HP BiOS FLASH Q&A

Updated December 2009

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Introduction

This whitepaper outlines Hewlett-Packard Business PC dc class BIOS flashing
options beginning with the 2005 products (e.g. dc7600). The BIOS (Basic Input
Output System) is the set of routines typically stored in read-only memory that

enable a computer to load the operating system and communicate with the various devices in the computer, such as storage drives, keyboard, monitor, printer, and communications ports. As new processors, devices, and operating system features are made available, the BIOS must be updated or flashed, in some situations, to take advantage. The BIOS can be updated or restored in several methods. Users or administrators can choose the best method depending on the operating environment of the computer(s). BIOS updates are available in a softpaq downloadable containing the BIOS image and upgrade instructions for the various methods. Regardless of the BIOS flash method, business PC products provide a high degree of upgrade reliability and offer failure safe recovery.
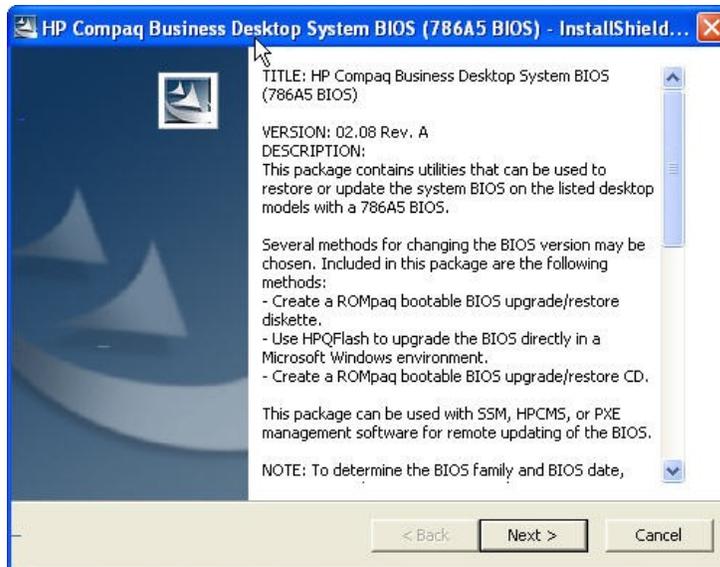
Starting with some 2006 products (e.g. dc7700), the biggest change is the integration of an embedded Intel Management Engine (ME) which is used to provide Active Management Technology (AMT), Alert Standard Format (ASF) management, and other functions. Some HP Business PC products will only offer ASF as configured from the factory. AMT capable PC products will allow the user or administrator configuration of the management mode. AMT provides remote access to a system regardless of the state of the operating system or power state as long as the system is connected to a network. This ability to manage a system when it is not powered on and/or fully operational is called Out-of-Band (OOB) management. ASF is a subset of the monitoring features of AMT and does not offer the rich range of OOB management options. ME is a hardware and firmware platform resident solution. BIOS update softpaq images for systems incorporating ME will contain a separate utility and binary for updating the ME firmware.

Another new feature for this product offering is the ability to update processor microcode patches through HPQFlash in a Windows environment.

The remaining sections of this document attempts to ask about the typical BIOS flash scenarios and provide the BIOS softpaq answers to these questions.

What are the files and directories in a BIOS softpaq?

BIOS updates are delivered to customers through downloadable softpaqs. Softpaqs are self-executable programs which contain the BIOS image files and utilities to allow the BIOS to be updated in various manners. Regardless of the upgrade manner chosen by the user or administrator, HP business PC BIOS provides flash recovery in the event of a BIOS flash failure. The softpaq is executed by selecting the file SPXXXXX.exe where XXXXX is a unique identification number assigned to each softpaq. The softpaq will present the user with information about the softpaq contents, how to use the softpaq, and a brief explanation as to the PC enhancements offered.

After acknowledging the license agreement, the softpaq will allow the user or administrator to extract the contents to any directory. The following files and directories are an example of the extracted from a typical BIOS softpaq:

- 786xx.cab – Compressed BIOS image which can be used by System Software Manager (SSM) to remotely update a system
- SPxxxxx.cva – Identification file used in SSM remote BIOS upgrade
- BIOS Flash.htm – Web document describing the softpaq contents and BIOS upgrade methods
- How to Use.txt – Text document describing the softpaq contents and BIOS upgrade methods
- DOS Flash (directory):
  — XXX_MMmm.bin – Binary BIOS image file required by Flashbin.exe
  — Assignpw.exe – DOS utility to assign administrative/setup password to flsh.cpu
  — Flashbin.exe – DOS utility to update and/or restore BIOS
  — Flsh.cpu – Hardware specific driver required by Flashbin.exe to update/restore the BIOS
- BIOS CD (directory):
  — XXX_MMmm.iso – CD image containing the binary BIOS file for F10 and flash recovery
  — Readme.txt – Text document describing the iso file image
- HPQFlash (directory):
  — HPQFlash.exe – Windows application to update and/or restore BIOS
  — HPQFlash.txt – Text document describing HPQFlash.exe use and syntax
  — HPQPswd.exe – Windows application which allows the user (typically a system administrator) to create an encrypted password file which can be used with the /p option of the HPQFlash application

- — HPQPswd.txt – Text document describing HPQFlash use and syntax
  - — ROM.CAB – Compressed BIOS image file used by HPQFlash
- ME Flash (directory):
  - — Local-DOS (directory)
    - o FWUpdLcl.exe – DOS-based application to update the ME firmware
    - o Readme.txt – Text document describing FWUpdLcl DOS-based utility use and syntax
  - — Local-Win (directory)
    - o FWUpdLcl.exe – Windows-based application to update the ME firmware
    - o Readme.txt – Text document describing FWUpdLcl use and syntax
    - o Xerces-c_2_7.dll – Library support file required for some versions of the Windows update application.
  - — XXX_bbbb.bin - Binary Management Engine image update file required by the DOS or Windows update utility where "XXX" is the abbreviated ME firmware version and "bbbb" is the build version number.

