

What's New in Service Pack 1 (SP1) for Windows 7 and Windows Server 2008 R2

By Mark Mizrahi

If you're from the old school of IT administrators who always waits for the release of the first service pack before you deploy a new Windows version, then your time has come. No more waiting (or, rather, procrastinating). Your ship has arrived.

February 22 was not your typical "Patch Tuesday": It was the day Microsoft simultaneously released Service Pack 1 (SP1) for Windows 7 and Windows Server 2008 R2 to the public. These two service packs complement each other by helping keep your PCs and servers at the most current support level.

I have divided this article into two parts. In the first, I will cover and expand on the new features in Windows 7 SP1. In the second, I will focus on Windows Server 2008 R2 SP1. They are independent of each other in terms of features, while at the same time having complimentary and corresponding components. Both service packs make ongoing improvements to the Windows operating system, including previous updates delivered over Windows Update, and incremental updates to the Windows 7 and Windows Server 2008 R2 platforms based on customer and partner feedback. If you have not updated your operation systems yet, you can download or purchase SP1 on DVD version of SP1, which makes it easy for organizations to deploy a single set of updates in one easy step. For organizations that have kept up a steady diet of updates and patches, the rollout of SP1 will require minimal downtime devoted to testing before deployment.

On the Microsoft Downloads Center website, there is a fantastic knowledge base page entitled "[Documentation for Windows 7 and Windows Server 2008 R2 Service Pack 1](#)" (KB976932). This page has a complete list of all the updates, and you can download a detailed spreadsheet of what is included in the service pack (a deployment guide and release notes are available as separate downloads).

Windows 7 SP1

Windows 7 Service Pack 1 (SP1) is an important update that includes previously released security, performance, and stability updates for Windows 7. SP1 also includes new improvements to features and services in Windows 7, such as improved reliability when connecting to HDMI audio devices, printing using the XPS Viewer, and restoring previous folders in Windows Explorer after restarting. All this is combined into a single installable update. On average, installation takes thirty minutes

(on my laptop it took forty-five minutes). You will have to restart your computer halfway through the process to complete the update.

In addition, your build number will change from the old 7600 number to the new 7601 build number on both products (Windows 7 and Windows Server 2008 R2). The following is a short explanation of the new features and fixes. Keep in mind that all the previously released updates and their fixes are also included in the service pack.

New Features of Windows 7 SP1

Windows 7 SP1 is a rollup of prior security patches and minor bug fixes, along with a few tweaks that improve features that were already present when Windows 7 was released to manufacturing. There are no new features added to the operating system. Nearly all of these updates had previously been made available as individual hot fixes and patches. Thus, organizations that have been routinely updating Windows 7 user systems will have only minor functionality testing to perform, significantly reducing the product's total cost of ownership (TCO).

For organizations that have been routinely updating the Windows 7 security patches, unless there is a specific need for the new federation feature, or the corrected HDMI or XPS printing fixes, such organizations shouldn't feel obligated to roll out SP1. One of the main arguments against installing the SP1 is that it is big and it takes a while to install. Due to network utilization and lost productivity time, IT desktop managers might choose the Windows 7 SP1 slipstream version as the base image for new systems and keep previously installed Windows 7 systems on a regular diet of security and feature patches as provided by Microsoft.

Among the enhancements in Windows 7 SP1 is new support for identity, authentication, and minor bug fixes that correct audio and printing problems. For identity and authentication, Windows 7 SP1 adds support for passive profile protocol for use with third-party federation services. This feature adds support for the WS-Federation protocol and enables passive identity requesters, such as Web browsers, to more easily handle identity tokens like cookies or custom identification mechanisms.

Although some testers (including myself) were unable to identify what the HDMI audio problem, Microsoft must have fixed what we call a "sometimes" issue. In both the original Windows 7 version and machines with Windows 7 SP1, we were able to connect HDMI TV monitors to the systems, reboot, and still have a connection to the device.

XPS printing problems might also be one of those “phantom” problems that occur for some users. I travel a lot and often print to the XPS document printer, and I have not encountered any problems. However, the problem this fix addresses is portrait and landscape pages in the some print job. There was apparently a glitch in the file save or hard copy print processes, which has been fixed.

This service pack also provides more control over folder options. It is now possible to change the “Restore previous folders at logon” function that is governed by the Folder Options dialog. If this check box is selected, all folders are restored to their previous positions.

Windows 7 also now supports AVX (Advanced Vector Extensions). AVX is a 256-bit instruction set that can be used by floating point intensive application performance. With AVX support in Windows 7 SP1, applications can now take advantage of the new instruction set and register extensions.

