before you can select the applicable updates to download. Once you select the updates to download, you can review your selections. After confirming your selections, the updates are downloaded to a specified repository.

**Modify settings**

You can set the default status for updates and customize the location of the repository folder.

- **Update's default status**
  
  The status of updates will be set to the specified value when updates are retrieved from the Lenovo Help Center or imported to a local repository. You must change the status to `Active` to indicate that the package is in production and System Update can recognize it.
Table 16. The status of updates

<table>
<thead>
<tr>
<th>Option</th>
<th>Possible Value</th>
<th>Default Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Severity</td>
<td>• Default</td>
<td>Default</td>
</tr>
<tr>
<td></td>
<td>• Critical</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Recommended</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Optional</td>
<td></td>
</tr>
<tr>
<td>License</td>
<td>• Default</td>
<td>Default</td>
</tr>
<tr>
<td></td>
<td>• Display</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• No display</td>
<td></td>
</tr>
<tr>
<td>Status</td>
<td>• Test</td>
<td>Test</td>
</tr>
<tr>
<td></td>
<td>• Active</td>
<td></td>
</tr>
</tbody>
</table>

- **Repositories**
  
  You can customize the location of the repository folder. If a network share is specified (using the Universal Naming Convention), you can provide a user name and password to authenticate without requiring a prompt when making the actual connection.

**Configuring automatic check for new updates**

The end user can configure the application to check for new updates automatically on a scheduled basis. The following options are available:

- **Schedule**
  
  You can choose to check for new updates weekly or monthly. For weekly checks, a day of the week and time must be selected. For monthly checks, a date in the month and time must be selected.

- **Notification**
  
  You can choose to be notified when new updates are found (without downloading). For critical updates only, an additional option is available to automatically download all new updates and get notified after the downloading is complete.

  The notification can be in the form of a balloon popup from a system tray icon, or an email. The email notification includes the date and time of the check, the number of packages found, and the list of updates.

**Automatic search and download of new updates**

The scheduler initiates a check for new updates. The administrator is notified depending on how Update Retriever is configured, email or a balloon message through the system tray icon.

System Update will only allow updates to be installed on systems for which the update was designated.

**Viewing the download history**

View download history shows the status of updates that were downloaded to your repository. You can sort the updates based on the title in the column headers of the table.
Show updates in a repository

You can view updates in the repository by choosing Manage repository and then selecting Update view.

You can view updates in the repository by filtering by operating system, language, machine type, severity, and status. In the Update view, you can sort the list of updates by update ID, title, version, reboot type, severity, license, or status. You can select one or more packages and modify or delete them. You can also select non-Lenovo packages and modify the triplets.

Hiding updates

You can hide updates, which means that the hidden updates including the current and future versions will not be displayed as relevant (from the Lenovo Help Center) in the future. You have two options:

- Hide just this specific version of the update
- Hide all future versions of the update

If in the future you want to have those updates displayed again, you can unhide them.

Importing updates

Importing updates enables you to add custom updates that were created using the Update Retriever. When updates are imported, they are automatically marked as unassigned, which means System Update will not find those updates as candidate updates for any system. You can then assign those updates to one or more triplet values so System Update will find them.

To import updates, each update must be in its own subfolder. If importing only one update, the end user should specify the folder that contains that update. If importing multiple updates, the end user should put each update subfolder under a wrapper folder and specify the wrapper folder during the import operation.

Importing an update package into network share repository

You can import custom updates that are built manually or customized with Update Retriever, into a network share repository using Update Retriever. When an update is imported, it is not assigned to a triplet. The value for the triplet is listed as “Unassigned” for the machine type. You must assign custom updates to one or more systems before they will be recognized by System Update.

Complete the following steps to import an update package back into the network share repository and to reassign the triplet information:

1. Launch Update Retriever.
2. Click Manage repository on the left side panel.
3. Click Import updates.
4. Click Browse and navigate to your repository containing update packages.
5. Select your applicable update package and then click OK.
6. Mark the check the box to search sub-folders (if the .xml files are not in the root folder).
7. Click Next.
8. Review the updates that were found and then click Import.
9. On the Show updates panel, click Update view.
10. From the Update view panel, click the drop down menu for Operating System File.

11. Change the setting to Unassigned. This gives you a list of unassigned triplets.

12. Select the check box for the update package and click Assign Systems.

13. Select the check box or for the applicable triplets or select the Select all check box.

14. Click Save.

Note: Each update must be in its own sub folder. If you are importing one update, specify the folder that contains that update. If you are importing multiple updates, put each update sub folder within a main folder and specify the main folder.

Scheduling updates
You can configure the application to check for new updates automatically on a scheduled basis. An example of where this may be useful is when you want to configure critical updates to automatically download, or to only notify the end user if new updates are available for critical and recommended updates.

Scheduling search for critical updates
You can schedule an automatic search for critical updates by selecting a schedule, and by specifying how and when to be notified.

Scheduling search for critical and recommended updates
You can schedule an automatic search for critical and recommended updates by selecting a schedule, and by specifying how and when to be notified.

Assigning triplets to an update
You can assign custom updates to one or more systems. When viewing updates in the repository, you can select one or more updates and assign those updates to one or more systems by selecting the relevant triplets.

Generating a contents report of the network share repository
You can generate a report of the contents in the network share repository that will be in an Excel spreadsheet format (CSV file). In this report, you can choose to include active updates, archived updates, hidden updates, and test updates.

Creating and modifying an update package
This section provides information about update packages, and how to create and modify an update package.

About update packages
Update Retriever enables you to modify or create update packages. An update package comprises an XML Descriptor file, the update itself, a readme file, any package license file, and any optional detection modules. Each update package has an XML Descriptor file that contains metadata used to describe the conditions that must exist on the client system and how to install the update on the client system. If an update meets the requirements you define with the XML Descriptor file, it is considered an applicable update for the targeted system. An XML Descriptor file contains the necessary information for an update package to be recognized and handled by System Update.

Note: To modify an update package, you must use Update Retriever to edit the XML Descriptor file.
The following list provides the metadata of an update package that you can customize using Update Retriever:

- **Package identity**
  - Name
  - Version
  - Vendor
  - Software release date
  - Disk space needed to install the package
  - Title, description, summary, and language for a package
  - Version detection
  - Target applications

- **Installation detection**
  - Add remove programs
  - BIOS
  - BIOS date
  - CPU address width
  - Driver
  - Embedded controller version
  - External detection
  - File date
  - File exists
  - File version
  - Hard disk drive (HDD)
  - Operating system and operating system languages
    - OS
    - OSLang
    - OSNLang
  - Plug and play adapter ID (PnPID)
  - Registry key
  - Registry key value
  - Supported systems
  - System vendor

- **Assigning severity levels**
  - Critical
  - Recommended
  - Optional

- **Installation setup and details**
  - Installation type
    - Command
    - Shell
    - INF
  - One or more successful or failed return codes
  - Reboot types
  - Extract command
  - Default language
- Manual installation details
- Uninstall details
- Define the files that make up the update package:
  - Installer file
  - External file
  - Readme file
  - License file and other system specific files

**Creating an update package**

You can create an update package by choosing **Manage repository**, selecting **Update view**, and then clicking **Create an update**.

An update package is combination of an installer such as executable, a License file, a readme file, any optional detection files, and the XML Descriptor file packaged together. Packages are self-extracting and self-installing.

Complete the following steps to create an update package:

1. Build a single executable for source files with an installer, such as 7zip, WinZip, WinRar, Package For The Web (PFTW) or MSI.
2. Optionally, create a readme file that describes the update packages including the following:
   - Reports with version history
   - Minimum installation requirements
   - Steps to install and uninstall
   - Reports change from one version to the next
   - Issues that need to be communicated to the end user

   **Note:** If a readme file does not exist in the update package, the update cannot be imported with Update Retriever.

3. Optionally, create a file that documents the license or EULA that the end user must agree to before the package can be installed. System Update will present the contents of this file to the end user to agree before the package can be downloaded and installed.