The softpaq contents will depend on the target system; therefore, not all softpaq products will require all the files and directories previously mentioned. For example, HP Business PC products, which do not integrate the Management Engine, will not require the contents of the ME Flash directory. HP Business Blade PC products do not support the Windows BIOS updates and will not require the HPQFlash directory contents.

In what operating systems can I update the PC BIOS?

The BIOS can be updated or restored in Windows 7, Vista, or Windows XP using the HPQFlash application. DOS environments can use the Flashbin.exe utility. In situations with other Windows versions (2000, NT, 98, 95, ME), Linux, or other operating systems, the BIOS can be updated using F10 setup "Flash System ROM" feature.

Will I lose my setup configurations when updating the BIOS?

F10 setup configuration options, passwords, and settings are not lost during BIOS update or restore.

How do I update my PC BIOS in Windows 7, Vista, or Windows XP?

In single PC situations, the user or administrator should use the HPQFlash executable. For a system administrator with a network of Windows business PCs to update, HPQFlash can be deployed through the use of System Software Manager (SSM) to update all the appropriate PCs. HPQFlash requires the Windows Management Interface (WMI) service to be installed and running on the target PC.

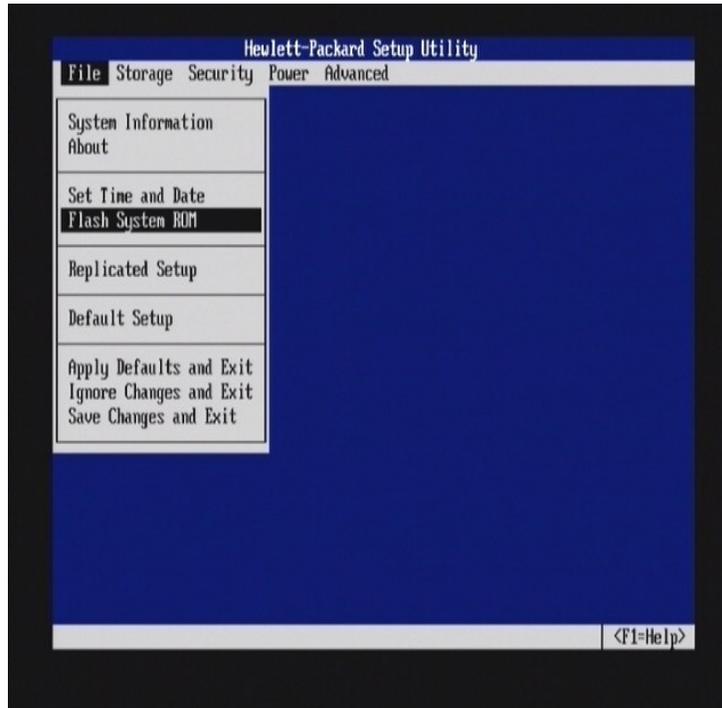## How do I update the BIOS in a DOS environment?

The Flash Bin Firmware Upgrade Utility (Flashbin.exe) can be executed in a DOS environment to upgrade or restore a PC BIOS image. The utility uses a driver (flsh.cpu) for specific hardware flash operations. The BIOS binary image should be included in the same directory as the utility and driver with the name format XXX_MMmm.bin. The user can execute the utility by simply typing "flashbin". The current PC BIOS will be examined for compatibility with the binary image. If the BIOS image file is an older BIOS version than the current PC BIOS, the user will be warned. After the user confirms that the BIOS upgrade/restore should proceed, the utility will begin the flashing process. The user will be warned not to reboot or power cycle the PC during the flash process. However, if the process is interrupted or does not complete successfully, the business PC flash recovery process will automatically activate upon reboot. After the BIOS upgrade process has successfully completed, the user must reboot or power cycle the PC for the new BIOS image to take affect.

