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# Ten Things You Should Know about Windows 7 vs. Windows XP

# Ten Things You Should Know about Windows 7 vs. Windows XP

Glenn Weadock, Global Knowledge Instructor, MCT, MCITP, MCSE, MCSA, A+

## Introduction

So you're an XP shop and your organization skipped Vista, but is considering taking the plunge to the latest revision of the Longhorn platform: Windows 7. Here are ten things that you should probably know as you get familiar with this new Windows client:

- 1: The Deployment Tools Is Much Better
- 2: Tools Exist to Help with Application Compatibility
- 3: Security Is Better
- 4: The Consoles Are More Grown Up
- 5: You Can Make Windows 7 Look Like XP
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- 8: Many New Group Policy Settings Only Apply to Longhorn
- 9: You're Going to Need New Drivers
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## 1: The Deployment Tools Is Much Better

Windows 7 can be deployed using the tools in the most recent version of the Windows Automated Installation Kit (WAIK). This free download includes various deployment tools, including:

- ImageX, for capturing, mounting, and applying image snapshots using the new WIM image format
- System Image Manager, for creating unattended "answer files" in situations where you need some flexibility but don't necessarily want to create multiple image files
- Deployment Image Servicing and Management (DISM), which lets you add device drivers, language packs, and operating system updates to an image
- User State Migration Tool (USMT), which has been around for several years and assists with the migration of user profile information to a new system

These tools work hand-in-glove with the server-side Windows Deployment Service (WDS), the follow-on to Remote Installation Service (RIS). WDS offers over-the-network booting, image selection, and multicasting. However, you can also deploy Windows 7 using optical media, flash drives, and external hard drives, if network deployment is inconvenient.

The WIM format is file-based rather than sector-based, which means that you can re-image a system without necessarily destroying all user data on that system.

The WAIK also includes everything you need to create boot images using WinPE, the Windows Preinstallation Environment. (WinPE is the graphical OS you are running when you start a clean install of Windows 7.)

All these tools can be pretty confusing, so if you plan to use them, it would be a good idea to download the "Microsoft Deployment Toolkit 2010." (This toolkit was released in 2009. Does the IT industry really want to emulate the auto industry this closely?) It's a free toolkit that has some helpful help, useful scripts, scenarios, examples, consoles, and so forth.

## 2: Tools Exist to Help with Application Compatibility

With every operating system migration, there are bound to be challenges that come up with respect to application compatibility problems. Indeed, this is the number one reason many organizations do not upgrade operating systems every time a new one appears on the market. Windows 7 is close enough to Vista in its core design that Vista applications should work well in Windows 7, but for applications designed for XP, you may have some work to do.

One potential area of concern is User Account Control, a Longhorn feature in which even if you log on as an Administrator you don't get an elevated security token until you actually try to perform a task that requires Administrator privileges, can create problems with some applications. You may be able to solve them by setting applications to run "as an administrator" but this doesn't always get you out of the woods.

Microsoft has provided some tools to assist organizations in getting legacy apps to run in Windows 7. For example, the Windows XP Emulation Mode capability (only available on Ultimate and Professional versions) combines two downloadable (i.e., not-in-the-Windows-7-box) technologies: Virtual PC, and "Windows XP Mode," which is much larger (approaching half a gigabyte).

Microsoft decided that it would be smart to provide a virtual XP system where Windows 7 users can run apps that refuse to run satisfactorily under Windows 7 natively. I put this in the "last resort" category: if you can't get an app to run using the various other tricks (such as the EXE file's Compatibility tab), then use Windows XP Emulation Mode. It's not an especially elegant solution, because you're virtualizing an entire XP system in order to run an application that doesn't like Windows 7, but at least it works.

To use "Windows XP Mode," you have to have virtualization support on your computer (we're talking Intel-VT on Intel motherboards and AMD-V on AMD ones). This shouldn't be much of an issue; most systems of recent vintage will have this capability. You also need gobs more disk space, according to Microsoft.

In the same spirit as Windows XP Mode comes IE8 "Compatibility View." This is a special IE8 mode that interprets Web pages just as IE7 would. By default, IE8 runs in "Standards Mode" for Web addresses. Standards Mode adheres more closely to published Internet standards. Visiting intranet locations causes IE8 to default

to Compatibility View. However, you can modify the META tag, or the HTTP header, to force Standards Mode if that's what you want. You can also configure this feature via Group Policy in an Active Directory network.

The Application Compatibility Toolkit (ACT) is a "heavy" download that provides a SQL Server database, a number of compatibility evaluators, and a mechanism for deploying "shims" that can improve the ability of applications to work happily under Windows 7. It's nice to have this available but plan to spend some time learning it. Even if you ultimately can't create shims that will make every legacy application work with Windows 7, the evaluators can help you pinpoint specific compatibility problems that can let you choose whether to relax file and registry security in order to achieve better compatibility.