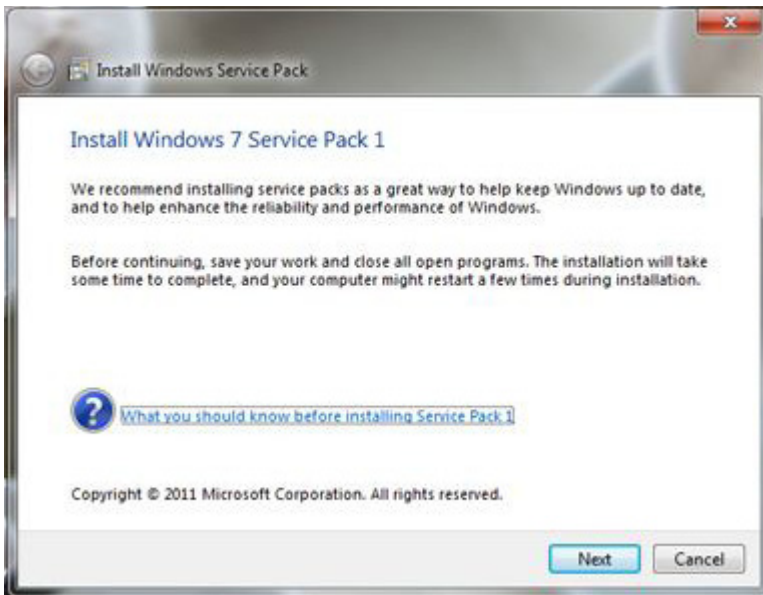
Finally, shops that use IKEv2 authentication protocol should look for the additional identification types that have been added to the identification field. The minor change in this feature will likely benefit organizations that have wanted to use e-mail ID or certificate information when performing authentication tasks.

How to Order Windows 7 SP1 from Microsoft

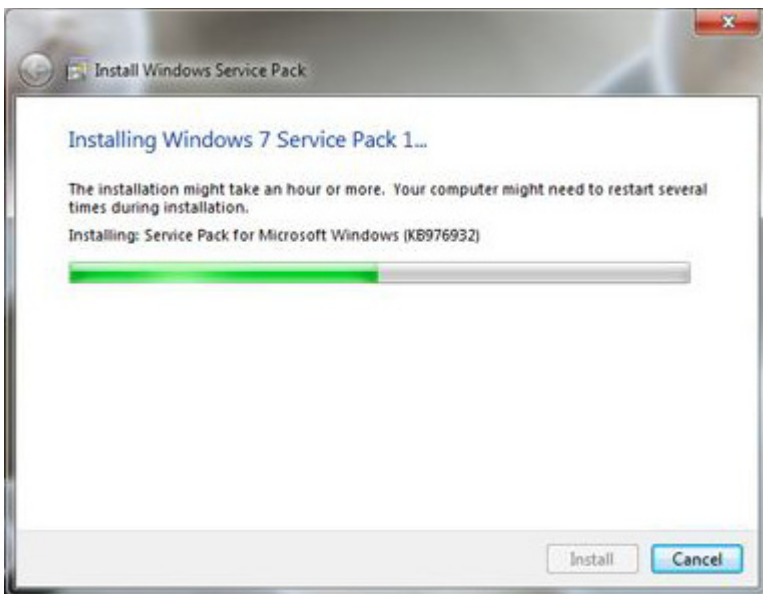
Windows 7 SP1 can be downloaded either from Microsoft’s Download Center or through Windows Update. Windows Update is the easiest of the deployment choices, as users just need to watch and wait while the update is downloaded and installed. Through Windows Update, the initial download size of the service pack was only 87.2 MB, though much more is brought down after the setup routine gets going. A reboot is required at the configuration stage, during which your machine will be unusable. For those Windows users who have selected Microsoft’s Download Center, they will download an ISO image of the service pack, which they will need to burn to DVD before it can be used to update the operating system.

A third possibility—ordering the service pack from Microsoft—is now available. This can be handy for users without Internet access; it is also the best option for users who want an official Microsoft DVD containing service pack. The product itself is free of charge, but shipping and handling fees do apply.

Downloading SP1 from Windows Update



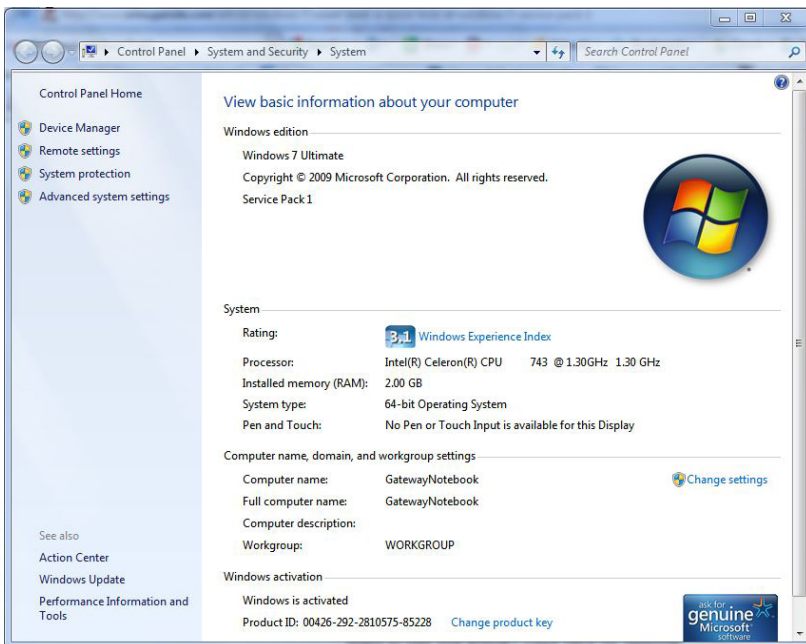
Windows 7 SP1 interactive setup.