The Flashbin utility must be executed in a DOS environment. If the user does not have DOS bootable media available, a DOS bootable floppy, USB flash media (Disk On Key – DOK), or CD can be created to deliver the Flashbin utility, driver, and BIOS image.
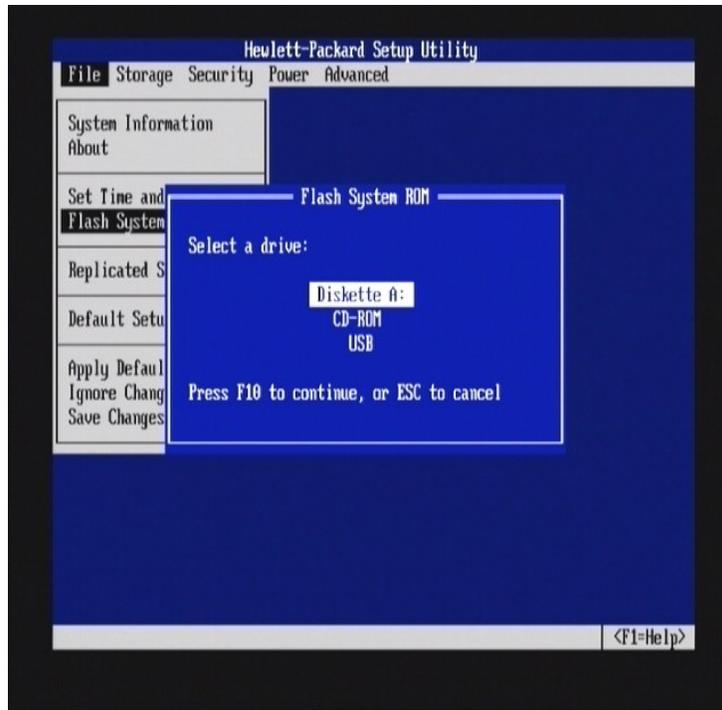
If the BIOS adminstrator/setup password has been established on the business PC, the Flashbin utility driver must be assigned the password. Assign Password (Assignpw.exe) can be used with DOS Flash if an administrative/setup password has been previously set on the target PC. To assign a password to DOS Flash, change directories to the directory that contains Flashbin.exe and type "assignpw flsh.cpu". You will be prompted to type in the password. Press RETURN after you have typed in the password. You may use the BACKSPACE key to correct mistakes. You will then be prompted to confirm the password that you just entered. Pressing ENTER before any password keys have been typed in will unassign the previously assigned password. You may need to do this if the administrative/setup password is deleted from the client machines. To assign a new password, just run the Assign Password utility again.

How do I update the BIOS when not running Windows 7, Vista, Windows XP, or DOS?
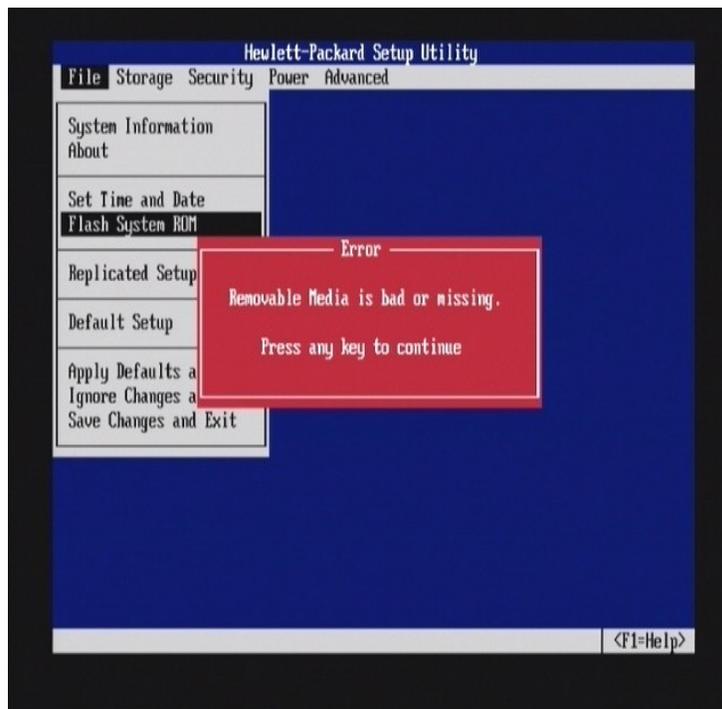
BIOS can be updated using the F10 setup "Flash System ROM" feature. Reboot the PC and press F10 to enter setup. In the File menu, select the "Flash System ROM" item.
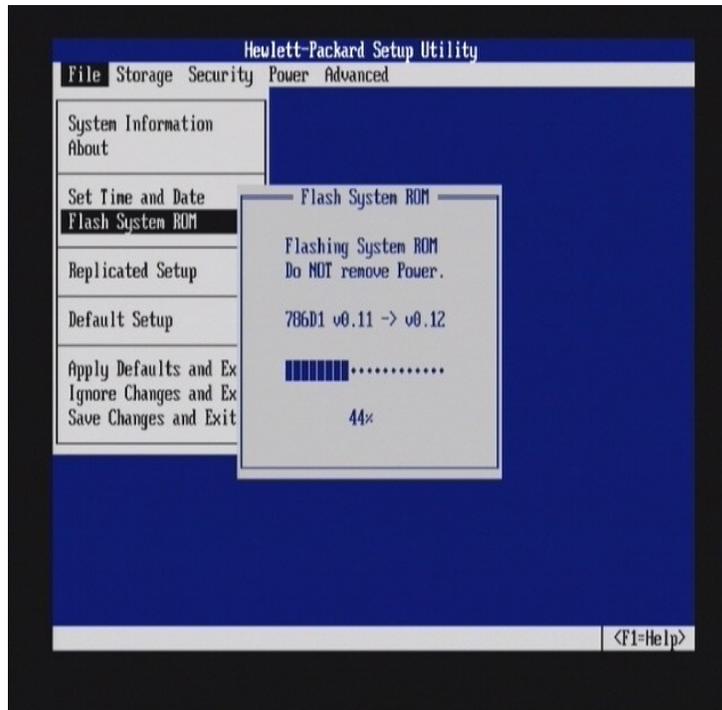
This flash utility will present the user with the option to select the media containing the BIOS image file (7H1_MMmm.bin). F10 ROM based flash can accept the binary file from the root directory of any removable media such as USB, legacy floppy diskette, and CD. Please note that some systems may contain a BIOS image that is too large for floppy media. Some models may not support a legacy floppy drive with the exception of a USB floppy device. On those systems, Diskette will not be listed as a media source choice. The BIOS CD Image file (XXX_MMmm.iso), included in the softpaq, should be used to create a BIOS image CD. When flashing with F10 ROM based flash, the CD media must be El-Torito compatible.
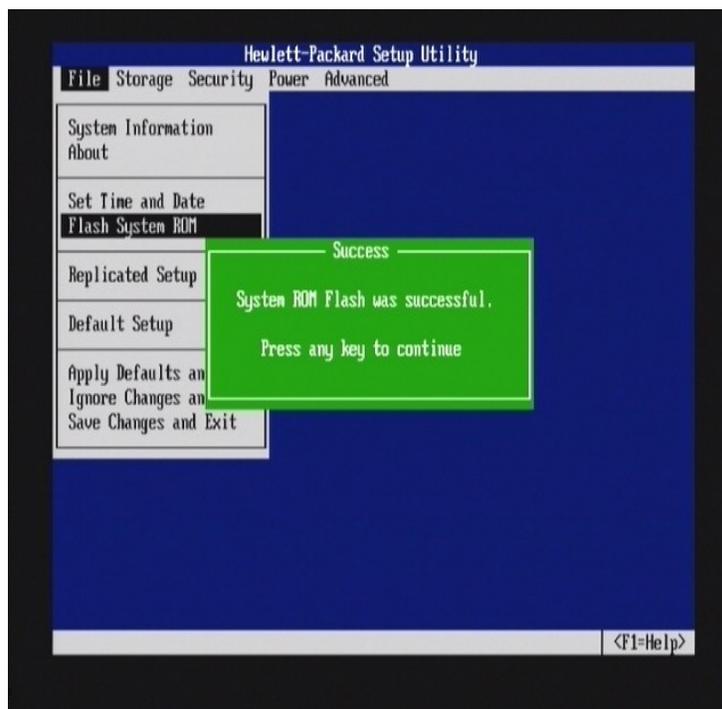
When the media is selected, the user is presented with a list of valid binaries. If the BIOS cannot read the media or media files, an error message will be displayed and another media source can be selected.