App-V. "Application Virtualization" used to be known as SoftGrid. It's part of what the company calls the Microsoft Desktop Optimization Pack, or MDOP. This technology allows organizations to support multiple versions of a given application by presenting the app in a virtual environment tailored to a specific version. Because the applications are never actually installed, but stream as a virtual service, they can't conflict with each other.

### 3: Security Is Better

There's not much doubt in my mind that Windows 7 is substantially more secure than Windows XP. How much of Windows 7's security you choose to use will be up to you, but much of the improvement is behind-the-scenes and nonintrusive.

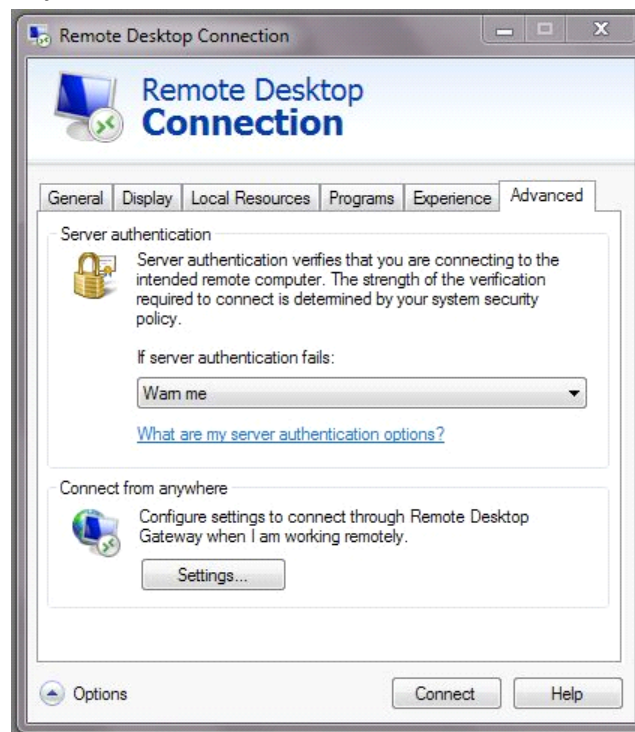
Microsoft has tightened up the access control lists on system files, many of which now no longer grant Modify rights to system administrators. This is one more step along Microsoft's path of making it ever more difficult to overwrite, replace, or update system files outside of the patch management and service pack scenarios. It's fair to say that we are now a long way removed from the laissez-faire world of Windows 9x in this regard!

Many operating system services now have their own security identifiers (SIDs) and their access to the system is circumscribed in order to help slow the spread of malware and viruses and improve overall reliability. You will hear this feature referred to as "per-service SIDs" and it makes a lot of sense. Best of all, as administrators, we don't have to do anything to take advantage of it. The work has been done behind the scenes.

User Account Control is an effort to reduce the likelihood of unauthorized programs running with high security tokens and being able to inflict rapid and widespread damage on your systems. A well-intentioned design, but unfortunately its confirmation prompts are an annoyance for administrators. Microsoft has tried to make it a bit more usable by providing a slider control, but providing four settings, of which two are not recommended, doesn't really offer much of an improvement. The Group Policy settings for UAC are little changed from Vista. When you look at this capability, consider that you can turn it on and off on a per-OU basis. You may well want to disable it for Organizational Units containing accounts of people who perform frequent administrative tasks. Also remember that it does not integrate with the command prompt, so if you think you might want to do something that requires admin rights, run CMD with the "Run as administrator" context-menu option.

Remote Desktop Connection has been around for many years but it's more secure in Windows 7. Server authentication (see Figure 1) provides a verification step that ensures you're connecting to the right machine; it's only

available with other Longhorn operating systems though, and the warning screens can be annoying if you must connect often to Server 2003 or XP systems. Thankfully the behavior of Remote Desktop Connection can be controlled through Group Policy.



**Figure 1: Network Level Authentication in Remote Desktop Connection**

BitLocker is a secure full-volume encryption technology that weds your hard drive to a Trusted Platform Module (TPM) chip on your motherboard. Its impact on I/O performance is minimal and it has proved to be a robust technology since its introduction with Vista. It requires a minimum of two partitions but that is now the default setup in Windows 7. Windows 7 extends the BitLocker technology to portable external drives in a variant named "BitLocker-to-Go."

AppLocker isn't really new, it's a new name for Software Restriction Policies, which have been available with previous versions of Windows. This is a handy method for blacklisting programs that create support, performance, or stability problems for your software environment.

