

My sincerest thanks to Ted Laun, Associate Systems Administrator for CNET Networks, who served as the primary source of information for this download.

By Bill Detwiler

Properly configured and maintained system images can dramatically reduce desktop deployment and support times. Images also standardize systems, reducing surprises during support calls. Furthermore, third-party disk imaging products, such as [Symantec Ghost](#) or [Altiris Client Management Suite](#), have significantly simplified the image creation and maintenance process. The following 10+ tips will help you create a reliable Windows system image and successfully deploy that image across your organization.

1

Create as few images as possible--one is best. – Having few, or a single, system images reduces the time required to build and maintain reliable images and simplifies the deployment process.

Windows versions prior to XP often required a unique image for each desktop hardware configuration.

Windows XP and later versions allow you to install a single image across multiple hardware configurations providing the image meets a few conditions. First, the reference and destination computers must have identical [Hardware Abstraction Layers \(HALs\)](#). Second, the reference and destination machines must have the same Advanced Configuration and Power Interface (ACPI) support. Third, the reference and destination computers must have identical mass-storage controllers (IDE or SCSI). Fourth, You must have device drivers available for all Plug-and-Play devices on the destination computer. Lastly, the destination computer's hard drive must be at least the same size as the reference computer's hard disk. If the destination computer's hard drive is larger, the primary partition will not include the extra space. If the primary partition was formatted using NTFS, you can extend the primary partition using the ExtendOemPartition entry in the Sysprep.inf file.

2

Test and retest your image. – Unless your desktops have extremely similar hardware configurations, you should test your image on each type of machine you use. While it's not necessary for desktops to have exactly the same Plug-and-Play device configurations, they must support the same HAL and mass-storage device. It's particularly important to test the image on your desktops and laptops, if you plan to use the same image for both.

3

Use a slipstream CD to install Windows, relevant service packs, and updates. – When you install a Windows update or service pack, the installation process creates a backup of existing files that allow you to uninstall the update or service pack. This process works well on existing Windows machines with plenty of storage, but the uninstall files are unnecessary for and can significantly bloat your image. You want to keep your image as small and clean as possible.

Instead of installing Windows on the reference machine and then applying individual service packs, create a slipstream CD with all relevant updates and install from that CD. For information on creating a Windows XP slipstream CD, check out Greg Shultz's TechRepublic article, ["Creating a quick Windows XP SP2 slipstream CD"](#).

4

Appropriately configure the self-healing properties for all Microsoft software. – If your image will include Microsoft applications, such as Office, you should properly configure each application's installation source. If an installation file becomes corrupt or the user wants to install new application features, the Windows Installer will look for the necessary files using the installation source path. If the application was installed from a CD, the source path would be the letter of the local installation drive. If the application was installed from a network CD image, the source path will likely be the network location.

It's often helpful for users to have an installation source path other than the default or multiple source paths: users may not have an installation CD; if one installation source is unavailable users will have a backup; having an installation sources each office or geographic region will reduce network traffic. After installing the application you can specify a new source path by editing the following registry key:

```
HKEY_LOCAL_MACHINE\SOFTWARE\Classes\Installer\Products\Product Code\SourceList\Net
```

Where "Product Code" is the application's unique product code. For example, the following registry key shows the product code for Microsoft Office 2003.

```
HKEY_LOCAL_MACHINE\SOFTWARE\Classes\Installer\Products\9040210900063D11C8EF10054038389C
```

5

Ensure the image includes all necessary site-license and free software. – If your organization has site licenses for WinZip, a VPN client, SnagIt, or other utilities, put them on the image. Likewise, ensure that your image has commonly used freeware applications--Adobe Acrobat Reader,

Microsoft's Visio Viewer, and the like. Having these applications on the image, means you don't have to install them later.

While WinZip may only take five minutes to install, consider installing it on 1,000 machines. That's a total of 5,000 minutes or slightly more than 83 hours. Even if you push these applications with a network installation package, you must still build the package, troubleshoot the failed installations, and take time away from your users. Put the utilities on the image and save yourself and your users time.

6

Create a clean, carefully planned Default User profile. – Keep in mind that your image's Default User profile will be copied to every imaged desktop in the organization. You should therefore be very thoughtful when creating this profile. Consider whether you want to use the Windows XP default Start menu or the Classic Start menu. How do you want the Programs menu to look? Do all the shortcuts work correctly? What shortcuts do you want on the Desktop?

To create the image's Default User profile, you should create a new user profile on the reference machine (named anything you want), configure the profile as you want, and then use it to replace the contents of the Default User profile folder--usually found at C:\Documents and Settings\Default User.

7

Defrag the reference computer before creating the image. – Once you've built and tested you're your reference machine's configuration, you should defragment the hard drive before actually creating the image. As you installed software on the reference machine, you likely fragmented the hard drive.

Don't transfer this fragmentation to every destination machine you image and then require each user to defragment their hard drive as soon as the image process is complete. This simple trick will save you and your user time in the long run.

8

Learn and live Microsoft's System Preparation Tool (Sysprep). – Sysprep, available on the Windows XP CD, will prepare the reference computer to be imaged and create the Sysprep.inf answer--used during installation on the reference computer. This allows you to customize the image and installation process. For detailed directions on using Sysprep, check out Diana Huggins' TechProGuild article, "[Using Sysprep to create a Windows XP image](#)," and Microsoft Knowledge Base (MSKB) article 302577, "[How to use the Sysprep tool to automate successful deployment of Windows XP](#)".

9

Download the Windows XP Service Pack 2 Deployment Tools from Microsoft's Web site. –

While these tools are available on the Windows XP CD, you should download the latest set of deploy tools, such as [Windows XP Service Pack 2 Deployment Tools](#), from the Microsoft Web site. This file contains updated files and documentation helpful for imaging and deploying image across multiple computers.

10

Use third-party imaging software and deployment tools if applicable. – Third-party disk imaging products, such as [Symantec Ghost](#) or [Altiris Client Management Suite](#), significantly simplify image creation and maintenance. They allow you to open and edit an image file without having to actually install the image on a reference machine and then recreate the image. This saves a significant amount of time when update your images. These third-party tools also have other benefits, such as allowing you to add startup scripts to the image.

11

Use PXE server. – The Preboot Execution Environment (PXE) protocol and services can be used to remotely boot a PC and initiate system software downloads. Most modern enterprise desktops should have PXE-complaint network interface cards (NICs). Using Microsoft's [Remote Installation Services \(RIS\)](#) or a third-party deployment application, such as [Altiris Client Management Suite](#), and a PXE server, you can remotely image destination machines.

12

Regularly update the image. – As your organization buys new machines, you will undoubtedly need to update your image with appropriate OEM drivers. You will also want to include new Windows Service Packs and critical security updates. This doesn't mean you need to update your image each month when Microsoft releases a new patch. But you should update your image to reflect significant system changes, such as adopting a new service pack, acquiring a new site-licensed product, deploying a new office productivity suite, and so forth.



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