Once the desired binary image is selected and confirmed, the BIOS will begin the flashing process. The flash process should not be interrupted. The percentage completion will be displayed during the process.

The user is prompted when the process is completed. The new BIOS code will not take effect until the PC is rebooted.

Alternatively, the user or administrator can use a Preboot eXecution Environment (PXE) to boot to a PXE server, such as Altiris. The Flashbin utility can be executed in the PXE DOS-like environment to perform the BIOS upgrade.

What are the steps necessary to execute the HPQFlash utility?

The HPQFlash application is executed in the Windows environment by selecting the HPQFlash.exe file. The initial HPQFlash application window will be presented as follows reminding the user that additional applications should be closed before proceeding.

The user must have administrative privilege on the PC to proceed with the BIOS update. Otherwise, the application will respond with a warning message and exit without updating the BIOS image. If the PC has an administrative or setup password configured, HPQFlash will require the user to enter the setup password before the BIOS can be successfully updated.

If the user selects the Next button, entered the correct password (if needed), and has the appropriate rights, the application will interrogate the current PC BIOS image and compare it to the BIOS image file (ROM.CAB) in the same directory as the FLashbin.exe. If the BIOS image file is not applicable to the PC, a warning message will be displayed. If the image is applicable, HPQFlash will display the current BIOS and the BIOS version contained in the ROM.CAB file.

If the image file is applicable to the PC but is an older BIOS version than currently installed, the user will receive the following warning; however the older image can be restored to the PC if the user selects the Next button.

HPQ Flash Wizard

Confirm Flash

⚠ WARNING: The BIOS image contained in this ROM update is not newer than the one that is already present on your machine.

Version of BIOS in ROM update: 786A5 v1.09

Version of BIOS in system: 786A5 v2.08

Click 'Next' if you still want to update your system BIOS.

[< Back] [Next >] [Cancel]
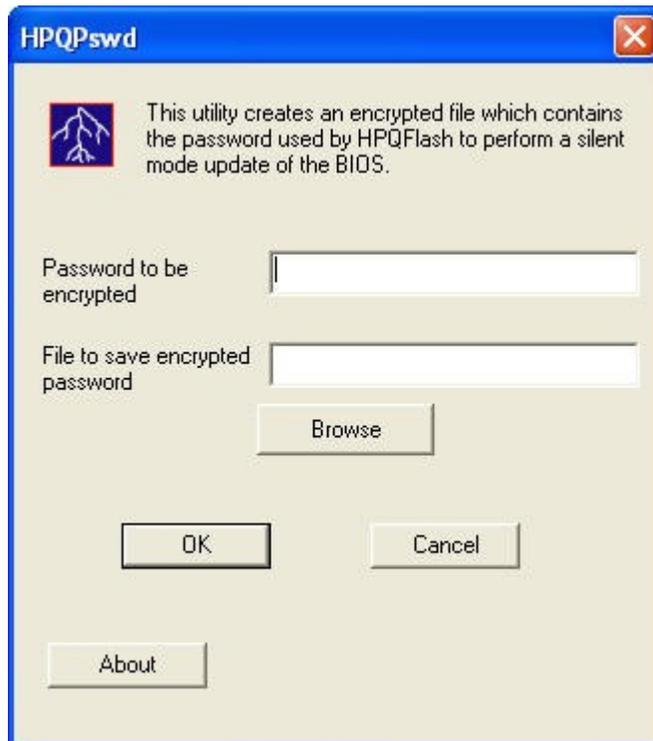
If **Next** is selected, the BIOS flashing process will begin, and the user is warned not to interrupt the flashing process. Interrupting the flashing process can corrupt the BIOS image. If the BIOS does not update successfully, the business PC would enter flash recovery when rebooted.