## 4: The Consoles Are More Grown Up

One of the good aspects of Vista has carried over to Windows 7, and that is a more sophisticated set of management tools. The so-called "Administrative Tools" use the longstanding MMC shell with its tri-pane design (although I often end up disabling the Actions pane to get more room for the Details pane).

The Event Viewer has become substantially more informative, with many more logs, most of which appear under the "Applications and Services Logs" heading. You certainly won't use all of these logs, especially the ones

tagged "Operational," but it's nice to have them there. The new dedicated log for Group Policy events is a boon for any XP troubleshooter who's had to wade through USERENV.LOG. It's easy to copy an XML file containing event details, and you can now create an "event collector" machine that can gather specific events from multiple source computers and store them in one place - usually, the ForwardedEvents container.

The Reliability Monitor (see Figure 2) is a useful tool for evaluating the impact of software installs and uninstalls. This tool is a little hard to find; it's in the new "Action Center" which you can access from the taskbar's system notification area, by the clock. (I find it very strange that this tool isn't in the Computer Management console.) Open the Action Center, click the Maintenance bar to expand its hidden contents, then click "View Reliability History." You can see a running year of events, both critical and informational, and see a graph of how those events have affected the overall system reliability in terms of hangs and crashes. You can save the reports to an XML file and, if you're feeling ambitious, do a bit of programming and aggregate reliability data from multiple machines.

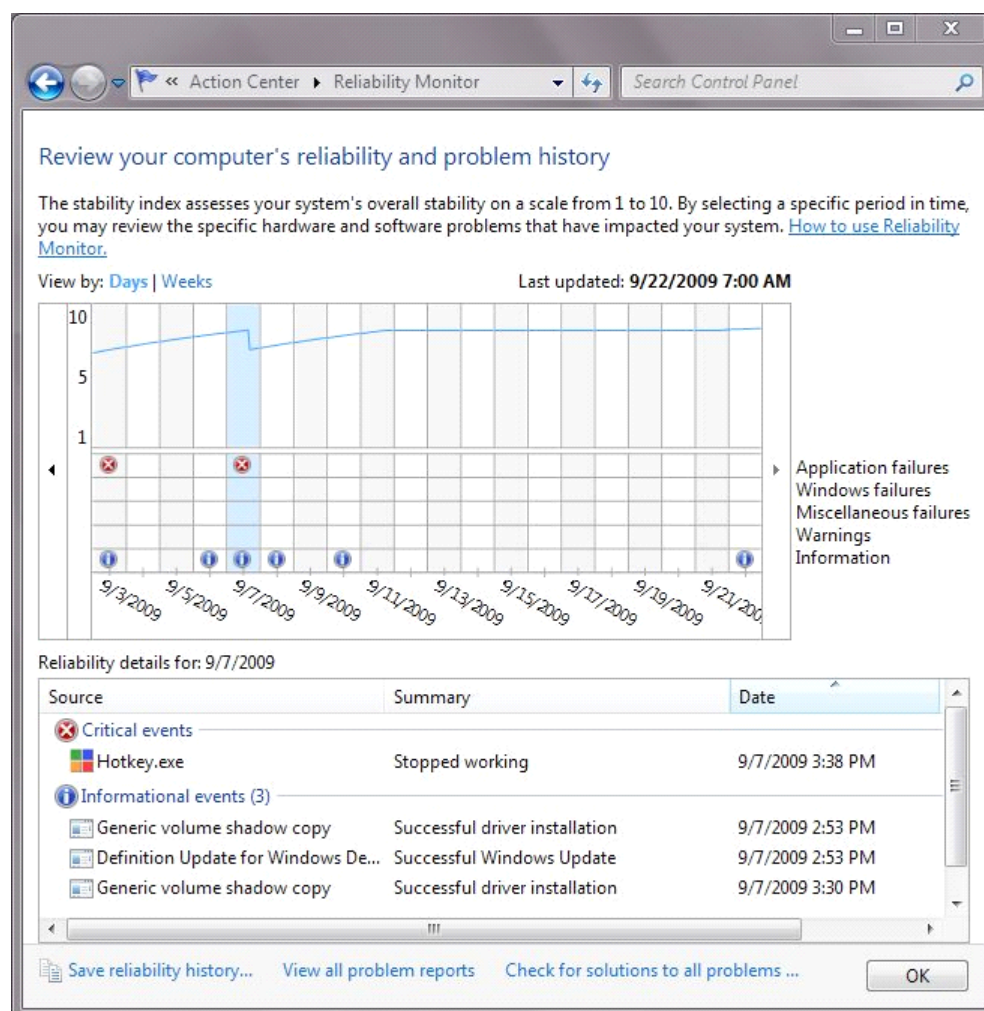


Figure 2: Reliability Monitor

The Scheduled Tasks tool is also more grown-up, although the name is not particularly accurate anymore. You can indeed use this tool to create a scheduled task, but also a triggered task (launched by the logging of a specific event), and an on-demand task that is actually never scheduled at all.

