

# GETTING HOTFIXES ONTO A WINDOWS IMAGE THE EASY WAY

By Mark Minasi

In Newsletter #61 (<http://www.minasi.com/newsletters/nws0702.htm>), I showed you how to use ImageX, Microsoft's Ghost-like tool that lets you take a working computer and reduce it to a "WIM," a Windows Image file, which is something like a Ghost image. In that newsletter, I mentioned in passing that one of the neat things about WIM files was that you can apply hotfixes to a WIM directly. In contrast, image technologies like Ghost require you to apply the image to a physical machine, start the machine up, apply the hotfix to that machine, and then Sysprep the machine and re-image it. Clearly, then, WIM files can save you some serious time on your monthly image maintenance. (Yes, I know, the Altiris technology's catching up on this, but, again, WIMs are free. I like free.) So this month, I'll offer a set of step-by-steps that you can use to put a hotfix onto a WIM without having to first apply it to a machine.

In brief, you need to:

- Download each month's patches
- Expand them into their .msu package files, using the Windows expand command
- Mount the WIM that needs the hotfix to a folder, using ImageX's /mountrw command
- Run the peimg command (which you'll find in the Windows Automated Installation Toolkit) twice on the .msu files
- Unmount the image with ImageX /commit /unmount

## Getting Started

I'll explain this through a worked-out example. With that in mind, please set up your test system like so:

1. First, set up a new Vista system without any patches.
2. Do *not* install updates on that system.
3. Use ImageX to image the system to a file called test.wim. Again, refer to Newsletter #61 for exact steps on how to do this.
4. You will need another system, which I'll call "VM1" which contains the WAIK.
5. Connect VM1 to the file share, external hard disk or whatever holds the image file. On my system, that turns out to be drive F:, and thus I access test.wim as f:test.wim. Other drive letters will work - just be sure to substitute whatever drive letter holds your test.wim for f:.

Summarizing, so far we have a system named VM1 upon which the WAIK has been installed, and VM1 is connected to a drive F: that contains an unpatched Vista image called test.wim.

## Get the KB 931213 Hotfix

Next, we'll need a hotfix. In my tests, I used a July 2007 patch, the one associated with KB article 931213. Any Vista hotfix should do fine, but if you'd like to match exactly what I'm doing then you can find that July 2007 patch at this page:

<http://www.microsoft.com/technet/security/bulletin/ms07-032.mspx>

I did my tests on a 32-bit VM1 system, but I can't think of a reason why a 64-bit one would work differently. You'll end up downloading a file named Windows6.0-KB931213-x86.msu. I'll assume that you download this file to a folder called c:\downloads to your VM1 system. Also, please create two new folders on VM1:

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- c:\unpacked, which will contain the unpacked hotfix files, and
- c:\mount, where we'll mount the WIM file.

Additionally, open an elevated Windows PE Tools Command Prompt.

## Expand the Patch

Expand the patch by typing

```
expand c:\downloads\*.msu c:\unpacked -f:*
```

The \*.msu means to unpack any and all patches in the folder; "unpacked" just names the folder to put the patches in. There are multiple files packed in the .msu file, and expand.exe needs to know which files to unpack – the "-f:\*" option means to unpack all files, and does not refer to a drive "f:."

Now take a look inside c:\unpacked. Every patch comes with some information for WSUS that we don't need, so delete it:

```
erase unpacked\wsuss*
```

## Mount the WIM

Next, mount the WIM to the "mount" folder that we created earlier:

```
imagex /mountrw f:test.wim 1 c:\mount
```

You should get some text accompanied by the words "Successfully mounted image (RW)."

## Import and Install the Package

A look back to Newsletter #59 will remind you of a tool "peimg." We used it to inspect the packages both installed and installable on a Windows PE system, as well as to load new network drivers. We'll see in this example that it also lets us install hotfixes on a WIM.

To do that, we use peimg twice to make the patch useful. The first time, we're using peimg to analyze the hotfix and import it into the WIM as a new peimg-recognizable package. The second time we'll use peimg to install the newly-imported package. To import the hotfix and make it a package, type

```
peimg /import=c:\unpacked\*.cab /image=c:\mount\windows
```

That just tells peimg to look in the "unpacked" folder for any .cab files and then to import them to the copy of Windows encapsulated in the WIM that is currently mounted at folder "mount." Double-check that there is now a package corresponding to the hotfix by typing

```
peimg /list /image=mount\windows
```

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You should see that one of the packages – one that is not installed yet, as evidenced by the dash rather than a plus in front of it – refers to the KB article 931213. Time to install it! From the command prompt, install the patch by typing

```
peimg /install=*Package* mount\windows
```

The “\*Package” refers to any installable packages whose names actually contain the word “Package.” (Look back at the list of packages to see that this hotfix does indeed include that in its name.) You’ll see a crude text animation as it imports the package and ends with the messages

Installed 1 package(s). PEIMG completed the operation successfully.

## **Make the Change Permanent**

**Unmount the WIM like so:**

```
imagex /unmount /commit mount
```

## **See the Patch’s Effect**

But what really happened? We can see the patch’s effect in two ways:

- Build a new catalog in WSIM and examine the “Packages” part of WSIM.
- Apply the image to a clean machine and look in Control Panel at the list of installed hotfixes.

As we did in Newsletter #60, fire up Windows’ answer file-writing tool, the Windows System Image Manager (WSIM) and use it to open f:\test.wim. It will want to create a new catalog; let it. Then open the Packages icon in the lower left-hand corner. You’ll see an object corresponding to that patch. The other way to see that we’ve got the patch is to apply the newly-updated image to a machine (or, better, a virtual machine), boot up the newly-imaged Vista box, and open Control Panel / Uninstall Programs, and then click “See installed updates.” KB931213 will be there.

## **Conclusion**

When I first read the Microsoft literature saying that hotfixes could be applied to WIMs offline, I thought that was a pretty neat feature... until I tried to use it. A bunch of trial and error went into figuring this out -- I hope it's useful to you!