4. Test the executable you created in Step 1.
5. Create the XML Descriptor file with Update Retriever. For more information, see the help system for Update Retriever.
6. From the Define files panel, add the installer such as an executable, a License file, a readme file, and any optional or required files. Update Retriever automatically builds the package for you when you complete the XML Descriptor.
7. Verify the package created in Update Retriever repository.
8. Import the package to the network share repository using Update Retriever, see "Importing an update package into network share repository" on page 48.

   **Note:** For more information on creating an update package, see the Update Retriever help system.

**Modifying an update package**

You can modify an update package by choosing **Manage repository**, selecting **Update view**, and then clicking the pen icon which is on the right of every update ID in the update view panel.
**Keyboard shortcuts**

The following table provides the keyboard shortcuts for the main functions of Update Retriever:

*Table 17. Keyboard shortcuts*

<table>
<thead>
<tr>
<th>Function</th>
<th>Shortcut</th>
</tr>
</thead>
<tbody>
<tr>
<td>Get new updates</td>
<td>CTRL+G</td>
</tr>
<tr>
<td>Update view (Show updates)</td>
<td>CTRL+U</td>
</tr>
<tr>
<td>Create reports</td>
<td>CTRL+R</td>
</tr>
<tr>
<td>Import updates</td>
<td>CTRL+I</td>
</tr>
<tr>
<td>Schedule updates</td>
<td>CTRL+S</td>
</tr>
<tr>
<td>Update view (Restore hidden updates)</td>
<td>CTRL+H</td>
</tr>
<tr>
<td>Update view (Manage archive)</td>
<td>CTRL+A</td>
</tr>
<tr>
<td>Modify settings</td>
<td>CTRL+E</td>
</tr>
<tr>
<td>View download history</td>
<td>CTRL+T</td>
</tr>
</tbody>
</table>
Chapter 6. Working with Thin Installer

This chapter provides information about using the Thin Installer program, the download instructions, and how this program can be configured to fit your needs.

About Thin Installer

Thin Installer is a smaller version of System Update, which is used as a standalone installation utility that runs without an installation process. Thin Installer searches for the update packages from a repository that you create. Unless you have specified otherwise, the default location for the repository is in the folder that is created when the Thin Installer package files are unpacked. The repository can be created on your local hard disk drive, a network share, or external media such as a CD, DVD, or USB hard disk drive. The update packages can be applications, device drivers, BIOS flashes, and software updates. When you launch Thin Installer, it searches for the update packages from the repository, and then displays a list of the update packages that you can select to install on your system.

Downloading Thin Installer

You can download Thin Installer from the following Web site:


Note: You need administrator privileges to use Thin Installer.

System requirements

Thin Installer is supported on the following operating systems:

- Windows Vista 32-bit or 64-bit
- Windows XP Professional 32-bit with Service Pack 2 or later
- Windows 2000 Professional with Service Pack 4

.Net

Thin Installer requires Microsoft .NET Framework 1.1 with Service Pack 1 or later (2.0 or later is recommended). You can download a compatible version of the .NET Framework from the following Microsoft Web site:

http://update.microsoft.com/windowsupdate
Using Thin Installer

This section provides information about using Thin Installer.

There are two modes to run Thin Installer:

• GUI mode
  – If you execute the Thininstaller.exe file directly, Thin Installer searches for the update packages from the default repository in the folder where the Thin Installer package files are unpacked.
  – If you execute the Thininstaller.exe file with a repository directory specified as a parameter, Thin Installer searches for the update packages from the specified repository.
    For example:
    Thininstaller.exe -repository C:\MyRepository
    The C:\MyRepository folder is the update packages repository.

• Command line mode
  The following table shows the command line scripts for Thin Installer. %ANYPATH% denotes the directory where Thin Installer files are located.

Table 18. Command line scripts

<table>
<thead>
<tr>
<th>Scripts</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>%ANYPATH%\Thininstaller.exe /CM –search C –action LIST</td>
<td>Searches the default repository for critical update packages and notifies you with a system tray balloon prior to installing.</td>
</tr>
<tr>
<td>%ANYPATH%\Thininstaller.exe /CM –search R –action INSTALL</td>
<td>Searches the default repository for critical and recommended update packages and installs those that do not contain a license agreement. You are asked to agree to a license notice before the update packages pick list is displayed if you have not set the configurable item DisplayLicenseNotice to NO. You are notified by a system tray balloon after the update packages have been installed.</td>
</tr>
</tbody>
</table>
Table 18. Command line scripts (continued)

<table>
<thead>
<tr>
<th>Scripts</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>%ANYPATH%\Thininstaller.exe /CM –search A -action INSTALL -noicon</code></td>
<td>Installs all critical, recommended, and optional packages which have no reboot requirement and suppresses the balloon message after the installation has completed.</td>
</tr>
<tr>
<td><code>%ANYPATH%\Thininstaller.exe /CM –search C –action INSTALL –noicon –includerebootpackages 1,3,4</code></td>
<td>Installs all critical packages with specified reboot types without showing a balloon message after the installation has completed. Packages with a reboot type will force the system to reboot or shut down.</td>
</tr>
<tr>
<td><code>%ANYPATH%\Thininstaller.exe /CM –search R –action INSTALL –noicon –includerebootpackages 1,3,4 -noreboot</code></td>
<td>Installs all critical and recommended packages with specified reboot types without showing a balloon message after the installation has completed, and suppresses the system reboot for packages with reboot Type 3.</td>
</tr>
<tr>
<td><code>%ANYPATH%\Thininstaller.exe /CM –search A –action LIST –repository C:\MyRepository</code></td>
<td>Searches a repository for critical, recommended, and optional update packages and notifies you with a system tray balloon prior to installing.</td>
</tr>
<tr>
<td><code>%ANYPATH%\Thininstaller.exe /CM –search C –action INSTALL –repository C:\MyRepository</code></td>
<td>Searches a repository for critical update packages and installs those that do not contain a license agreement. You are asked to agree to a license notice before the update packages pick list is displayed if you have not set the configurable item <code>DisplayLicenseNotice</code> to NO. You are notified by a system tray balloon after the update packages have been installed.</td>
</tr>
<tr>
<td><code>%ANYPATH%\Thininstaller.exe /CM -search A -action INSTALL -repository C:\MyRepository -noicon -includerebootpackages 1,3,4 -noreboot</code></td>
<td>Searches a repository for critical, recommended, and optional update packages and then installs those with specified reboot types that do not contain a license agreement. You are asked to agree to a license notice before the update packages pick list is displayed if you have not set the configurable item <code>DisplayLicenseNotice</code> to NO. You will not be notified by a system tray balloon after the update packages have been installed. Reboot Type 3 will suppress a system reboot.</td>
</tr>
</tbody>
</table>
### Table 18. Command line scripts (continued)

<table>
<thead>
<tr>
<th>Scripts</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>%ANYPATH%\ThinInstaller.exe /CM –search C –action INSTALL –repository C:\MyRepository –log &quot;C:\MyLogFolder\MyLogFile.txt&quot;</td>
<td>Searches a repository for critical update packages and installs those that do not contain a license agreement. You are asked to agree to a license notice before the update packages pick list is displayed if you have not set the configurable item \DisplayLicenseNotice to NO. You are notified by a system tray balloon after the update packages have been installed. The log information is written into a specified log file.</td>
</tr>
<tr>
<td>%ANYPATH%\ThinInstaller.exe /CM –search R –action INSTALL –repository C:\MyRepository –noicon –includerebootpackages 1,3,4 -noreboot</td>
<td>Searches a repository for critical and recommended update packages and then installs those with specified reboot types that do not contain a license agreement. You are asked to agree to a license notice before the update packages pick list is displayed if you have not set the configurable item \DisplayLicenseNotice to NO. You will not be notified by a system tray balloon after the update packages have been installed. Reboot Type 3 will suppress a system reboot.</td>
</tr>
<tr>
<td>%ANYPATH%\ThinInstaller.exe /CM -search A -action INSTALL -repository C:\MyRepository -includerebootpackages 1,3,4 -showprogress -noreboot</td>
<td>Searches a repository for critical, recommended, and optional update packages and then installs those with specified reboot types that do not contain a license agreement. You are asked to agree to a license notice after the search is completed, if you have not set the configurable item \DisplayLicenseNotice to NO. Progress bars will be displayed to indicate the installation progress for each update and the overall progress. Reboot Type 3 will suppress a system reboot.</td>
</tr>
<tr>
<td>%ANYPATH%\Thininstaller.exe /CM -search A -action LIST -repository C:\MyRepository -showprogress</td>
<td>Searches a repository for critical, recommended, and optional update packages and and display a search progress bar while searching the repository for updates.</td>
</tr>
</tbody>
</table>

For information about description of command line parameters, see Appendix A, “Command line parameters,” on page 71 for reference.