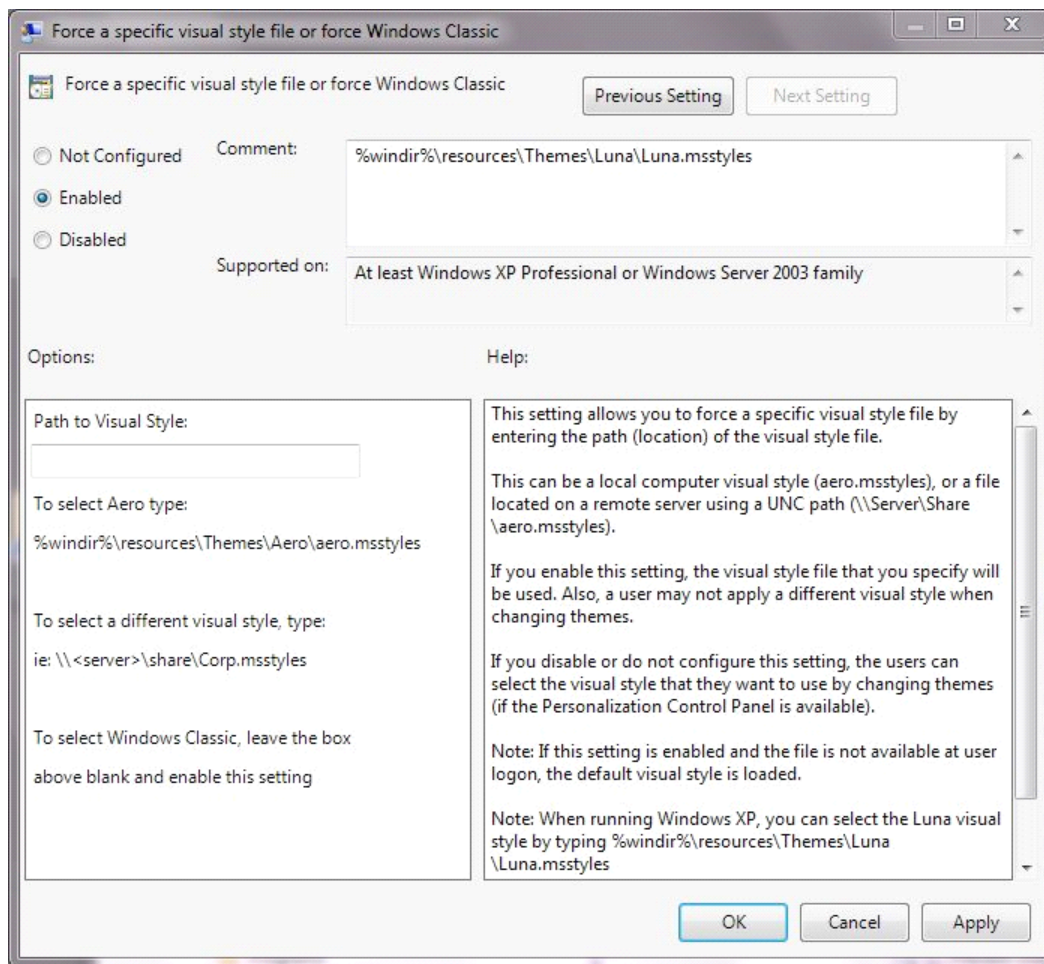
There are other examples of updated and expanded administrative tools, but this should be enough to get across the idea that with Windows 7, you have more such tools than ever before, and they are more capable and informative than in previous versions of Windows.

## 5: You Can Make Windows 7 Look Like XP

Every desktop administrator worries about the potential disruption from a new user interface. For organizations making the jump from XP to Windows 7, the look and feel is substantially different out of the box. There's a realtime search box on the Start menu; the Taskbar can now show both loaded and "pinned" but unloaded applications (which, personally, I find rather confusing!); there's the new concept of a "Library" which is a collection of related documents which may be scattered about in various different folders; the network control panel has had a complete overhaul and looks radically different; the XP-style Windows Explorer has given way to a Vista-style explorer complete with "breadcrumbs trails"; the search facility has about its seventh facelift in as many years and works dramatically different from XP's search facility; plus there are about two hundred other subtle changes all through the user interface.