After the flash process has successfully completed, the PC will be automatically restarted or immediately if the user selects **Restart** before the timer expires. The user can select **Cancel** to avoid the restart, but this is not recommended since the updated BIOS image will not be in effect until the PC reboots.

HPQ Flash Wizard

Completing the HPQ Flash Wizard

The system BIOS has been updated successfully. The new BIOS will be used the next time the machine is powered up.

It is strongly recommended that you power-down and restart your system as soon as possible.

The system must not hibernate before being restarted.

The system will automatically restart when the counter reaches zero.

[25]

[Restart] [Cancel]

What are the steps necessary to execute the HPQPswd utility?

The HPQPswd application is executed in the Windows environment by selecting the HPQPswd.exe file. The initial HPQFlash application window will be presented as follows options to the user or administrator.

As indicated in the image, this utility will create an encrypted password file required to execute the HPQFlash application in a silent mode on an administrative/setup password protected PC. HPQPswd utility is an application which allows the user (typically a system administrator) to create an encrypted password file which can be used with the /p option of the HPQFlash application. This option is usually used along with the /s option to perform a silent mode update of a PC BIOS on Hewlett-Packard computers which have a BIOS administrative/setup password set. The password file can be named and stored in any location. However, it is best to store the file in the same subdirectory as the HPQFlash application. The HPQFlash application silent mode will execute without user interaction.

What are the steps necessary to create a bootable floppy for BIOS update?

Some products contain a BIOS image that is too large to fit on a diskette, or certain models may not support a legacy floppy drive; therefore, the following information would not be applicable to those products or models. To create an MS-DOS boot disk from Windows XP Professional, the following steps can be executed:

1. Insert a blank, floppy diskette into the PC.
2. From Windows Explorer, right-click the 3 1/2 Floppy (A:) drive and choose Format. The Format 3 1/2 Floppy (A:) window appears.
3. In the Format Options section, select Create an MS-DOS startup disk. To format the disk, choose Start.

If Windows XP is not accessible, a bootable diskette can be created using FreeDOS (http://www.freedos.org/). FreeDOS is available as an ISO image and as a diskette distribution in 1.44MB format. For your convenience, a 1.44MB boot disk image is also available.

After the disk is formatted with either method, additional steps are required to prepare the diskette (see Appendix A) before copying the contents of the DOS Flash directory (i.e. Flashbin.exe, Assignpw.exe, and BIOS image file (XXX_MMmm.bin)) to the media. Assignpw.exe is required if PC to be updated has administrator/setup password set.

What are the steps necessary to create a bootable CD for BIOS update?

A bootable, El-Torito compatible, CD can be created for BIOS update. Most third party CD burning software supports the creation of a bootable CD emulating a floppy, and a subset of those also support the creation of a bootable CD emulating a hard disk. The BIOS image of some products are too large to fit on a diskette. For these platforms, the ISO image must be made from a bootable hard drive image. This is most easily done using bootable USB flash media (e.g. DOK) as the image source. To conserve space, ensure the partition is just large enough to hold the BIOS image. For BIOS images that can fit on a floppy diskette, bootable CD with floppy emulation would require the user to create a bootable floppy diskette such as in the manner described in the previous question. The third party CD software can create an image from the floppy and transfer this to the CD. Once the CD burning process is complete, the business PC can be booted from the CD, and the Flashbin utility can be executed.

If the adminstrator/setup password has been established on the business PC, the Flashbin utility driver must be assigned the password. Assign Password (Assignpw.exe) can be used with DOS Flash if an administrative/setup password has been previously set on the target PC. To assign a password to DOS Flash, change directories to the directory that contains Flashbin.exe and type "assignpw flsh.cpu". This procedure should be executed on the floppy diskette files before creating the CD media.

What are the steps necessary to create the BIOS image CD for F10 ROM flash and recovery?

The softpaq BIOS CD Image file (XXX_MMmm.iso) allows the user or administrator to create binary image CD that can be used to locally restore or update the system BIOS. This feature requires that a system is available with CD burning software and a compatible CD-R/RW drive installed.

The following steps describe how the file can be used:

1. Obtain a blank CD and place it in the CD-R/RW drive.
2. Execute XXX_MMmm.iso. This will launch the CD burning software.
3. To make the BIOS binary image CD, follow instructions provided by the application.
4. Place the newly created BIOS binary image CD in the CD drive of the computer to be updated or restored and cycle system power.
5. Follow the procedures detailed in the "How do I update the BIOS when not running Windows 7, Vista, Windows XP, or DOS?" section.

What are the steps necessary to create a bootable USB flash media (DOK) for BIOS update?