**Note:** If you use silent command line scripts, set the configurable item \IgnoreLocalLicense to YES to recognize the update packages with license agreements.

**Log file**

The following table shows you how to create a log file for Thin Installer. The current directory is where the Thin Installer package files are unpacked.
### Table 19. How to create a log file

<table>
<thead>
<tr>
<th>Running mode</th>
<th>Has a writable access to current directory</th>
<th>Description of log file</th>
</tr>
</thead>
</table>
| GUI mode: execute ThinInstaller.exe directly.                                | YES                                        | Log file name: Update_log_YYMMDDHHMMSS.txt  
Path: Current directory\logs\                                                      |
| GUI mode: execute ThinInstaller.exe directly.                                | NO                                         | No log file.                                                                            |
| GUI mode: A log file is specified as one of the parameters. Example:          | YES or NO                                  | Log file name: tvsulog.txt  
Path: c:\temp\logdir\                                                                   |
| ThinInstaller.exe /repository "c:\local" -log "c:\temp\logdir\tvsulog.txt"    |                                            |                                                                                        |
| Command line mode: Example: ThinInstaller.exe /CM -search A –action INSTALL  | YES                                        | Log file name: Update_log_YYMMDDHHMMSS.txt  
Path: Current directory\logs\                                                      |
| Command line mode: A log file is specified as one of the parameters. Example: | YES or NO                                  | Log file name: tvsulog.txt  
Path: c:\temp\logdir\                                                                   |
| ThinInstaller.exe /CM -search A –action INSTALL -log "c:\temp\logdir\tvsulog.txt" |                                            |                                                                                        |

### Windows Vista considerations

When Thin Installer finishes installing an update package with reboot type 1 or 4, the system reboots automatically. If there are any update packages remaining to be installed, Thin Installer continues to install these update packages automatically after the reboot. With considerations for Windows Vista, after you log on to the Windows desktop, the Vista UAC stops Thin Installer from continuing to install the remaining update packages. You need to manually click the **Windows has blocked some startup programs** message on the system tray and select **Run blocked program** to run Thin Installer again to install the remaining update packages.

**Note:** If the **Windows has blocked some startup programs** message is configured not to be shown, you are not prompted by the message after you log on to the Windows desktop. In this case, you need to run Thin Installer manually, search for the remaining update packages, and install them again.

**Important:** If you have Windows Vista UAC enabled and you are not a built-in administrator, you might lose authentication to the UNC share folder. To prevent this, you must add a registry key by applying the registry file named ForVistaUnc.reg in the folder where the Thin Installer package files are unpacked. Here is the registry key:

```
[HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Windows\CurrentVersion\policies\system]  
REG_DWORD "EnableLinkedConnections" = 1
```
Return codes

Thin Installer returns codes in both the GUI and command line modes. If one of the following errors occur when using Thin Installer, Thin Installer returns code 1. Otherwise, Thin Installer returns code 0.

- The XML schema validation fails for the update package.
- The CRC validation fails for the executable file of the update package.
- The update package installation fails.
- Thin Installer itself fails.
- The specified repository is not found.

Keyboard shortcuts

For information about keyboard shortcuts for the main functions of Thin Installer, see “Keyboard shortcuts” on page 43 for reference.

Configuring Thin Installer

This section provides information about configuring Thin Installer with an XML file.

Configuring Thin Installer with XML

As no registry keys are created for the Thin Installer configuration, an XML file named Thininstaller.exe.config is provided to configure the Thin Installer settings. The XML file is located in the folder that is created when the Thin Installer package files are unpacked. You can manually change the settings of Thin Installer through the XML file to fit your needs.

The following contents in the XML file are examples of the Thin Installer configurations:

```xml
<Configuration>
  <LanguageOverride>EN</LanguageOverride>
  <BlockSize>4096</BlockSize>
  <AskBeforeClosing>NO</AskBeforeClosing>
  <DisplayLicenseNotice>NO</DisplayLicenseNotice>
  <IgnoreLocalLicense>YES</IgnoreLocalLicense>
  <IgnoreRMLicCRCSize>YES</IgnoreRMLicCRCSize>
  <DebugEnable>NO</DebugEnable>
  <ContentMode>Active</ContentMode>
</Configuration>
```
The following table shows the configurable items in the XML file for Thin Installer:

<table>
<thead>
<tr>
<th>Configurable item</th>
<th>Description</th>
<th>Value</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>LanguageOverride</td>
<td>Specifies the language to be used.</td>
<td>Default value: EN</td>
<td>Changes the language to the one specified.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Possible values:</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• DA</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• NL</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• EN</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• FI</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• FR</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• DE</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• IT</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• JP</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• KO</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• NO</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• PT</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• ES</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• SV</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• CHS</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• CHT</td>
<td></td>
</tr>
<tr>
<td>BlockSize</td>
<td>Specifies the number of bytes to be read each time data is downloaded.</td>
<td>Default value: 4096</td>
<td>Sets the number of bytes read to the number specified.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Possible values:</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• 4096</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• 8192</td>
<td></td>
</tr>
<tr>
<td>AskBeforeClosing</td>
<td>Specifies whether Thin Installer displays a dialog box to ask you before closing.</td>
<td>Default value: NO</td>
<td>• If YES, a dialog box will be displayed to ask you before closing.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Possible values:</td>
<td>• If NO, no dialog box will be displayed to ask you before closing.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• YES</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• NO</td>
<td></td>
</tr>
<tr>
<td>DisplayLicenseNotice</td>
<td>Specifies whether Thin Installer pops up the license notice before the update packages pick list is displayed.</td>
<td>Default value: NO</td>
<td>• If YES, the license notice screen will be displayed prior to the update packages pick list.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Possible values:</td>
<td>• If NO, the license notice screen will not be displayed.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• YES</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• NO</td>
<td></td>
</tr>
<tr>
<td>Configurable item</td>
<td>Description</td>
<td>Value</td>
<td>Action</td>
</tr>
<tr>
<td>-------------------------</td>
<td>------------------------------------------------------------------------------</td>
<td>----------------</td>
<td>----------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>IgnoreLocalLicense</td>
<td>Shows or hides the license dialog when Thin Installer is downloading and installing an update package.</td>
<td>Default value: YES</td>
<td>• If YES, the license dialog will not be shown when Thin Installer is downloading and installing an update package.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• If NO, the license dialog will be displayed when Thin Installer is downloading and installing an update package.</td>
</tr>
</tbody>
</table>
|                         |                                                                             | Possible values: | • YES  
|                         |                                                                             |                | • NO                                                                                                                                   |
| IgnoreRMLicCRCSize      | Use this setting to enable or disable the following functions when Thin Installer downloads packages:  
|                         | • CRC - checks for the file corruption of readme and license agreements files when you download packages.  
|                         | • File size - checks the file size of readme and license agreement files.      | Default value: YES | • If YES, Thin Installer skips checking for the corruption or the size of these files.                                               |
|                         |                                                                             |                | • If NO, Thin Installer checks for the corruption or the size of these files.                                                          |
|                         |                                                                             | Possible values: | • YES  
|                         |                                                                             |                | • NO                                                                                                                                   |
| DebugEnable             | Specifies whether Thin Installer creates the log file named ApplicabilityRulesTrace.txt | Default value: NO | • If YES, Thin Installer will create the log file.                                                                                     |
|                         |                                                                             |                | • If NO, Thin Installer will not create the log file.                                                                                   |
|                         |                                                                             | Possible values: | • YES  
|                         |                                                                             |                | • NO                                                                                                                                   |
Table 20. Description of configurable items (continued)