Some of the user interface changes are off-putting at first but people like them after a while. The breadcrumbs trail, for example, is actually very convenient. The search box on the Start menu is handy. The "live thumbnail" view of taskbar icons can be handy. Even so, if you want to make Windows 7 look more like XP in order to ease the transition, and then turn on aspects of the Windows 7 GUI later on after the initial migration is complete, Microsoft has provided some tools for doing so. For example, you can use Group Policy to set the desktop's visual style to match XP's "Luna" interface (see Figure 3). You can also choose from among dozens of settings that specify how the control panels, Start button, and taskbar should look and feel; you can achieve a fairly close approximation to the XP GUI with these policies.





**Figure 3: Setting the Luna Visual Style**

## 6: Windows 7 Is Quick

One of the major criticisms of Vista was that it seemed to take a long time to perform relatively straightforward tasks. Its file copy performance was often surprisingly slow, for example. Windows 7 seems to have made great strides in this area. It installs and boots quickly, aided by coding improvements as well as the “delayed start” service type that recognizes the fact that not all services need to start before one can begin working. (Understand, however, that delayed-start services may mean that some operating system features may not be available the moment you see the desktop.) The file copy performance, particularly with large files, seems to be much improved. There are fewer strange delays during common actions. And you can boot up from hibernate and standby modes more rapidly than from a cold start. Windows 7 also seems to make more efficient use of multicore processors than Vista did, although my experience with this is more anecdotal than scientific.

If you’re an XP shop and you passed on Vista in part due to performance concerns, take a close look at Windows 7 and do some benchmarking of your own. I find it to be a snappy performer, especially when turning off all the eye-candy features in the user interface (all the sliding, fading, animation, oozing, et cetera), making sure the disk defragmenter is set on a sensible schedule, and fixing the size of the page file to 300% of installed RAM. If



you don't think the AERO glass interface adds that much to the user experience, you can turn it off for additional performance gains. With this operating system, I suspect you're going to be much more concerned with the performance overhead of your anti-malware and anti-spyware software than with the OS itself. I haven't found the need to delve into the processes list and look for things to kill, as I did frequently with Vista.

You can use the performance information control panel (see Figure 4) to take a quick look at relative values for the performance of a given machine's major subsystems. For some odd reason, Microsoft persists in calculating the "base score" as the lowest of the component scores, but for business applications the AERO graphics evaluation is just about useless, so you can look at your own weighted average of processor, memory, and disk scores to get a more relevant figure.