A USB Flash Media Device can be made "bootable" in order to execute the Flashbin.exe utility. Please read the following requirements and procedure completely before attempting to make the USB flash media device bootable. If you are not comfortable with the steps, please do not attempt this procedure. Data loss can result from improper execution.
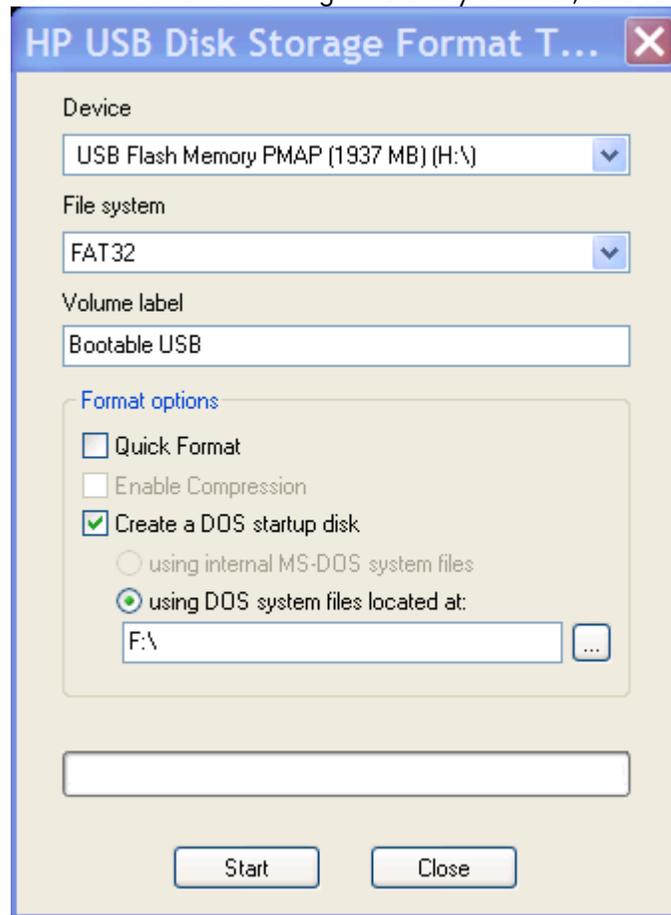
Requirement:

- Microsoft Windows (Win 95 OSR2 or later) Startup diskette or DOS Bootable diskette with fdisk.exe and sys.com files on the diskette.
- HP USB Disk Storage Format Tool (SP27608.exe) This softpaq can be downloaded from http://h50178.www5.hp.com/local_drivers/17550/SP27608.exe

Procedure steps:

1. Download and execute the HP USB Disk Storage Format Tool softpaq.
2. Insert the USB flash media device into any of the computer's USB ports.
3. Execute the Format Tool and select the USB device to format.
4. Enter Volume Label if desired.

5. Select the format option "Create a DOS startup disk", set the dropdown menu box to the device containing the DOS system files, and select "Start".

After the USB flash media is made bootable, the Flashbin.exe, Assignpw.exe, and BIOS image file (XXX_MMmm.bin) can be copied to the media. Boot the PC to be updated from the USB media and execute the Flashbin.exe as prescribed previously in the "How do I update the BIOS in a DOS environment?" section.

What are the steps necessary to use SSM for BIOS update?

System administrators can use the BIOS update softPaq with System Software Manager (SSM) to update the BIOS on target PCs on a network. Place this softPaq in your SSM Filestore folder then update the database. SSM is a free utility provided by Hewlett-Packard Company. For information on SSM and this remote BIOS update method, access the System Software Manager website (www.hp.com/go/ssm).

What are the steps necessary to use Altiris for BIOS update?

This section contains instructions for using Altiris Deployment server to deliver a BIOS update. This information assumes that an Altiris Deployment server has been

successfully configured. The basic steps required for BIOS update through the Altiris Deployment server is as follows:

1. Copy Flashbin.exe, Adminpw.exe, and BIOS image to the server
2. Create Flash.bat
3. Create the Altiris ROM Flash Event
4. Connect the Client PC to the Altiris Console

Step 1: Copy Flashbin.exe, Adminpw.exe, and BIOS image to the server

1. Create a "ROMFlash" folder in the Altiris eXpress folder
2. Copy the following files to the ROMFlash folder:
   a) Flashbin.exe
   b) Assignpw.exe
   c) XXX_MMmm.bin (desired BIOS update image)

Step 2: Create Flash.bat

1. Open a command box
2. Start|Run: cmd
3. cd\express
4. cd ROMFlash
5. edit flash.bat
6. Type in the following, where [Altiris Sever Name] is the name of the server
   a) net use k: \\[Altiris Sever Name]\express
   b) k:
   c) cd romflash
   d) flashbin /l:us /f /flsh.cpu default
7. Save the file
8. Exit Cmd

Step 3: Create ROM Flash Event in Altiris

1. Select File | New | Event
   - This creates a new Event in the Events frame (bottom, left section)
2. Type in the name of the Event: ROM Flash
3. Double click the new event
   - Brings up an Event Properties form
4. Click "Add"
5. Select "Run Script"
   - Brings up a new form
6. Select "Run the script from file:"

7. Click on the "folder" button

    - The button to the right of "Run the script from file", button has image of a folder on it)

8. Select the file "flash.bat" created in the previous section

9. Click "Open"

10. Select "DOS (from BootWorks)"

11. Click "OK"

12. The Events Properties Form should show:

    - Task: Run Script

    - Details: [path of the file]

13. Click "OK"

Step 4: Connecting the Test Unit to the Altiris Console

1. Connect the client PC to the LAN with the Altiris Server

2. On the client: Access the Altiris eXpress folder on the server

    a) Click Start | Run

    b) Type in the path to the server: \\[server name]\express

3. Run Aclient.exe

    a) Double click on Aclient

    b) Follow the instructions

4. When Aclient is properly installed and the system is connected to the Altiris Console, the Altiris icon in the Windows Taskbar (next to the clock) will become blue

5. On the server:

    a) Right click on the client computer name

    b) Select properties

    c) Check "Apply regular license"

The ROM Flash Event Setup is completed and will be delivered to the client PC.

What if the PC does not complete the BIOS flash process?