<table>
<thead>
<tr>
<th>Configurable item</th>
<th>Description</th>
<th>Value</th>
<th>Action</th>
</tr>
</thead>
</table>
| ContentMode       | Specifies which update packages Thin Installer will search for. | Default value: Active | • If Active, Thin Installer will search the Update Retriever repository for the update packages in active status.  
• If Test, Thin Installer will search the Update Retriever repository for the update packages in test status.  
\textbf{Note:} If there is no database.xml file in the Update Retriever repository folder, Thin Installer will ignore the value of ContentMode and search for all the update packages. |

\textbf{Note:} To change the default language of Thin Installer, set the configurable item LanguageOverride to a relevant language code. For more information about the languages and the language codes, see Table 1 on page 6 for reference.

\textbf{Uninstall}

No registry keys or temporary files relating to Thin Installer are created when Thin Installer finishes installing update packages. Therefore, you only need to delete the repository folder and all related files to uninstall Thin Installer.
Chapter 7. Best practices

This chapter provides step-oriented scenarios to help you understand the update process. The scenarios provided in this chapter are:

“Scenario 1 - Managing the update process”
“Scenario 2 - Deploying specific packages” on page 65
“Scenario 3 - Deploy onto non-Lenovo systems” on page 66
“Scenario 4 - Disabling the Web upgrade for System Update” on page 67
“Scenario 5 - Installing specific packages with the MSDOS Command Prompt” on page 67
“Scenario 6 - Deploying packages to client system repositories” on page 68
“Scenario 7 - Working with firewalls and the Scheduler function” on page 68
“Scenario 8 - Working with Thin Installer” on page 69

Scenario 1 - Managing the update process

The following steps provide the best practices for managing the update process using System Update and Update Retriever. For conceptual information about the update process, see “Managing the update process” on page 1.

Step 1 - Installing the programs

Complete the following steps to install System Update and Update Retriever:

1. Create a new folder on the server to be used as the repository.
2. Share the new repository folder using the UNC path. The UNC path provides connectivity to all computers that have been mapped to the repository. The format for a UNC path is:
   \server\share
   For example: \Server_X\TVSU_repository\n
3. Set the access permissions of the new repository folder to read only access for end users.
4. Download Update Retriever to the administrator computer. Update Retriever can be downloaded from the following Lenovo Web site:

5. Install Update Retriever silently by entering the following command for each program at the command prompt:
   setup.exe -s -a /s /v" /qn" /L1033

   L1033 is the language code for English. Language codes used with silent scripts must coincide with the language set in the regional settings of the applicable system. For information about using other language codes, see “System Update languages” on page 6. In addition, when you launch Update Retriever, you must be logged on as a user who belongs to a local administrator group.
Note: After you install Update Retriever, restart your system to set the Scheduler function. If you are not using the Scheduler function of Update Retriever, a restart is not needed.

6. Download System Update from the following Lenovo Web site:

7. Install System Update silently by entering the following command at the command prompt:
   setup.exe -s -a /s /v" /qn" /L1033

   Note: After you install System Update, restart your system to set the Scheduler function. If you are not using the Scheduler function of System Update, a restart is not needed.

Step 2 - Customizing the programs

Customize the settings for System Update with Active Directory or the registry. To customize settings using the registry, create a batch file to install System Update with the configured start.reg file using the following command:

START /WAIT setup.exe -s -a /s /v" /qn" /L1033
xcopy start.reg "C:\Program Files\Lenovo\System Update\start.reg" /Y

Note: To save the customized settings of the start.reg file as the default for System Update, copy the contents of the customized start.reg file into the default.reg file and save it as the default.reg file. Default settings are restored in the unlikely event that the registry keys are corrupted. For example,

START /WAIT setup.exe -s -a /s /v" /qn" /L1033
xcopy start.reg "C:\Program Files\Lenovo\System Update\start.reg" /Y
rename "C:\Program Files\Lenovo\System Update\Default\default.reg" "C:\Program Files\Lenovo\System Update\Default\default.reg.bak"
xcopy start.reg "C:\Program Files\Lenovo\System Update\Default\start.reg" /Y
rename "C:\Program Files\Lenovo\System Update\Default\start.reg" "C:\Program Files\Lenovo\System Update\Default\default.reg"

For additional information on how to customize System Update with the registry and working with the start.reg file, see "Configuring System Update with the registry" on page 14. For information on how to customize System Update using Active Directory, see "Configuring System Update with Active Directory" on page 28.

Step 3 - Working with the programs

Complete the following steps to download packages to your network, edit XML descriptor files using Update Retriever, and then download and install packages using System Update:

1. Get update packages with Update Retriever.
2. Edit the XML Descriptor file of the update package using Update Retriever.
3. Import the update packages back into the network share repository using Update Retriever.
4. Use System Update to search the network share repository for update packages.
5. Download and install update packages to client systems.
Scenario 2 - Deploying specific packages

For enterprises that choose to deploy specific packages to client systems, you can configure System Update, Update Retriever, and repository folders to deploy only the packages that you have selected. The following step-by-step instructions provides you with procedures to create repository folders, configure System Update and work with Update Retriever to deploy specific packages.

Creating repository folders

To create repository folders to store packages, complete the following steps:

1. Create a new repository folder on a server that System Update will use to obtain specific packages for client systems.
2. Share the repository folder using the UNC path. The UNC path provides connectivity to all computers that have been mapped to the repository.
   For example: `\Server_X\SystemUpdate_repository\`
3. Set the access permissions of the new repository folder to read only access for end users.
4. Create another new folder on a server to be used as a repository for packages downloaded from the Lenovo Help Center Web site with Update Retriever.
5. Share the repository folder using the UNC path. For example:
   For example: `\Server_X\UpdateRetriever_repository\`

Configuring System Update on client systems

To configure System Update to download specific packages to client systems, complete the following steps:

1. On client systems, navigate to the following registry entry:
   `HKLM\SOFTWARE\Lenovo\System Update\Preferences\UserSetting\General\RepositoryLocation1`
2. Change this setting by replacing the default SUPPORTCENTER value with your server and share name of the System Update repository folder that you created in Step 1 of "Creating repository folders."
   For example: `\Server_X\SystemUpdate_repository\`

   **Note:** You can also use Active Directory to deploy this registry change using Group Policy. For more information about working with Active Directory and Group Policy, see "Configuring System Update with Active Directory" on page 28.

Working with Update Retriever

Complete the following steps to use Update Retriever to download packages from the Lenovo Help Center Web site to your Update Retriever repository that you created in Step 4 under "Creating repository folders."

1. Launch Update Retriever on an administrator system.
2. On the Welcome screen, complete the following **First time setup** requirements:
   a. In the **Repository path** field, type the directory path for the new Update Retriever repository that you created in Step 4.
   b. In the user name and password fields, type the user name and password for the shared drive used as Update Retriever repository.
3. On the Get new updates panel, click **Add**.
4. On the Add new systems panel, complete the following steps for the triplet settings:
a. Type the applicable machine type. You can find the machine type on the bottom of a laptop or on the rear of a desktop machine.
b. Select the applicable operating system from the drop down menu.
c. Select the applicable language from the drop down menu.
d. Click Add and then click Save.

5. On the Get New Updates panel, select the check box for the applicable machine type. To import all machine type packages, select the check box Select all.

6. Click Next and then click Finish to search for applicable packages. Update Retriever will place the update packages in the designated repository folder.

