

Windows XP to Windows 7 Hard-Link Migration of User Files and Settings

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Published: June 2009

Abstract

This guide explains options for moving your users’ files and settings from a Windows® XP operating system to a Windows 7 or Windows Vista® operating system. This guide also introduces how the User State Migration Tool (USMT) 4.0 can be used on multiple computers to expedite file and setting migration when installing Windows 7 or Windows Vista to an existing Windows XP computer.

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# Windows XP to Windows 7 Hard-Link Migration of User Files and Settings

This guide explains options for moving your users’ files and settings from a Windows XP operating system to a Windows 7 or Windows Vista operating system. This guide also introduces how the User State Migration Tool (USMT) 4.0 can be used on multiple computers to expedite file and setting migration when installing Windows 7 or Windows Vista to an existing Windows XP computer.

Windows Vista with Service Pack 1 operating systems allow users to perform in-place upgrades to Windows 7 Beta using a standard Windows 7 Beta DVD created using the published ISO files. For customers with Windows Vista Enterprise, a Windows 7 Enterprise DVD must be used for in-place upgrade. By inserting a DVD with Windows 7 Beta and performing the installation, the user will see the upgrade option on this screen:

By selecting the upgrade option, files, settings and programs are retained. In-place upgrade is intended for use by consumers and supports upgrading from Windows Vista Service Pack 1 or newer operating systems. In-place upgrade in Windows 7 Beta does not provide support for Windows XP and Windows Vista Release-to-Manufacturing (without Service Pack 1) operating systems.

This guide explains your options for moving files and settings from operating systems not supported by in-place upgrade or for those looking to perform a clean installation of Windows 7 Beta to existing hardware with Windows XP, Windows Vista or Windows 7 Beta already installed, while retaining and migrating the files and settings that constitute the users’ profiles on that hardware. The steps in this guide will not migrate programs or applications from the old operating system to Windows 7 Beta. This document is intended for IT professionals with limited deployment infrastructure or automation expertise, primarily installing from retail DVDs or operating system files contained within DVD or ISO media.

For more advanced deployment and image customization scenarios, see the [Microsoft Deployment Toolkit](http://go.microsoft.com/fwlink/?LinkID=108442) or the operating system deployment capabilities as part of the [Microsoft System Center Configuration Manager 2007](http://go.microsoft.com/fwlink/?LinkId=154399).

Notes

 For a complete view of Windows 7 resources, articles, demos, and guidance, please visit the [Springboard Series for Windows 7](http://go.microsoft.com/fwlink/?LinkId=147083) on the Windows Client TechCenter.

 For a Web version of this document, see [Windows XP to Windows 7 Hard-Link Migration of User Files and Settings](http://go.microsoft.com/fwlink/?LinkId=154417) in the Windows 7 Technical Library.

# In-Box Tools for Migrating User Files and Settings

Windows 7 and previous versions of Windows offer in-box tools for migrating user files and settings from one computer to another. Windows Easy Transfer in Windows 7 continues to offer this capability. Detailed instructions for using Windows Easy Transfer to manually migrate files from Windows XP are found in the [Step-by-Step: Windows 7 Upgrade and Migration for Beta guide](http://go.microsoft.com/fwlink/?LinkId=154400) on Microsoft TechNet. For smaller organizations without dedicated IT staff, Windows Easy Transfer provides the most guided experience for migrating user files and settings from Windows XP to Windows 7. For some organizations with limited IT staff, this option is also preferred for migrations from one physical computer to another (computer replacement). Windows Easy Transfer in the computer replacement scenario also provides the option to connect two computers using a USB cable or network location to transfer files.

# User State Migration Tool 4.0 Hard-Link Migration

The User State Migration Tool (USMT) 4.0 is part of the Windows Automated Installation Kit (Windows AIK) for Windows 7 Beta. USMT has traditionally offered command line-scriptable tools for migrating user state from one computer or operating system to another and providing strict control for which files are migrated or excluded from a migration.

USMT 4.0 Hard-link Migration is a new feature enabling in-place migration (computer refresh) to process much faster than using traditional file copy mechanisms. Hard-link Migration in USMT scans the computer for user files and settings then creates a directory of links to those files using hard-links. The hard-links are then remapped into the appropriate locations in the new operating system. The entire process typically takes a few minutes to run, does not double-instance files on the local disk and can save several hours migrating files in computer refresh scenarios, where the user keeps the same hardware. USMT Hard-link Migration can be used both in online and offline scenarios, but in this document we will introduce how USMT can be used in an offline scenario migrating files from a default clean install using files found in Windows.old. Guidance for online scenarios can be found in the USMT documentation as part of the Windows AIK for Windows 7 Beta download.

Note

You can download the [Windows Automated Installation Kit](http://go.microsoft.com/fwlink/?LinkID=154289) from the Microsoft Download Center.

# Building a USB Drive to Store USMT 4.0 Files and Simple Commands

This process will assume that Windows 7 Beta is installed using DVD or similar media to an existing Windows XP computer. We will begin by compiling the components needed to create an external USB drive with the components used to carry out the migration process. This USB drive will be used to migrate files from Windows.old to the appropriate full operating system locations and can be used for both Windows 7 Beta and Windows Vista. User files will not be copied to the USB drive, so any USB drive with more than 50 MB free space will be adequate.