Interactive setup required approximately forty minutes and one reboot.



After installation indicates both SP1 and a new build number, 7601.



The system properties window shows that SP1 has been applied.

Windows Server 2008 R2 SP1

For Windows Server 2008 R2 SP1, Microsoft released a guide called “[The Windows Server R2 SP1 Reviewer’s Guide](#),” which outlines the two main features: RemoteFx and Dynamic Memory for Hyper-V.

RemoteFx and Dynamic Memory are the main features in this service pack, but it also contains all of the updates since the release of Windows Server 2008 R2, which might be valuable considering that there have been quite a few “monster patch days” lately. This service pack includes:

- Hyper-V Dynamic Memory;
- RemoteFX resources;
- Scalability enhancements for DirectAccess;
- Managed service accounts support for RODCs;
- Improvement in concurrent domain controller connections;
- Improved authentication performance for high-latency networks;
- Improved storage sharing in failover clustering;
- 6to4 and ISATAP support for DirectAccess;
- Restore previous folders at logon; and
- Additional identities for IKEv2.

Improved User Experience with RemoteFX

RemoteFX allows users to run a Windows 7 desktop and applications in a virtualized environment and yet have a similar user experience as installing Windows 7 and the applications on a physical computer with a 3D accelerated graphics display adapter. Both the Remote Desktop Virtualization Host (RDVH) role service and the Remote Desktop Session Host (RDSH) role service in Windows Server 2008 R2 SP1 provide support for RemoteFX.

Dynamic Allocation of Virtual Machine Memory

The Dynamic Memory feature in Hyper-V in Windows Server 2008 R2 SP1 allows users to run Windows 7 SP1 and applications in a virtualized environment that can dynamically allocate memory for virtual machines. The Dynamic Memory feature allows IT administrators to specify a starting value and a maximum value for virtual machine memory allocation. Because virtual machine memory can be dynamically allocated, the system resources are utilized more efficiently and are automatically adjusted based on the needs of each virtual machine.

6to4 and ISATAP support for DirectAccess

DirectAccess is a new Windows feature that allows users to establish a VPN connection without manually launching a VPN client. Windows Server 2008 R2 SP1 adds support for **6to4** and **ISATAP** (Intra-Site Automatic Tunnel Addressing Protocol), both of which are technologies used to transmit IPv6 packets over an IPv4 network.

Managed Service Accounts (MSAs) Support for RODCs

Managed Service Accounts (MSAs) are Active Directory accounts for application services that run under the identity of a user account. Windows can automatically change the passwords of MSAs before they expire. However, in environments with **Read-Only Domain Controllers (RODC)**, MSAs **can cause problems**. Windows Server 2008 R2 SP1 fixes this problem.

Concurrent Connections to a Domain Controller

This Windows Server 2008 R2 SP1 feature “allows for more granular control of the maximum number of possible concurrent connections to a domain controller.” It seems that this is an existing feature, because [this Technet article](#) indicates that it is already possible now. The background of this is that cloud-based services require higher thresholds of authentication traffic to domain controllers because of slow Internet connections. The current default limitations are supposed to prevent denial of service attacks.

Enhancements to Failover Clustering with Storage

Microsoft says that “improvements” have been made regarding storage that is shared between a subset of cluster nodes, but it does not specify what exactly has been improved. Very little is written about this; you’re on your own on this one.

Restore Previous Folders at Logon

The folder options of Windows Explorer offer this “Restore previous folders at logon” setting. In Windows Server 2008 R2 SP1, this feature restores Windows Explorer folders at the same positions before you rebooted. In Windows 7, the folders were previously restored in a cascaded position.

Additional Identities for IKEv2

The **IKEv2** authentication protocol is used in IPsec and RRAS. Windows Server 2008 R2 SP1 supports additional identification forms (such as e-mail ID or certificate subject).

Support for Advanced Vector Extensions (AVX)

Advanced Vector Extensions (AVX) is a future extension for Intel and AMD CPUs that is supposed to improve performance for floating point-intensive applications.

Conclusion

Windows Server 2008 R2 SP1 has many features that are designed specifically to work with client computers running Windows 7, and vice versa. This service pack compliments those features and enhances both sides of the client server framework. Although there are no overwhelming new additions to the operating systems, this service pack gives some additional polish to an operating system that already shines.

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