

UNDERSTANDING THE MICROSOFT OFFICE 2000 INSTALLER

By Gary Busby
Of zenworksMASTER.com

Preface

The first question that may come to mind is “Why do I need to understand the Microsoft Office 2000 Installer?” Or you may ask, “I use Novell ZENworks for software distribution, so who cares!” These are good questions and by the end of this document you will understand thoroughly why you need to understand it. Simply put, to efficiently distribute software means understanding the source technology that distributes it. In this case, Microsoft has completely re-written its installation program, so much so, that understanding how it all works, will help you utilize ZENworks distribution to its fullest!

The Installer

In the past, Microsoft used the tried and true ACME Setup program to install applications. This method used text-based information from STF and INF files to copy program files, create registry settings, etc. Those days will soon be gone. The new method uses a technology they call the Installer.

The Installer is actually a relational database. This database consists of the Installer package (data1.msi). This package contains information such as the installation sequence, system dependencies, destination folder paths, setup properties, component to feature relationship, and overall installation options. This database is never actually changed or written to. Instead, it uses what is called a Transform file (.mst) to apply customizations that you desire, to transform the database from its default state.

The Installer doesn't stop there. It also is used for post-installation features such as Detect and Repair, Add/Remove programs, Run From Network and Install on First Use options. It is also used to give Elevated Rights (which is not turned ON by default) to an application on Windows NT so the user doesn't have to be a member of the local NT Administrator group.

Overall, the Installer technology creates a higher level of customization than has ever been attempted before. This is a big plus for network administrators, but as you read through this document, it has many characteristics, complexities, caveats and bugs that you need to be aware of before using it with ZENworks.

Note: You will see this technology emerge even more in Windows 2000 as it will be an integrated piece of the OS.

Updates Since the Original Release

Since the original release of Microsoft Office 2000, there have been several “enhanced features” released. Some of these enhanced features do add some more features, but looking at them closer, you will find they also fix several known bugs. Let’s take a look at each:

1. A new setup.exe (v9.0.2720). This was actually released in 6-99 and was originally used for “chained” setups. With the advent of the following “enhanced features” listed below, this file is now required in order to use these new features. Download: setupchn.exe

2. A new Custom Installation Wizard (v1.00.00.3308). Released late 9-99. This new wizard is required to be used in conjunction with the new setup.exe and the new MST file listed below. Download: orktools.exe

3. Windows Installer Shortcuts MST file. Released late 9-99. This file is used only to specifically fix several bugs. As noted in the readme file and through testing, this is what it fixes:

- Windows Desktop Update is now installed if selected in the IEAK configuration of Office 2000.
- Since the Windows Desktop Update is now installed, Windows Installer shortcuts are installed (if chosen). This allows the *Install on First Use* and “Automatic” *Detect And Repair* to work properly.

Something else to note: the “set default browser” option listed in the “Custom IE 5 Installation Options” of the CIW is no longer functional when this patch is applied.

The readme file of this fix is very informative about many issues with Office 2000. Be sure to read it thoroughly.

Download: o9wis_1.mst and o9wis_2.mst

4. Custom Maintenance Wizard (v1.00.00.3004). This is highly touted by Microsoft as an “enhanced feature” to allow you to quickly change a feature state of an application. Then, once it is run, the feature state of the application will be changed as desired. The truth of the matter is this is a bug fix. If you read p.147 of the Office 2000 Resource Kit it plainly states that you can do this with Office 2000 right out of the box, but it never worked from day one. This new wizard plainly fixes it. Download: maintwiz.exe

NOTES:

- All these files can be downloaded from the following link:

<http://www.microsoft.com/office/ork/2000/appndx/toolbox.htm>

Under the Hood: Installer Files to Know

[DATA1.MSI](#) is the Installer package.

[SETUP.EXE](#) is actually a wrapper program that performs a few pre-installation tasks and hands over any command line parameters and control to the Installer program. It is not the actual Installer.

[SETUP.INI](#) contains customization information such the location of the transform file (.mst), location of log files, and various other options.

[MSIEXEC.EXE](#) is the core component of the Installer program.