Deploying the packages

After you have created your repository folders, configured System Update on client systems, and downloaded update packages with Update Retriever, complete the following steps to deploy specific packages to client systems:

1. On the Modify Settings panel of Update Retriever, change the Repository path to the System Update repository path that you created in Step 1 under “Creating repository folders” on page 65.

2. Using Update Retriever, import your packages into the System Update repository.

   Note: For additional information on how to import packages into a repository folder, see “Importing an update package into network share repository” on page 48.

3. Launch System Update on client systems.

4. Use System Update to search the System Update repository for update packages.

   Note: Ensure you assign machine types to packages after you import the packages into a repository folder. This enables System Update to search for packages specific to the machine type. For more information about importing packages, see “Importing an update package into network share repository” on page 48.

5. Download and install update packages to client systems.

Scenario 3 - Deploy onto non-Lenovo systems

Packages originating from the Lenovo Web site cannot be deployed to a non-Lenovo system. Complete the following steps to create custom packages that can be deployed to non-Lenovo systems:

1. Install Update Retriever and System Update on an administrator computer.

2. Reboot the computer after installation.

3. Run install.bat to install the required hotfixes.

4. Launch System Update to get the machine type of the non-Lenovo system.

   For example, 'Machine type' = 'Presario R3000'

5. Launch Update Retriever and set the repository path.

   Note: Enter user name and password if required for the repository.

6. Add systems for assigning the updates and save the machine information for non-Lenovo systems. Enter the machine family information consisting of the first four letters or the last four letters of the machine type and model.
7. Create a packages for the non-Lenovo systems using Update Retriever.

   **Note:** Add the **Supported Systems** method in the dependencies section of the XML descriptor file to apply the updates to a particular model.

8. Save the XML descriptor.

9. Import the packages to the Update Retriever managed repository. Do this by specifying the path where the package are located and then click **Next**.

10. Verify the packages are available for import and then click **Import**.

11. Go to the **Show Updates\Machine type** view in Update Retriever and verify the unassigned updates that were not assigned to any machine.

   a. Select the package you want to assign the triplet (machine type, operating system, and language) and click **Modify Systems** button.

   b. Select the triplet for the unassigned package that applies to only that system.

12. Configure the System Update repository.

---

**Scenario 4 - Disabling the Web upgrade for System Update**

System Update checks the Lenovo Help Center Web site for upgrades of itself, even if it is connecting to a local repository on either the local system or a network share. If there is no internet connectivity, System Update will not check for its application upgrade.

You can disable this feature by completing the following best practice to clear the registry value:

1. Go to the following registry key:
   
   `HKEY_LOCAL_MACHINE\SOFTWARE\Lenovo\System Update\Preferences\UCSettings\HTTPHelloSettings\ServerName`

2. Delete the following ServerName string value:
   
   `https://download1.boulder.ibm.com/ibmdl/pub/pc/pccbbs/agent/`

3. Click **OK**.

---

**Scenario 5 - Installing specific packages with the MSDOS Command Prompt**

You can install specific packages for System Update using the MSDOS Command Prompt. To install specific packages, complete the following steps:

1. Create a new folder named `installtxt` on your local hard disk drive, for example `C:\installtxt`.

2. With Notepad, create a `.txt` file named `installList.txt`.

3. In the `.txt` file, type the package IDs for the target client systems, for example:

   ```
   1rg807ww
   7ad123ww
   7bwc14ww
   bs09az00ibm
   css7upgrade2_ww
   kb896613tc
   ```

4. Save the `.txt` file in the `C:\installtxt` folder.

5. From the MSDOS Command Prompt, go to the System Update installation path: `C:\Program Files\Lenovo\System Update`.

6. Type the file path, the application executable file name, and the name of the `.txt` file, for example:
Scenario 6 - Deploying packages to client system repositories

An alternate to using a network shared drive repository, is to deploy packages to client system repositories. Complete the following steps to deploy packages to client system repositories:

Step 1 - Administrator system setup

Complete the following steps to set up your administrative system:

1. Create a new folder on network shared drive or your administrative system to be used as a repository for storing update packages.
2. Launch Update Retriever and set the repository path.

   Note: Enter user name and password if required for the repository.

4. Create another folder to be used as the client system repository.
5. Using Update Retriever, import your packages into your client system repository.

   Note: For additional information on how to import packages into a repository folder, see “Importing an update package into network share repository” on page 48.

6. Push the folder being used as the client system repository out to client systems.

Step 2 - Configuring System Update on client systems

To configure System Update to download specific packages to client systems, complete the following steps:

1. On client systems, navigate to the following registry entry:
   `HKLM\SOFTWARE\Lenovo\System Update\Preferences\UserSetting\General\RepositoryLocation1`
2. Change this setting by replacing the default SUPPORTCENTER value to your client system repository path. For example, `%ANYDRV%\SystemUpdate_repository`

   Note: You can also use Active Directory to deploy this registry change using Group Policy. For more information about working with Active Directory and Group Policy, see “Configuring System Update with Active Directory” on page 28.

Scenario 7 - Working with firewalls and the Scheduler function

When you utilize security programs with a firewall, ensure the security application enables Internet access to the System Update Scheduler function. Complete the following steps to allow access:

1. From your firewall application, click Allow.
2. Navigate to the following path: `%PROGRAMFILES%\Lenovo\System Update`
3. Allow the following programs:
   - TvsuCommandLauncher.exe
   - Tvsukernel.exe
Scenario 8 - Working with Thin Installer

Thin Installer always first checks for the database.xml file in the repository folder. If you have created a repository using Update Retriever, the database.xml file is created in the same folder. The Database.xml file associates each Machine Type, Operating System and Language with the Update packages. In the absence of the database.xml file in the repository, Thin Installer assumes all update packages in the repository are candidate packages. Candidate packages are packages that may be applicable to the client system. Refer to Chapter 5, “Working with Update Retriever,” on page 45 to learn more about Update Retriever.

Deploying the packages using USB or CD

This method is ideal for stand alone installation of update packages by a system administrator.

1. Create a repository folder with update packages that need to be installed on the client machine.
2. Install Thin Installer as a parent folder of the repository folder as created in step 1.
3. Copy the folder structure to any external media such as a USB key, a CD or a DVD.
4. Launch the ThinInstaller.exe file and select the update packages that need to be installed.

Deploying the packages using network share repository

This is a convenient way of managing different types of systems using a central repository. The client system should have read access to the network shared repository.

1. Create the repository folders and download the update packages with Update Retriever on the network share. Refer to “Step 1 - Installing the programs” on page 63 on how to use Update Retriever.
2. Install Thin Installer on an individual client system.
3. Push a command script to the client systems to execute the ThinInstaller.exe file from the network share drive. Refer to “Using Thin Installer” on page 54 in command line mode for options available.

Deploying the packages using a system management tool

This method is useful when the update packages for systems are already known.

1. Create a repository folder with system specific update packages that need to be deployed.
2. Install Thin Installer as a parent folder of the repository folder as created in step 1.
3. Use the system management tool to build a module out of the above folder structure and deploy.

Note: The return error code by Thin Installer can be used to track the status of the update packages on target systems.
Integrating Thin Installer with ImageUltra Builder (IUB)

This is the ideal way to deploy common drivers and applications during an image rollout. The system administrator maintains one central repository and one image for different types of systems. To learn more about ImageUltra Builder, go to the following Web site:


1. Create a network shared repository and install Thin Installer. Refer to “Creating repository folders” on page 65 on how to create a network shared repository.
2. Create a batch file to run the Thin Installer executable file from the network share drive.
3. Create an ImageUltra Builder module, audit boot type, and use the above batch file.
4. Add the module to the ImageUltra Builder Base Map.
5. Deploy the image and Thin Installer will install the drivers and applications on the client system.

Note:
- Network drivers still need to be installed before Thin Installer can access the network shared repository.
- Some drivers may require installing using ImageUltra Builder.