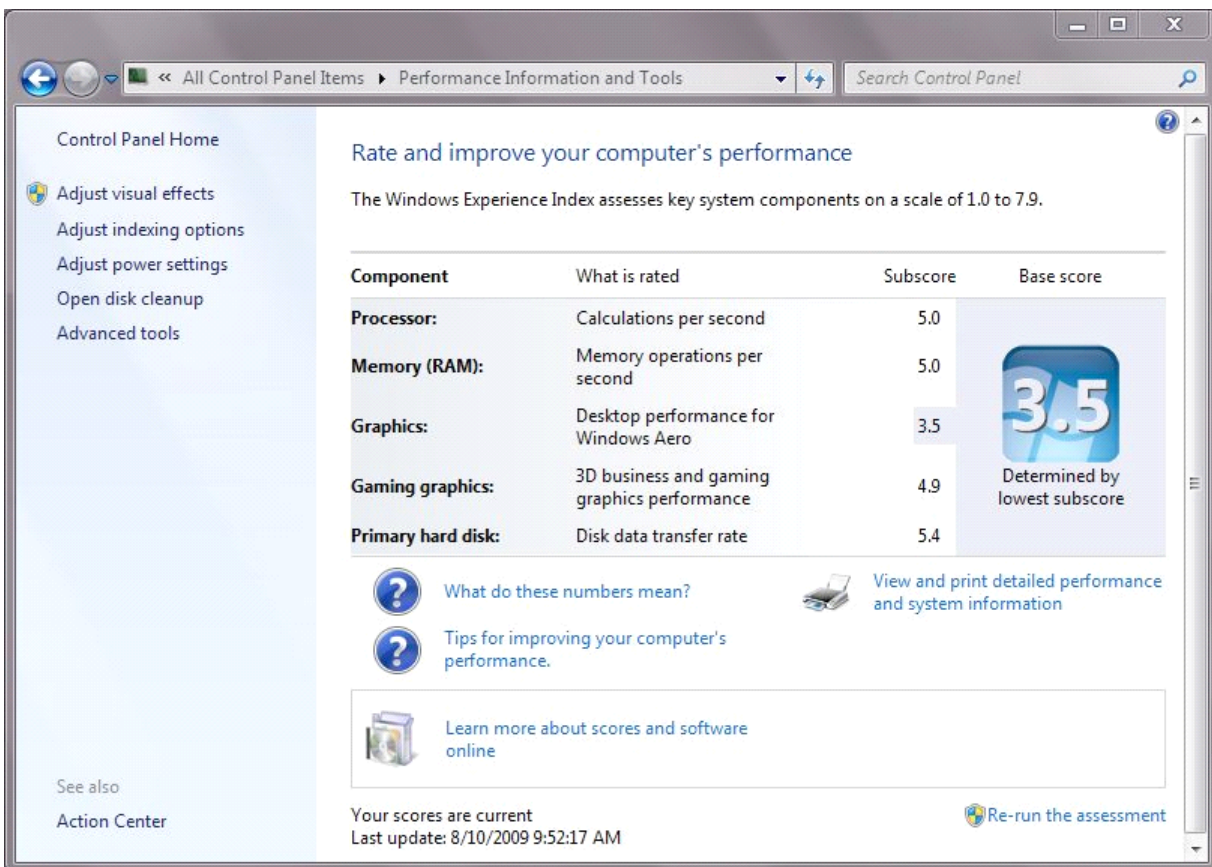


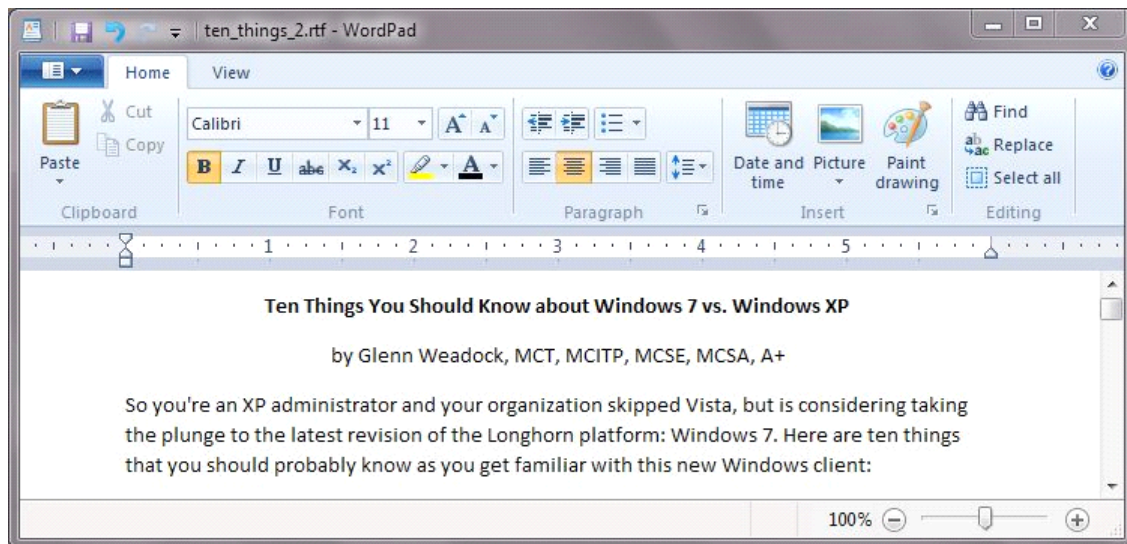
Figure 4: Viewing Relative Performance Figures

## 7: The Applets Are Better

I'm glad to report that Windows 7 has given the non-Media Player applets a fresh coat of paint and, in some cases, a real structural overhaul as well.

- WordPad (see Figure 5) has become a perfectly usable word processor for students and professionals who don't need fancy features; it even "feels" like the Office 2007 applications in terms of the user interface.

- Calculator now includes some very practical capabilities, such as unit conversions, and even features for programmers and statisticians.
- Paint is no longer a complete embarrassment (although it still lacks the two capabilities I use most, namely contrast and brightness).
- The Snipping Tool is a boon for people creating documentation because it makes grabbing partial or complete screen snapshots a piece of cake.
- The Windows 7 update of Microsoft's backup utility isn't perfect; for example, it doesn't support network backups unless you're running Professional, Ultimate, or Enterprise. But you can now select individual files or folders to back up, unlike in Vista, and the tool is quite fast.



**Figure 5: WordPad Grows Up**

If you're going to include applets in an operating system, make them usable and useful. Microsoft has done some nice work along these lines, and organizations will want to make sure users know about it, by including some "applet awareness training" as part of the migration plan.