[MSI.DLL](#) is called by MSIEXEC.EXE to read and apply a transform file (.mst) and any command line parameters handed over by SETUP.EXE.

[INSTMSI.EXE](#) installs the Installer on Windows 9x.

[INSTMSIW.EXE](#) installs the Installer on Windows NT.

Note: The above two files can be used to install the Installer alone, if needed. However, the Installer is installed automatically during the Office 2000 installation.

The Transform File

A transform file is created using a new tool called the Custom Installation Wizard (CIW), which replaced the Network Installation Wizard from Office 97. This utility customizes virtually every aspect of how Office 2000 will be installed. I won't go into much detail here as it is very well documented and available for download on the Microsoft Office 2000 Resource Kit Online (<http://www.microsoft.com/office/ork>) or the Resource Kit CD.

Note: The basis of this document is utilizing the CIW and a custom created transform file launched from an administrative installation point (setup /a).

Feature States

Within the Custom Installation Wizard you have the ability to set a feature state on each component of Office 2000. These feature states are as follows:

Run From My Computer, Run All From My Computer, Run From CD, Run All From CD, Run From Network, Run All From Network, Install on First Use, and Not Available.

One of these components needs to be explained a little further:

- ⇒ ***Install on First Use***: This feature state **will not work** on a machine that doesn't have the Windows Installer shortcuts (p26, 249 of the Resource Kit). These specific shortcuts are already available on Windows 98/2000, but not on Windows 95 and NT. These shortcuts are available only if you have Internet Explorer 4.01 SP1 or greater **with** the Windows Desktop Update installed! This is very important to understand! If the Windows Installer shortcuts are not available, this state reverts to *Run From My Computer*. This is an extremely annoying requirement as there may be many people that don't have or use IE4 or greater, much less with the Windows Desktop Update installed. Even more annoying, if you want to add the Windows Desktop Update and you didn't do it with IE4, IE5 doesn't have it as an option during the

installation. You can only get the Windows Desktop Update with IE5 if it is configured using the Internet Explorer Administration Kit 5 (IEAK5).

Note: There are other web features of Office 2000 that require the Windows Desktop Update (listed on p46 of the Resource kit).

UPDATE: If you use the new “Windows Installer Shortcuts MST file”, the issue of the *Install on First Use* feature reverting to *Run From My Computer* is fixed.

Windows Installer Shortcuts

You may be asking “What is the difference between a normal Windows shortcut and a Windows Installer shortcut?” The main difference between them is the path. A Windows Installer shortcut doesn’t use a path at all. Instead, it uses a token that the Installer resolves to the path of the shortcut. To see if you are using a Windows Installer shortcut, look at the properties of an Office 2000 shortcut icon (i.e. Word 2000). If the shortcut tab contains blank and grayed out values, then it is using a Windows Installer shortcut. If you see a path to a directory and file, you are using a normal Windows shortcut.

For administrators who want to customize shortcuts, this somewhat limits that ability. Microsoft states the only way to modify the shortcut is to use the Custom Installation Wizard’s Add/Modify Shortcut section or create your own. It is NOT editable from the properties of the icon (Q229396). You may also be wondering, “How can I view what path a Windows Installer shortcut is using?” Well, it takes a C++ program to do so (Q234788).

IMPORTANT: A Windows Installer shortcut is required for Install on First Use feature state AND the Automatic Detect and Repair feature to work properly.

Note: Detect and Repair can be called manually from the Add/Remove Programs or from the Help menu of an Office 2000 application without a Windows Installer shortcut. Only the “Automatic” Detect and Repair won’t work without the Windows Installer shortcut.

Internet Explorer 5, Outlook Express 5 and other web components

There are many features of Office 2000 that require IE5. These are listed in the IE5Feats.xls document on the Resource Kit CD or Online. One interesting omission is FrontPage 2000. Without IE5, FrontPage 2000 will not work properly.