The other option is to build the ImageUltra Builder module, audit boot type, use update packages and Thin Installer and deploy with the image. In this case, update packages will be run locally instead of from the repository.

Integrating Thin Installer with a Sysprep Image

This scenario is same as integrating Thin Installer with ImageUltra Builder except that image is rolled out without using ImageUltra Builder.

1. Create a network shared repository and install Thin Installer. Refer to “Creating repository folders” on page 65 on how to create a network shared repository.
2. Create a batch file to run the Thin Installer executable file from the network share drive.
3. Deploy the image and Thin Installer will install the drivers and applications on the client system.
Appendix A. Command line parameters

This chapter provides information about command line parameters, search modes, notification parameters, and the Map Drive utility.

Automatic search

This function will perform an automatic search for new updates from a repository folder or the Lenovo Help Center.

Table 21. RepositoryLocation and Command line

<table>
<thead>
<tr>
<th>RepositoryLocation registry entry</th>
<th>Command line</th>
<th>Repository searched</th>
</tr>
</thead>
<tbody>
<tr>
<td>RepositoryLocation&lt;N&gt; Where %N% is a number between 1 and 20.</td>
<td>SUPPORTCENTER</td>
<td>Lenovo Help Center Web site</td>
</tr>
<tr>
<td>RepositoryLocation&lt;N&gt; Where %N% is a number between 1 and 20.</td>
<td>\Server_X\TVSU_repository\</td>
<td>Network share repository</td>
</tr>
<tr>
<td>RepositoryLocation&lt;N&gt; Where %N% is a number between 1 and 20.</td>
<td>%ANYDRV%\SystemUpdate3_x</td>
<td>Local system repository</td>
</tr>
<tr>
<td>RepositoryLocation&lt;N&gt; Where %N% is a number between 1 and 20.</td>
<td>%XMEDIA%\SystemUpdate3_x</td>
<td>Repository on any removable device</td>
</tr>
</tbody>
</table>

Note: When you download or install packages that have individual package licenses, they are not processed because you are not able to approve the individual package licenses. Further, if you have not previously indicated that you do not want to see the license notice in the future the license notice will be shown prior to the download.

Command line scripts

The following table provides the command line scripts supported by System Update when using the SUPPORTCENTER (default) setting:

Table 22. Command line scripts

<table>
<thead>
<tr>
<th>Scripts:</th>
<th>Description:</th>
</tr>
</thead>
<tbody>
<tr>
<td>%PROGRAMFILES%\Lenovo\System Update\Tvsu.exe /CM -search C -action DOWNLOAD</td>
<td>Searches the repository for critical updates and downloads those that do not contain a license agreement. You are asked to agree to a license notice before the download occurs. You are notified by a system tray balloon after the updates have been downloaded.</td>
</tr>
<tr>
<td>%PROGRAMFILES%\Lenovo\System Update\Tvsu.exe /CM -search C -action LIST</td>
<td>Searches the repository for critical updates and notifies you with a system tray balloon prior to downloading and installing.</td>
</tr>
<tr>
<td>Scripts:</td>
<td>Description:</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>%PROGRAMFILES%\Lenovo\System Update\Tvsu.exe /CM -search C -action INSTALL</td>
<td>Searches the repository for critical updates and installs those that do not contain a license agreement. You are asked to agree to a license notice before the download occurs if you have not previously asked for the license notice to not be shown in the future. You are notified by a system tray balloon after the updates have been installed.</td>
</tr>
<tr>
<td>%PROGRAMFILES%\Lenovo\System Update\Tvsu.exe /CM -search R -action LIST</td>
<td>Searches the repository for critical and recommended updates and notifies you prior to downloading and installing.</td>
</tr>
<tr>
<td>%PROGRAMFILES%\Lenovo\System Update\Tvsu.exe /CM -search R -action DOWNLOAD</td>
<td>Searches the repository for critical and recommended updates and downloads those that do not contain a license agreement. You are asked to agree to a license notice before the download occurs if you have not previously asked for the license notice to not be shown in the future. You are notified by a system tray balloon after the updates have been downloaded.</td>
</tr>
<tr>
<td>%PROGRAMFILES%\Lenovo\System Update\Tvsu.exe /CM -search R -action INSTALL</td>
<td>Searches the repository for critical and recommended updates and installs those that do not contain a license agreement. You are asked to agree to a license notice before the download occurs if you have not previously asked for the license notice to not be shown in the future. You are notified by a system tray balloon after the updates have been installed.</td>
</tr>
<tr>
<td>%PROGRAMFILES%\Lenovo\System Update\Tvsu.exe /CM -search A -action LIST</td>
<td>Searches the repository for critical, recommended, and optional updates and then notifies you prior downloading and installing.</td>
</tr>
<tr>
<td>%PROGRAMFILES%\Lenovo\System Update\Tvsu.exe /CM -search A -action DOWNLOAD</td>
<td>Searches the repository for critical, recommended and optional updates and downloads those that do not contain a license agreement. You are asked to agree to a license notice before the download occurs if you have not previously asked for the license notice to not be shown in the future. You are notified by a system tray balloon after the updates have been downloaded.</td>
</tr>
<tr>
<td>%PROGRAMFILES%\Lenovo\System Update\Tvsu.exe /CM -search A -action INSTALL</td>
<td>Searches the repository for critical, recommended and optional updates and installs those that do not contain a license agreement and a reboot requirement. You are asked to agree to a license notice before the download occurs if you have not previously asked for the license notice to not be shown in the future. You are notified by a system tray balloon after the updates have been installed.</td>
</tr>
</tbody>
</table>
The following table provides the command line scripts supported by System Update when using a repository to store update packages. If you do not specify the repository, System Update will go to the default repository.
<table>
<thead>
<tr>
<th>Scripts:</th>
<th>Description:</th>
</tr>
</thead>
<tbody>
<tr>
<td>%PROGRAMFILES%\Lenovo\System Update\Tvsu.exe /CM -search C -action LIST -repository C:\MyRepository</td>
<td>Searches a repository for critical updates and notifies you with a system tray balloon prior to downloading and installing.</td>
</tr>
<tr>
<td>%PROGRAMFILES%\Lenovo\System Update\Tvsu.exe /CM -search C -action DOWNLOAD -repository C:\MyRepository</td>
<td>Searches a repository for critical updates and downloads those that do not contain a license agreement. You are asked to agree to a license notice before the download occurs. You are notified by a system tray balloon after the updates have been downloaded.</td>
</tr>
<tr>
<td>%PROGRAMFILES%\Lenovo\System Update\Tvsu.exe /CM -search R -action INSTALL -repository C:\MyRepository</td>
<td>Searches a repository for critical and recommended updates and installs those that do not contain a license agreement. You are asked to agree to a license notice before the download occurs if you have not previously asked for the license notice to not be shown in the future. You are notified by a system tray balloon after the updates have been installed.</td>
</tr>
<tr>
<td>%PROGRAMFILES%\Lenovo\System Update\Tvsu.exe /CM -search R -action DOWNLOAD -repository C:\MyRepository</td>
<td>Searches a repository for critical and recommended updates and downloads those that do not contain a license agreement. You are asked to agree to a license notice before the download occurs. You are notified by a system tray balloon after the updates have been downloaded.</td>
</tr>
<tr>
<td>%PROGRAMFILES%\Lenovo\System Update\Tvsu.exe /CM -search R -action INSTALL -repository C:\MyRepository</td>
<td>Searches a repository for critical and recommended updates and installs those that do not contain a license agreement. You are asked to agree to a license notice before the download occurs if you have not previously asked for the license notice to not be shown in the future. You are notified by a system tray balloon after the updates have been installed.</td>
</tr>
<tr>
<td>%PROGRAMFILES%\Lenovo\System Update\Tvsu.exe /CM -search A -action LIST -repository C:\MyRepository</td>
<td>Searches a repository for critical, recommended and optional updates and notifies you with a system tray balloon prior to downloading and installing.</td>
</tr>
<tr>
<td>%PROGRAMFILES%\Lenovo\System Update\Tvsu.exe /CM -search A -action DOWNLOAD -repository C:\MyRepository</td>
<td>Searches a repository for critical, recommended and optional updates and downloads those that do not contain a license agreement. You are asked to agree to a license notice before the download occurs. You are notified by a system tray balloon after the updates have been downloaded.</td>
</tr>
</tbody>
</table>
### Table 23. Command line scripts (continued)