HP business PC products provide flash disaster recovery if the BIOS flash process fails to complete. The BIOS will automatically detect that the BIOS flash process did not properly complete and boot in recovery mode. With most business PC models, the user or administrator will be presented with the following screen.


```
BootBlock Emergency Recovery Mode

The System Flash ROM Image is corrupted.
```

It will boot the PC in a recovery mode and search the root directory of the removable media sources (floppy, USB, or CD) for a compatible binary image. The BIOS CD image file (XXX_MMmm.iso), included in the softpaq, should be used to create a BIOS image CD if the user or administrator desires to use CD media for BIOS recovery. When flashing during recovery, the CD media, containing the BIOS image file, must be El-Torito compatible. Floppy or USB media sources can simply contain the BIOS binary image file in the root directory. Once a binary image is located, the BIOS update process will be attempted again. The automatic flash recovery will continue until the BIOS is successfully updated or restored.

If no binary image is found, the PC will attempt to boot to diskette or USB flash media. The boot media must have DOS in order for the disaster recovery mode to successfully boot.

What is a processor microcode update softpaq and how is it used?

Typical processors download code from the BIOS during initialization referred to as microcode. If a new, supported processor is installed in the business PC which requires a microcode currently not adequately provided by the BIOS, the BIOS will issue a POST warning "1801-Microcode Update Error". To add this microcode to

the BIOS, a processor microcode softpaq is provided to update the BIOS. Processor microcode changes can be updated in the BIOS without having to change the entire BIOS. Binary file microcode image is uXX_MMmm.bin where the "u" indicates microcode, XX is the general BIOS family, MM is major version, and mm is the minor version. Microcode updates can only be accomplished by using Flashbin.exe utility.

Microcode update images are offered for the general BIOS family and can be applied to any particular BIOS of that family. For example, microcode image u7D_0101.bin can be applied to any BIOS in the 786D family such as 786D1 or 786D2. Minor version numbers are incremented to indicate minimal changes to the microcode typically involving an updated version of a previous released microcode. Major version number changes indicate a greater degree of change to the microcode source such as the addition of a new processor microcode.

How can a processor microcode update be executed in Windows?

With the latest version of HPQFlash to support the 2007 HP Business PC products (e.g. dc7800), processor microcode patches can be updated in a Windows environment. As detailed in the previous section, the microcode softpaq specific to the general BIOS family can be downloaded containing the image file uXX_MMmm.bin. This image file must be copied to the same directory as the HPQFlash.exe utility. Once that process has been completed, the microcode update can be executed by running the command "HPQFlash –u uXX_MMmm.bin" from the directory containing the utility and microcode image file. To log the operation output, the command can be extended to "HPQFlash –u uXX_MMmm.bin –l <logfile> where the logfile value is replaced with the file name target.

What does the BIOS binary image naming convention indicate?

Binary image format is XXX_MMmm.bin. The XXX portion indicates the BIOS family. The MM is the major version number. The mm is the minor version number. The BIOS family is a collection of BIOS products all originating from the same basic code source. For example, 7HX would indicate a BIOS image from the 786H BIOS family. Minor version numbers are incremented to indicate minimal changes to the BIOS source code typically involving minor problem fixes. Major version number changes indicate a greater degree of change to the BIOS source code such as new feature additions, additional hardware support, or significant POST modifications.

Can the BIOS POST splash screen be modified?

The Image Flash (Flashi.exe) utility can be used to replace the POST splash image stored in the BIOS part or save the current image. This DOS utility is typically provided for re-sellers who may want to be able to put their own logo in place of the standard Hewlett-Packard image. Error checking is done to insure that an image that does not meet the requirements above cannot be flashed into the ROM part. The utility allows browsing through directories on the current disk. The

images found can be viewed and a background color and a foreground color can be chosen from the colors in the image's palette. The utility also has a command line option to quickly flash a new image.

The image stored in the BIOS will be compressed with RLE4. If the image being flashed is already in RLE4, the image flashed will be identical to the original except the second byte in the Bitmap Header will be a checksum. If an uncompressed bitmap is flashed, the Image Flash Utility will encode it using RLE4 and save it. Therefore, when using the save (/s) feature to get the current image, the newly saved image will be in RLE4 format, regardless of the format of the original image.

Usage to Flash Image:

    Normal: Flashi.exe
    Command Line Mode: Flashi.exe [Image_File] [Foreground_Color] [Background_Color]

The normal execution method will provide the user with additional interaction so that the image can be selected from various files and a preview can be seen before the image is committed to the BIOS.

There is only a command line mode to save the current image. You cannot save the current image under an existing file name.

Usage to Save Current Splash Image (command line only):

    Command Line Mode: Flashi.exe /s name

How do I update the ME firmware in Windows 7, Vista, or Windows XP?

FWUpdLcl.exe utility in the ME Flash\Local-Win directory is designed to update the ME firmware within a local Windows environment. For more information and utility options, view the readme.txt file located in the ME Flash\Local-Win folder. The ME can be updated by executing the following command "FWUpdLcl.exe <XXX_bbbb.bin> -generic". The ME Flash folder contains a binary update image for the ME. The binary image file is named XXX_bbbb.bin where "XXX" is the abbreviated ME firmware version and "bbbb" is the build version number. For example, 210_1028.bin is the ME update file version 2.1.0 with the build number of 1028. The update binary image and the Local-Win folder contents can be copied to any Windows accessible media such as a CD/DVD or USB flash media device, including HP Drive Key and M-Systems DiskOnKey.