Because of these requirements, IE5 and other components, such as Outlook Express 5, are installed whether you like it or not under most circumstances. Microsoft claims it isn’t installing the entire browser, but rather the basic support components (p247, Resource Kit). However, here are some scenarios with very different outcomes if DO NOT INSTALL IE5 is set in the Custom Installation Wizard:

- ⇒ If you were to install Office 2000 on a machine that has no browser whatsoever or Netscape, go look in the Add/Remove Programs after the installation and see what you find. IE5, Outlook Express 5 and other web components were indeed installed, but there are no shortcuts, groups or icons to let you know that it is there. The only icon you will see is a *Connect to the Internet* (which launches the IE5 configuration). Better yet, go find C:\Program Files\Internet

Explorer\iexplore.exe and double-click on it. Low and behold the browser starts fully functional. (Hmmm...I thought Microsoft said the entire browser wasn't installed)

- ⇒ If IE 4 is installed (even without Outlook Express and other components), Office 2000 will NOT install IE5 or the other components. (I thought the IE5 basic components were required, so where is Outlook Express 5 and the other IE5 components?)

For an administrator who is using or wants to use IE5, this may not be an issue for you. If you're an administrator who has standardized on another browser, this may be a large thorn in your side.

UPDATE: Microsoft knowledgebase article Q235527 addresses the issue of removing the Outlook Express icon from the desktop if it's not desired.

UPDATE: Netscape users may have some good news. Microsoft has issued a document on how to use Netscape with Office 2000 instead of Internet Explorer.

Read this: <http://www.microsoft.com/office/ork/2000/journ/NavigatorOnly.htm>

Elevated Rights

Microsoft has now given the ability to install applications to a Windows NT workstation where the user is only a member of the local NT User group (in a non-Domain environment). This makes the application have sufficient administrator rights, hence, Elevated Rights. Here are some caveats you need to be aware of:

1. In order to utilize Elevated Rights, the Windows Installer must already be present. So, you would have to distribute the Installer program prior to distributing Office 2000. And, guess what? It takes administrator rights to install the Installer.
2. The Elevated Rights registry keys listed in the Office 2000 Resource Kit (Online or CD) are incorrect. The correct registry key location is listed in Microsoft Knowledgebase article Q236442.

Related Microsoft Knowledgebase articles of Interest: Q231611, Q229459

Note: Elevated Rights is not an issue if you are using ZEN to distribute it.

Bugs and Such

1. During the Custom Installation Wizard, you have an option to use the Internet Explorer Administration Kit 5 to install IE5 to your specifications during the install of Office 2000. The following IEAK5 options are completely ignored during the Office 2000 installation:

⇒ *Windows Desktop Update* (Q233250)

Note: This means that if the Windows Desktop Update was not already present on a users machine, the Windows Installer Shortcuts will not be installed during the installation, therefore, any components that rely on the Windows Desktop Update will not work. You will need to install IE5 with the Windows Desktop Update before installing Office 2000. They claim this will be fixed in Service Pack 1.

UPDATE: This is fixed if you use the new "Windows Installer Shortcuts MST file".

=> *Connection Configuration*. Even if you set your configuration, the user will still be prompted to go through the Connection Wizard. It has been reported Microsoft.

Note: These two options work fine through IEAK5 outside of the Office 2000 Custom Installation Wizard.

2. Have you ever noticed if you want to force a reboot after the initial install and you set it as such in the CIW or in the SETUP.INI it still doesn't automatically reboot? Well, this is a confirmed bug (Q233119). The only workaround is to set it at the command line (i.e. *setup /qb-*). They claim this will be fixed in Service Pack 1.

3. In an IEAK5 configuration (within the CIW or IEAK5 stand alone), if you set the Active Desktop with *View My Desktop As a Web Page* NOT checked and the background as NONE, it will not be set as so. You will get the default black Active Desktop web page background and it will be enabled.

UPDATE: Microsoft has confirmed this in the readme file of the "Windows Installer Shortcuts MST file". They list the only workaround is to Disable Active Desktop and on some occasions, it may take a second reboot for it to do so. They also state there is more information coming in regards to this issue.

4. If you use the *LIMITUI = True* setting, the user will be unable to access the Maintenance Mode menu in the Add/Remove Programs in the Control Panel after the installation. This means the user or anyone else on the machine will be unable to uninstall it, add or remove features or run a repair. The only workaround is to use command line parameters (i.e. *setup.exe /x* to uninstall it). Microsoft has confirmed this to be a bug.