## 8: Many New Group Policy Settings Only Apply to Longhorn

Everybody loves the ability to tailor their Active Directory networks with Group Policy. It's one of AD's best features. And Windows 7 works with a raft of Group Policy settings that weren't available with XP. Just understand that many of these new settings will not apply to XP. (When in doubt, you can always look for the "Supported on:" notation in the Group Policy editor when viewing a specific policy setting.) Here's a sampling:

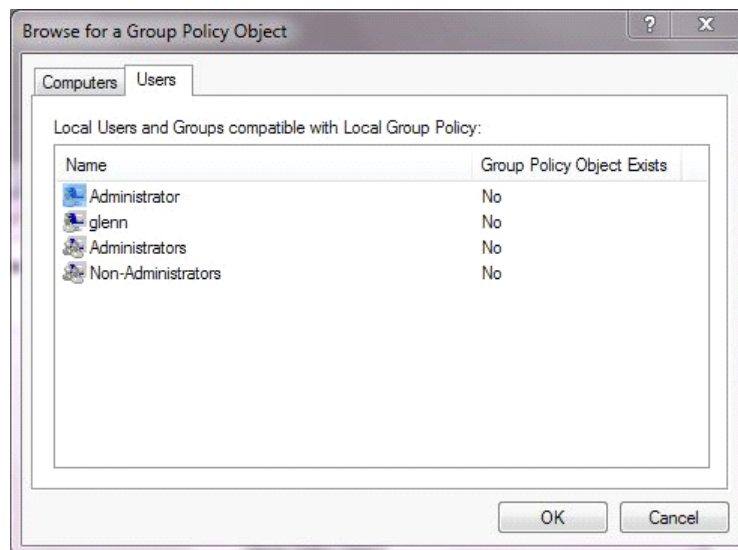
Power management is one major area of particular interest to shops with lots of desktop or tower machines. (Laptops tend to consume a lot less power in the first place, and they also tend to have more power-saving technologies integrated in their design.)

Device management is another big area. Longhorn operating systems include Group Policy settings to permit or deny the installation of devices based on Plug-and-Play identifiers. It may take a bit of research and experimentation to ferret out the correct identifiers - Device Manager is a helpful reference here - but you can now exert more control over who can install what.

Diagnostics settings let you specify things like what you want Windows 7 to do if it detects a hard drive problem. Windows 7 includes a number of new diagnostics capabilities that were not present in XP.

Preferences are a new category of policy-like settings that are not actually enforced, just applied, meaning that users could potentially reverse them, unlike "true" Group Policy settings. You can actually deploy preference settings to XP and Server 2003 systems, but you must install the "client-side extensions" on those systems first. (They're free.) Preferences contain a number of control panel and user environment settings that could not previously be made centrally - including, among other things, power settings.

You can also have multiple local Group Policy Objects (see Figure 6), unlike XP, which only has one.



**Figure 6: Multiple Local Group Policy Objects**

For more details on Longhorn Group Policy capabilities, check out the Windows Group Policy Resource Kit by Derek Melber. It's written for Server 2008 and Vista, but most of the policy settings are the same for Windows 7.

## 9: You're Going to Need New Drivers

One major concern for any shop thinking of migrating to Windows 7 is the device driver situation. The fact of life is that you're going to need new drivers for just about everything, with the possible exception of some printer drivers that may still work under Windows 7. That's not a news flash for anyone who has ever undertaken a Windows OS migration.

There's some good news here however: Vista drivers generally work! And Vista has been out for many months now. So the selection of device drivers out there on the Internet appears to be excellent.

Also, Windows 7 seems to have very good driver support out of the box. I've installed Windows 7 on a variety of hardware, some old and some new, and I haven't had to go fetch a single driver, which is pretty remarkable.

One thing you should know is that you'll need different drivers for 64-bit systems versus 32-bit systems. That was something of an issue a couple of years ago, but here again, the situation is much better. With Server 2008 R2 being released only on the 64-bit platform, and with Microsoft having gone blue in the face for the last few years exhorting manufacturers to develop 64-bit drivers, the hardware world has adapted, and there are vastly more 64-bit device drivers available than when Vista was released.

Having said this, of course the watchword is always "test, test, test." Make sure your common hardware works happily with Windows 7 drivers and, of course, make sure those drivers exist. Think carefully about investing in new hardware if the driver support looks spotty. And recognize that if you're moving to the 64-bit version of Windows 7, some of that old hardware just may not work. Manufacturers tend not to want to invest time and money into new drivers for discontinued hardware (although I love to support the ones who do!).