<table>
<thead>
<tr>
<th>Scripts:</th>
<th>Description:</th>
</tr>
</thead>
<tbody>
<tr>
<td>%PROGRAMFILES%\Lenovo\System Update\Tvsu.exe /CM -search A -action INSTALL -repository C:\MyRepository</td>
<td>Searches a repository for critical, recommended, and optional updates and installs those that do not contain a license agreement and a reboot requirement. If you have not marked the check to disable the license notice dialog box, you are prompted to agree to a license notice before the download occurs. You are also notified by a system tray balloon after the updates have been installed.</td>
</tr>
<tr>
<td>%PROGRAMFILES%\Lenovo\System Update\Tvsu.exe /CM -search C -action INSTALL -repository C:\MyRepository -noicon</td>
<td>Searches a repository for critical updates and installs those that do not contain a license agreement and a reboot requirement. If you have not marked the check to disable the license notice dialog box, you are prompted to agree to a license notice before the download occurs. You will not be notified by a system tray balloon after the updates have been installed.</td>
</tr>
<tr>
<td>%PROGRAMFILES%\Lenovo\System Update\Tvsu.exe /CM -search R -action INSTALL -repository C:\MyRepository -noicon</td>
<td>Searches a repository for critical and recommended updates and installs those that do not contain a license agreement and a reboot requirement. If you have not marked the check to disable the license notice dialog box, you are prompted to agree to a license notice before the download occurs. You will not be notified by a system tray balloon after the updates have been installed.</td>
</tr>
<tr>
<td>%PROGRAMFILES%\Lenovo\System Update\Tvsu.exe /CM -search A -action INSTALL -repository C:\MyRepository -noicon</td>
<td>Searches a repository for critical, recommended and optional updates, and installs those that do not contain a license agreement and a reboot requirement. If you have not marked the check to disable the license notice dialog box, you are prompted to agree to a license notice before the download occurs. You will not be notified by a system tray balloon after the updates have been installed.</td>
</tr>
<tr>
<td>%PROGRAMFILES%\Lenovo\System Update\Tvsu.exe /CM -search C -action INSTALL -repository C:\MyRepository -noicon -includerebootpackages 1,3,4</td>
<td>Searches a repository for critical updates and then installs those with specified reboot types that do not contain a license agreement. If you have not marked the check to disable the license notice dialog box, you are prompted to agree to a license notice before the download occurs. You will not be notified by a system tray balloon after the updates have been installed. Packages with a reboot type will force system to reboot or shutdown.</td>
</tr>
</tbody>
</table>
Table 23. Command line scripts (continued)

<table>
<thead>
<tr>
<th>Scripts:</th>
<th>Description:</th>
</tr>
</thead>
<tbody>
<tr>
<td>%PROGRAMFILES%\Lenovo\System Update\Tvsu.exe /CM -search R -action INSTALL -repository C:\MyRepository -noicon -includerebootpackages 1,3,4</td>
<td>Searches a repository for critical and recommended update packages, and then installs packages with specified reboot types that do not contain a license agreement. If you have not marked the check to disable the license notice dialog box, you are prompted to agree to a license notice before the download occurs. You will not be notified by a system tray balloon after the updates have been installed. Packages with a reboot type will force system to reboot or shutdown.</td>
</tr>
<tr>
<td>%PROGRAMFILES%\Lenovo\System Update\Tvsu.exe /CM -search A -action INSTALL -repository C:\MyRepository -noicon -includerebootpackages 1,3,4</td>
<td>Searches a repository for critical, recommended and optional update packages, and then installs packages with specified reboot types that do not contain a license agreement. If you have not marked the check to disable the license notice dialog box, you are prompted to agree to a license notice before the download occurs. You will not be notified by a system tray balloon after the updates have been installed. Packages with a reboot type will force system to reboot or shutdown.</td>
</tr>
<tr>
<td>%PROGRAMFILES%\Lenovo\System Update\Tvsu.exe /CM -search C -action INSTALL -repository C:\MyRepository -noicon -includerebootpackages 1,3,4 -noreboot</td>
<td>Searches a repository for critical updates and installs those with specified reboot types that do not contain a license agreement. If you have not marked the check to disable the license notice dialog box, you are prompted to agree to a license notice before the download occurs. You will not be notified by a system tray balloon after the updates have been installed. Reboot Type 3 will suppress a system reboot.</td>
</tr>
<tr>
<td>%PROGRAMFILES%\Lenovo\System Update\Tvsu.exe /CM -search R -action INSTALL -repository C:\MyRepository -noicon -includerebootpackages 1,3,4 -noreboot</td>
<td>Searches a repository for critical and recommended updates then installs those with specified reboot types that do not contain a license agreement. If you have not marked the check to disable the license notice dialog box, you are prompted to agree to a license notice before the download occurs. You will not be notified by a system tray balloon after the updates have been installed. Reboot Type 3 will suppress a system reboot.</td>
</tr>
<tr>
<td>%PROGRAMFILES%\Lenovo\System Update\Tvsu.exe /CM -search A -action INSTALL -repository C:\MyRepository -noicon -includerebootpackages 1,3,4 -noreboot</td>
<td>Searches a repository for critical, recommended, and optional updates and then installs those with specified reboot types that do not contain a license agreement. If you have not marked the check to disable the license notice dialog box, you are prompted to agree to a license notice before the download occurs. You will not be notified by a system tray balloon after the updates have been installed. Reboot Type 3 will suppress a system reboot.</td>
</tr>
</tbody>
</table>
When System Update is performing an automatic search through a proxy server with authentication and no user name or password have been saved, no dialogs will be displayed to the end user. An error will be logged to the System Update logging file and System Update is shutdown. If the user name and password have been saved, System Update will try to connect using the saved user name and password information. If there are errors with the connection or performing the automatic search, these will be logged to the System update logging file and System Update is shutdown.

Whenever System Update is about to download and install a set of updates containing one or more packages that require automatic reboot or shutdown of the target system, no warning message is displayed informing the end user about the reboot or /shutdown.

**Note:** Command line scripts may be changed in future releases. If you use silent command line scripts and a repository to store update packages, set the following registry value to **YES** to recognize update packages with license agreements:

```
HKEY_LOCAL_MACHINE\SOFTWARE\Lenovo\System Update\Preferences\UserSettings\General\IgnoreLocalLicense
```

### Search modes

The following table provides a list of search modes supported by System Update:

*Table 24. Search modes*

<table>
<thead>
<tr>
<th>Search mode</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>-search C</td>
<td>Enables System Update to only search for critical updates.</td>
</tr>
<tr>
<td>-search R</td>
<td>Enables System Update to only search for critical and recommended updates.</td>
</tr>
<tr>
<td>-search A</td>
<td>Enables System Update to search for critical, recommended and optional updates when searching the Lenovo Help Center. When you are using a network repository, System Update searches for critical, recommended and optional update packages when using the -search A command.</td>
</tr>
</tbody>
</table>
Notification parameters

The notification parameter used on the command line specifies the way System Update handles update packages and then notifies you when packages have been processed. The following table provides the parameters and descriptions for each:

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>-action LIST</td>
<td>Enables System Update to notify you with a system tray balloon when update packages are available on the Lenovo Help Center Web site. If you click on the system tray balloon, System Update displays the License Notice dialog box, or the Updates for Your System panel. If you mark the check box Do not show again on the License Notice dialog box, System Update will not display this dialog box again.</td>
</tr>
<tr>
<td>-action DOWNLOAD</td>
<td>Enables System Update to notify you when packages have been downloaded to your system and are ready for installation. If you have not marked the check box Do not show again, System Update will prompt you to approve a license notice prior to downloading. After downloading, System Update notifies you with a system tray balloon. When you click on the system tray balloon, System Update will display the Install Deferred Updates panel and enable you to install updates of interest.</td>
</tr>
<tr>
<td>-action INSTALL</td>
<td>Enables System Update to notify you when packages have been downloaded and installed. If you have not marked the check box Do not show again, System Update will prompt you to approve a license notice prior to downloading. After downloading and installing packages, System Update notifies you with a system tray balloon. To view the status of the download and installation process, click on the system tray balloon and System Update displays the Your system has been updated system tray balloon. If a package has a reboot type of 1 or 4, then System Update prompts you with a system tray balloon at designated intervals to notify you that a package will restart your system. The designated interval for the restart notification is set in the registry with the setting. If a package has a reboot type of 3, then System Update downloads and installs the package and then prompts you with a restart notification but does not continue with restart notifications at designated intervals. Otherwise, it will download and install the packages, and then show the result.</td>
</tr>
</tbody>
</table>
Table 25. Notification parameter (continued)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>-SCHEDULER</td>
<td>Enables System Update to run from the Scheduler function. This parameter is a registry entry that has to be updated in the registry and not on the user interface.</td>
</tr>
<tr>
<td>-repository &lt;path&gt;</td>
<td>If you use a repository folder to store update packages, you must specify the folder’s path. To specify the folder’s path, use this parameter and System Update will search for update packages stored in the folder you specified.</td>
</tr>
<tr>
<td>-NoIcon</td>
<td>Using this parameter will turn off the balloon message that is displayed when packages are found or installed with System Update.</td>
</tr>
</tbody>
</table>
| -IncludeRebootPackages 1,3,4 | Enables System Update to install packages with the specified reboot types. The reboot type can be 1, 3, or 4 delimited by commas. The following list provides the value for reboot types supported by System Update:  
  - Type 1 - Reboot is forced by the package.  
  - Type 3 - Reboot is required for the package to take effect. The software distribution client will force a reboot after all packages are installed.  
  - Type 4 - Power off is forced by the package. |
| -NoReboot | Enables System Update to prevent a reboot after the system installs a package with reboot Type 3. However, this parameter can not suppress a reboot or shutdown when packages have a reboot type of 1 or 4. |
| -clearhistory | Enables you to control whether the history and session folder are preserved or deleted during and upgrade or over-install. The default is to preserve the history and session folder. |
| -clearsettings | Enables you to control whether configurable settings are preserved or deleted during an upgrade or over-install. The default is to preserve your settings. |
| -showprogress | Enables the Thin Installer program to display the progress bar during the process of searching and installing updates. The updates are preselected by the administrator, and users cannot deselect the updates. The update progress screen will close when the installation is completed. No screens or system tray icons will be displayed to indicate the results. The System Update program does not support this setting. |

Example:
tvsu.exe /CM -search A -action INSTALL -IncludeRebootPackages 1,3,4
The following list provides a description of the search mode and notification methods used:

- **search A** - enables System Update to search for critical, recommended and optional packages.
- **-action INSTALL** - installs the packages.
- **-IncludeRebootPackages 1,3,4** - enables System Update to download and install packages that require a reboot.

**Notes:**

1. If you do not include -IncludeRebootPackages 1,3,4; System Update will not detect packages that require a reboot.
2. To configure System Update to recognize license agreements automatically when you are using a local repository, and not the Lenovo Help Center Web site, set the following registry value to YES:

   ```
   HKEY_LOCAL_MACHINE\SOFTWARE\Lenovo\System Update\Preferences\UserSettings\General\IgnoreLocalLicense
   ```

   For more information about working with license agreements, see “Working with license agreements” on page 41. If you do not set this registry setting to YES, System Update will not detect packages with license agreements when using command scripts.

**Map Drive utility**

The MapDrv utility provides network share related functions for System Update. To define the network share information, use the MapDrv utility to connect or disconnect network shares. The MapDrv utility maintains this network share information in a registry key that is protected by administrator access only. The network share information includes the network share name (in UNC format), user name (saved in the registry as an encrypted string), and the password (saved in the registry as an encrypted string).

The MapDrv utility can be found in the System Update installation directory. The default installation directory is located at `c:\Program Files\Lenovo\System Update`.

Network share information is stored in the registry at:

- `HKLM\Software\Lenovo\MND\TVSAPPLICATION`
- If an Active Directory policy is used, these values are stored at: `HKLM\Software\Policies\Lenovo\MND\TVSAPPLICATION`

The values stored in this location are:

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>UNC</td>
<td>The stored network share.</td>
</tr>
<tr>
<td>User</td>
<td>The stored encrypted user name for this share.</td>
</tr>
<tr>
<td>Pwd</td>
<td>The stored encrypted password for this share.</td>
</tr>
</tbody>
</table>
Table 26. The MapDrv settings and values (continued)

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>NetPath</td>
<td>Value output from the MapDrv utility to indicate the actual connection path (may be IP dotted format if the nameserver is not working). The actual connection path may not be the same as the stored UNC value.</td>
</tr>
</tbody>
</table>

The MapDrv utility also enables an administrator to use the encryption engine to generate an encrypted user name and password, which can be used to pre-populate network share information on multiple systems. Using the encryption engine in this manner does not update the registry on the system it’s running on.

Command line interface

The command line interface to the MapDrv utility is as follows:

```
mapdrv /<function> <app id> /unc <sharename> /user <username> /pwd <password>
[/timeout <seconds>] [/s]
```

Table 27. Parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>/&lt;function&gt;</td>
<td>Identifies the function to provide. Valid values are store, connect, disconnect, and display.</td>
</tr>
<tr>
<td>&lt;app id&gt;</td>
<td>Identifies the application. The value specified is used to form the registry key name that contains the network share information. For example, TVSUAPPLICATION.</td>
</tr>
<tr>
<td>/unc &lt;sharename&gt;</td>
<td>Identifies the network share name to store. The share name should be in the UNC form (e.g. \myserver\myshare).</td>
</tr>
<tr>
<td>/user &lt;username&gt;</td>
<td>Specifies the user name to store.</td>
</tr>
<tr>
<td>/pw &lt;password&gt;</td>
<td>Specifies the password to store.</td>
</tr>
<tr>
<td>/timeout &lt;seconds&gt;</td>
<td>Connection timeout value to store. The default is 30 seconds.</td>
</tr>
<tr>
<td>/s</td>
<td>Performs the operation silently.</td>
</tr>
</tbody>
</table>

The Return code is 0 if operation was successful. Otherwise, the return code is greater than 0.

When the MapDrv utility is launched with no parameters, the end user is prompted for the network share, user name and password and then MapDrv attempts to connect to the specified network share using the specified credentials.

Using the MapDrv utility

The following sections provides ways that you can use the MapDrv command:

Displaying encrypted user name and password strings

This function displays the registry key of the network share information where the encrypted user name and password is stored. Using the /display function will not store the user name and password in the registry. You need to copy the encrypted user name and password to the appropriate registry key.

```
mapdrv /view <app id> /user <username> /pwd <password>For example,
mapdrv /view TVSUAPPLICATION /user temp/pwd password
```
Storing network share information for a TVT
This function stores the network share information in the registry using the <tvt> to define the subkey from the main MapDrv registry key:
```cmd
mapdrv /store <app id> /unc <sharename> /user <username> /pwd <password>
[/timeout <seconds>]
```
This sets the UNC, user name and password values in the registry.

Connecting to the network share for a TVT
Connect the network share for the specified TVT:
```cmd
mapdrv /connect <app id> [/s]
```
Connects to the share using the UNC, user name, and password values in the registry. The actual connection UNC is output to the NetPath value.

Disconnecting the network share for a TVT
The following command disconnects the network share for the specified TVT if currently connected:
```cmd
mapdrv /disconnect <app id>
```
Performs a net use /d [NetPath stored in registry] to disconnect the network connection.
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