5. If you use the *REBOOT = Force* setting, you will be prompted to reboot during the second phase of the installation even though it isn't necessary. If you say YES to this reboot on NT, an error may appear very quickly about the "systray.exe dll failed to initialize", as well as, several other system tray items. Setting it to its default state of *REBOOT = OnlyIfNeeded* (or not setting it at all), will eliminate the need to reboot and the errors will cease. It has been reported to Microsoft.

6. Once Office 2000 is installed, running setup again to push changes you may have made to a transform file will not be applied. A workaround is to use the command line options. Ex. *setup ADDLOCAL=PPTFiles* to install PowerPoint locally. For more details on this, read p147 of the Resource Kit in conjunction with the *Filelist.xls* (Resource Kit CD or online) for a list of the feature names.

UPDATE: This is fixed in the new Custom Maintenance Wizard.

Notes:

=> This isn't referring to "added" content, only the default features of Office 2000.

"Added" content is considered "user" data and will not be updated. You must alter a registry key to apply changes. Read Q229715.

=> Microsoft has confirmed that any changes to the *HIDE* or *UNHIDE* setting of a feature will NOT be updated regardless of how setup is run for a second time or more.

Useful Tidbits

1. Did you know when you install Office 2000 the Installer caches the data1.msi on the users machine for future reference? It sure does. It renames it in a numerical value (i.e. 3187748.msi) in a hidden directory called INSTALLER.
2. Microsoft states that it will release the Windows Desktop Update as a separate downloadable and installation in the near future so that it won't require an IE 4/5 installation.
UPDATE: This may not occur after all. Microsoft is backing away from this statement.
3. Microsoft states that it is going to create a utility that can be used to alter a MST file without having to go through the CIW. Quick and simple.
UPDATE: This is now called the Custom Maintenance Wizard available now.
4. Microsoft states not to use any other version of IEAK5 other than the one that is included on the Office 2000 CD (which is launched in the CIW).
5. The IEAK5 that comes with Office 2000 is a "limited" version. It doesn't include a "Full Install" option or the installation mode (silent, hands-free, or user choice).
6. The IE5 section of the CIW is really confusing. If you choose to use IEAK5, why is there an option to choose the *Upgrade Mode* and *Set Default Browser*? These settings are available from within IEAK5. The help file says, "You can choose Standard or Minimum modes. Use the Internet Explorer 5 Administrator Kit to customize which Internet Explorer 5 components are installed in each mode". BUT... the *Upgrade Mode* options (Minimum, Standard) don't match the install options in IEAK5 (Minimal, Typical). It has been reported to Microsoft and they were as perplexed as I was. They agreed that if an IEAK5 configuration was set, then the remaining settings should be grayed out.
Note: The *Upgrade Mode* will always take precedence over the mode you set in IEAK5.
UPDATE: If you use the new "Windows Installer Shortcuts MST file", the *Set Default Browser* option is rendered non-functional to eliminate the problem of having 2 settings for default browser.
7. There are differences between the *Detect and Repair* modes to take note of. Read Q230672.
UPDATE: A new knowledgebase article explains the process even further (Q235620). Especially take note about the keypath.xls
8. There is no simple "off" switch for "Automatic" *Detect and Repair*. The only way to stop it is to not have the Windows Desktop Update installed or to not check the box in the Create\Modify Shortcuts section of the CIW for *Create Windows Installer Shortcuts*. It has been requested of Microsoft for a simple method of doing this.
9. Since "Automatic" *Detect and Repair* won't work on a machine that doesn't have the Windows Desktop Update (which creates Windows Installer shortcuts), you can correct the problem even though you've already installed Office 2000. Just install IE 4 or 5 with the Windows Desktop Update, then run *setup /fs data1.msi* from the source location. Once it is run, the applications will now use the Windows Installer Shortcuts and the "Automatic" *Detect and Repair* will now work.
Another alternative is to run *Repair Errors in my Office Installation* with the *Repair*

My Shortcuts box checked from the *Repair Office* option in the Add/Remove Programs of Office 2000 in the Control Panel. However, it will do much more than just fix the shortcuts and takes longer.