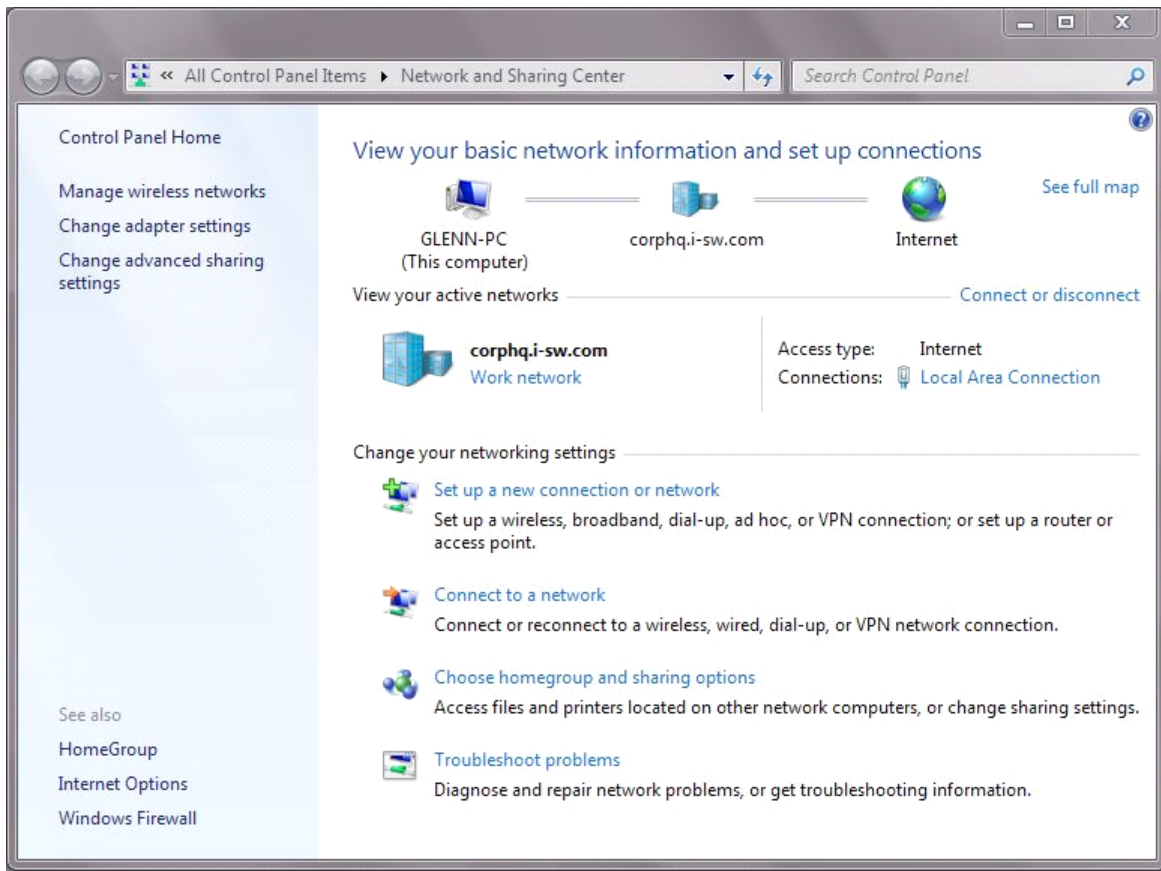
## 10: Networking Is Better Even if You Don't Need IPv6

Microsoft has done a lot of work to improve networking in Windows 7, even if you couldn't care less about the vast address space of IPv6 and will be using IPv4 for years to come. For example, with very high speed connections, you should see better performance in Windows 7 compared to XP, because Windows 7 does a better job of fine-tuning Registry parameters to optimize TCP/IP performance.

Another potential advantage is that Windows 7 makes better use of the "TCP Offload Engine" capabilities of modern network interfaces, shifting some traffic responsibilities to hardware. However you should check with the manufacturer of your network cards and/or motherboards to see if they support TOE and if the driver settings need to be optimized for it. And watch your CPU utilization, too.

The wireless networking stack has been overhauled, so you probably won't need those little manufacturer-supplied applets that you may have used in XP to configure your wireless adapters. Windows 7 is more compliant with several industry standards and the wireless drivers just seem to work. There are also wireless settings in Group Policy, for example you can create blacklists and whitelists for your SSID's, but these do require an AD schema update before you can deploy them.

The Network and Sharing Center (see Figure 7) is radically different from the network control panel in XP. Some tasks are easier than before, some (such as repairing a network connection) are harder and more time-consuming. In any case, plan to have your Help Desk techs spend some quality time with this new control panel before rolling out support for Windows 7.



**Figure 7: A Very Different View of the Network**

## Conclusion

Windows 7 is a big jump from Windows XP! My suspicion is that the new operating system contains enough new goodies to make a persuasive case for change in most organizations. XP was one of the best operating systems ever to come out of Redmond, at least after a service pack or two, but Windows 7 brings a lot to the table, and its close family ties to Vista mean that it should not suffer from "release zero" syndrome. I hope that these ten "FYI's" will help XP shops as they evaluate Windows 7 for their environments.

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## About the Author

Glenn Weadock is a longtime instructor for Global Knowledge and teaches Vista, Server 2008, and Active Directory. He has recently co-developed with Mark Wilkins two advanced Server 2008 classes in the Microsoft Official Curriculum. Glenn also consults through his Colorado-based company Independent Software, Inc. and is technical director of MarketCoach Investment Education Software LLC.