To build a USB drive for storage



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| --- |
| 1. Download the [Windows Automated Installation Kit](http://go.microsoft.com/fwlink/?LinkID=154289) ISO for Windows 7 Beta.2. Burn the Windows AIK ISO file to a DVD and follow the installation instructions. 3. Once you have installed Windows AIK, copy C:\Program Files\Windows AIK\Tools\USMT\ to an external USB drive. Your USB drive should have the “USMT” folder in the root directory with “amd64” and “x86” subfolders. 4. Create a batch file for use with x86 file migrations. Open Notepad and copy the following text into a new file:@ECHO OFFIf exist D:\USMT\\*.\* xcopy D:\USMT\\*.\* /e /v /y C:\Windows\USMT\If exist E:\USMT\\*.\* xcopy E:\USMT\\*.\* /e /v /y C:\Windows\USMT\If exist F:\USMT\\*.\* xcopy F:\USMT\\*.\* /e /v /y C:\Windows\USMT\If exist G:\USMT\\*.\* xcopy G:\USMT\\*.\* /e /v /y C:\Windows\USMT\If exist H:\USMT\\*.\* xcopy H:\USMT\\*.\* /e /v /y C:\Windows\USMT\If exist I:\USMT\\*.\* xcopy I:\USMT\\*.\* /e /v /y C:\Windows\USMT\If exist J:\USMT\\*.\* xcopy J:\USMT\\*.\* /e /v /y C:\Windows\USMT\If exist K:\USMT\\*.\* xcopy K:\USMT\\*.\* /e /v /y C:\Windows\USMT\Cd c:\windows\usmt\x86scanstate.exe c:\store /v:13 /o /c /hardlink /nocompress /efs:hardlink /i:MigApp.xml /i:MigDocs.xml /offlineWinDir:c:\windows.old\windowsloadstate.exe c:\store /v:13 /c /lac /lae /i:migapp.xml /i:migdocs.xml /sf /hardlink /nocompress:EOFNotes Windows 7 Release Candidate and later releases of USMT 4.0 will replace “/offlineWinDir” with the “/offlineWinOld” command line switch. Explanation of Batch File Commands:The first section of the batch file determines where USMT files are kept and copies those files to the C:\Windows directory. The second section changes the directory to the newly created USMT directory. The scanstate.exe command will create the hard-link migration store at C:\store from the windows.old directory and the loadstate.exe command will remap the hard-link files to their appropriate locations within Windows 7 Beta or Windows Vista. The batch file and the USMT folder will need to be run as an administrator on the computer performing the migration. For AMD64 bit migrations, you can modify the batch file by changing “Cd c:\windows\usmt\x86” to “Cd c:\windows\usmt\amd64”. USMT will support installs moving from 32 bit Windows XP to 64 bit versions Windows 7 Beta or Windows Vista. 5. Save the batch file as “Migrate.bat” in the USB drive. The USB drive should look something like this: |

# Installing Windows 7 Beta on an Existing Windows XP Computer

It is a good practice to backup your files prior to installing the new operating system, but file backup is not mandatory in this case and the backed-up files will typically not be needed when following this process.

To install Windows 7 Beta



|  |
| --- |
| 1. Install Windows 7 in a Windows XP or newer operating system using standard DVD or ISO media. This process is the same when installing Windows Vista from a DVD.Important Follow the default installation instructions and do not delete or format partitions containing the operating system or user data. 2. Once you have completely installed Windows 7, open Windows Explorer and browse to “Computer > Local Disk (C:\)” (or if not installed on “C:\”, browse to the drive letter containing the Windows 7 operating system). If there were folders already on the C:\ root directory in the Windows XP operating system, those folders will still be there. You will also find a windows.old folder. Windows.old contains the files and settings we will be migrating from the Windows XP operating system to the newly installed Windows 7 operating system. If you were previously joined to a domain, you can join the computer to the domain now prior to running USMT commands in the following steps. Likewise, now is a good time to install applications found on the previous operating system, as USMT will migrate application settings for these applications. For example, Microsoft Office Outlook® settings and PST files will automatically be mapped for that program and USMT migration will eliminate the need to manually reconfigure Microsoft Office Outlook after you run Step 8. 3. Insert your USB drive with USMT files into a USB port on the Windows 7 computer. Copy the migrate.bat file to the desktop. Right click the migrate.bat file and choose “Run as Administrator.” USMT 4.0 requires administrative context to run. The batch file will copy USMT 4.0 files from the USB drive to the Windows directory, then run scanstate.exe and loadstate.exe commands to create the hard-link store and map the links into to the new locations.4. Once the batch file has completed, browse to “Computer > Local Disk (C:\) > Users”. You will see the user folders in Windows 7 Beta and all user files in corresponding file libraries. If you had favorites defined in Internet Explorer®, you can open Internet Explorer in Windows 7 Beta to ensure that application settings have been migrated. |

# Conclusion

Once you have finished these steps, you can reuse the USB drive and batch file on computers with clean installs of Windows Vista or Windows 7 Beta and containing the Windows.old directories. If you have determined that all necessary files were migrated from Windows.old, you can use the Disk Cleanup utility and remove previously installed versions of Windows to delete Windows.old. Deletion of Windows.old will not delete the files which have been migrated using hard-links. As long as one link to the file exists, the file is protected from being deleted.