UPDATE: This issue is fixed with the new “Windows Installer Shortcuts MST file”.

10. Sometimes the administrative installation point can become corrupted, one symptom I’ve seen is this error when running *setup /fs data1.msi* (used to fix Windows Installer Shortcuts):

Error 1904

Module C:\Program Files\Common Files\Microsoft Shared\MSDesigners98\MDT2DB.DLL failed to register. HRESULT – 2147024770. Contact your support personnel

It will fail on 5 more files: MDT2DD.DLL, MDT2QD.DLL, MDT2DF.DLL, MDT2DF.DLL, MDT2GDDO.DLL, and MDT2GDDR.DLL

Interestingly enough, if you choose IGNORE at the error message, it seemed to fix the shortcuts as desired anyway. To fix it permanently, delete the administrative installation point and run *setup /a data1.msi* to re-install it.

11. Altering an MST file many times can cause corruption. Some symptoms I’ve run across: being prompted as many as 4 times to reboot during the installation; running setup starts the installation, but very quickly ceases (no errors). Once you’re done testing and have solidified the settings you desire, it may be best to create a transform file from scratch to avoid possible corruption. Remember that it is a database, and databases can get corrupted.
12. IEAK5:
 - => In order to see *Active Desktop* and *Desktop Toolbars* configurations, you must have installed the Windows Desktop Update on the machine you are building IEAK5 on.
 - => Be sure to keep your IE5 configuration active and accessible to your users. If they want to add components from Add/Remove Programs, it will default to the installation location.

Tips for ZENworks

Although this document does not go into step-by-step details about configuring Office 2000 for distribution with ZENworks, it will point out some tips that may assist you.

1. Make a decision on how you want Office 2000 installed. For the highest level of customization and automation, creating an administrative installation point (using *setup /a data1.msi*) on a server then creating a transform file may be the best method overall for use with ZENworks.

2. Ask yourself questions like:

If Office 2000 supplies a *Detect and Repair* feature, do I even want to use a snAppShot “self-healing” application object?

Do I want to use *Run From Network*, *Install on First Use*, and *Detect and Repair*? If so, what are the bandwidth and traffic issues?

Do my workstations meet the requirements (IE4/5 with Windows Desktop Update) for using *Install on First Use* and *Detect and Repair*?

UPDATE: Fixed with the new “Windows Installer Shortcuts MST file”.

Do I care that IE5 and Outlook Express are forcefully installed in most cases?

3. Keep in mind that since the *Install on First Use* and *Detect and Repair* require the Installer and the Windows Desktop Update to work properly, using snAppShot may not be the best method if you want to use these features. snAppShot will work better if you set all components to *Run All From My Computer*. Also consider using a ZENworks Custom Scheduled Action or the Application Launcher to launch the native setup of Office 2000.

4. Don't attempt to snAppShot Office 2000 if it has had the Windows Installer installed. This would include:

=> If Office 2000 has ever been installed on the snAppShot machine before.

=> If you inserted the Office 2000 CD and it “AutoRun” the CD menu. This menu will install the Installer automatically without prompting.

=> You inserted the Office 2000 Resource Kit and it “AutoRun” the CD menu. This menu will install the Installer automatically without prompting.

If the Installer is already installed before snAppShot has been run, you will get Installer errors on the machines that you applied the application object to.

5. Helpful Office 2000 switches for a snAppShot (case sensitive):

=> */wait* :this switch tells setup.exe to wait for msiexec.exe to finish before terminating. This ensures the installation process is completed BEFORE setup.exe terminates and the snAppShot gets all information.

=> *NOUSERNAME = True* :this switch tells the install not to assign a user name to each application. This will ensure that when the intended user launches each application, they will be prompted for their username and initials upon first launch.

References

All material was gained from the following:

1. Microsoft Office 2000 Resource Kit (CD and Online)

2. Microsoft Knowledgebase

3. Microsoft Technical Support

4. Microsoft Installer SDK:

<http://www.microsoft.com/msdownload/platformsdk/wininst.htm>

5. Planning, testing, and implementing an enterprise-wide deployment.