The following image shows the successful completion of the ME FW update process in a Windows XP environment. The update process will stay at the "Performing Update…" step for most of the time.

```
D:\WINDOWS\system32\cmd.exe                                              _ □ ×

K:\ME Flash\Local-Win>FWUpdLcl ..\301_1098.bin -generic
Firmware Update Utility version 3.0.0.1098
Copyright (C) 2006-2007 , Intel Corporation.  All Rights Reserved

Checking firmware parameters...
Performing Update...
Trying to receive update status...
Update finished successfully

K:\ME Flash\Local-Win>_
```

After the update is complete, the ME firmware is executing the update image, a system reboot is not immediately required.

How do I update the ME firmware in a DOS environment?

Another FWUpdLcl.exe version is included for ME firmware within a local DOS environment. For more information, view readme.txt located in the ME Flash\Local-DOS folder. The ME can be updated by executing the following command "FWUpdLcl.exe <XXX_bbbb.bin>" from the directory containing the utility and update image file. The ME Flash folder contains a binary update image for the ME. The binary image file is named XXX_bbbb.bin where "XXX" is the abbreviated ME firmware version and "bbbb" is the build version number. The update binary image and the Local-DOS folder contents can be copied to any DOS media such as a USB flash media device, including HP Drive Key and M-Systems DiskOnKey®. The update process output is similar to the Windows-based version.

What are the steps necessary to use Altiris for ME firmware update?

This section contains instructions for using Altiris Deployment server to deliver a ME firmware update. This information assumes that an Altiris Deployment server has been successfully configured. The basic steps required for ME firmware update through the Altiris Deployment server is as follows:

1. Copy FWUpdLcl.exe and ME firmware update image to the server
2. Create MEflash.bat
3. Create the Altiris ME Flash Event
4. Connect the Client PC to the Altiris Console

Step 1: Copy FWUpdLcl.exe and ME firmware update image to the server

1. Create a "MEFlash" folder in the Altiris eXpress folder
2. Copy the following files to the MEFlash folder:
    a) FWUpdLcl.exe (located in softpaq subdirectory "ME Flash\Local-DOS")
    b) XXX_bbbb.bin (located in softpaq subdirectory "ME Flash")

Step 2: Create Flash.bat

1. Open a command box
2. Start|Run: cmd
3. cd\express
4. cd MEFlash
5. edit meflash.bat
6. Type in the following, where [Altiris Sever Name] is the name of the server
    a) net use k: \\[Altiris Sever Name]\express
    b) k:
    c) cd MEflash
    d) fwupdlcl <XXX_bbbb.bin>
7. Save the file
8. Exit Cmd

Step 3: Create ME Flash Event in Altiris

1. Select File | New | Event
    - This creates a new Event in the Events frame (bottom, left section)
2. Type in the name of the Event: ME Flash
3. Double click the new event
    - Brings up an Event Properties form
4. Click "Add"
5. Select "Run Script"
    - Brings up a new form
6. Select "Run the script from file:"
7. Click on the "folder" button
    - The button to the right of "Run the script from file", button has image of a folder on it)
8. Select the file "meflash.bat" created in the previous section
9. Click "Open"
10. Select "DOS (from BootWorks)"
11. Click "OK"

12. The Events Properties Form should show:
   - Task: Run Script
   - Details: [path of the file]
13. Click "OK"

Step 4: Connecting the Test Unit to the Altiris Console

1. Connect the client PC to the LAN with the Altiris Server
2. On the client: Access the Altiris eXpress folder on the server
   a. Click Start | Run
   b. Type in the path to the server: \\[server name]\express
3. Run Aclient.exe
   a. Double click on Aclient
   b. Follow the instructions
4. When Aclient is properly installed and the system is connected to the Altiris Console, the Altiris icon in the Windows Taskbar (next to the clock) will become blue
5. On the server:
   a. Right click on the client computer name
   b. Select properties
   c. Check "Apply regular license"

The ME Flash Event Setup is completed and will be delivered to the client PC.

What if the ME firmware does not complete the update process?

The ME retains a recovery image of the current firmware during the update process. If for any reason the ME cannot successfully complete the update, the ME will continue to function properly with the current firmware image.

Can the ME firmware be restored to a previous version after updating?

The ME firmware cannot be regressed to a previous version after successfully completing the update process. The ME firmware can only be updated to a newer image.

Summary

HP's Business PC BIOS provides update methods to allow the user or administrator to manage the BIOS upgrades and ME firmware in a flexible manner. HPQFlash offers a familiar, Windows application interface that allows the user to confidently update the BIOS and processor microcode. Setup-based-flash and recovery provides a convenient, local upgrade method which is not dependent on the PC

operating system. The Flashbin utility provides a traditional DOS upgrade operation for local or remote situations. Administrators can use the remote management capabilities of such tools as SSM and Altiris to deliver enterprise wide upgrade ability.

Regardless of the BIOS flash method, business PC products provide a high degree of upgrade reliability and offer failure safe recovery. We are confident that HP will remain the premier provider of comprehensive BIOS upgrade solutions in the industry.

Appendix A – Modifying a DOS boot diskette for Flashbin.exe

Most of the HP Business PC BIOS images will not fit on a 1.44MB floppy diskette. Also, many product configurations may not include a standard flo9ppy disk drive. For those situations, a bootable USB flash media (e.g., DOK) is the easiest to use as the image source. However, for those images that will fit on a 1.44MB floppy image, this appendix provides the instructions necessary to create a DOS bootable flash diskette.

In order to copy Flashbin.exe, flsh.cpu, and the BIOS binary image onto the Windows XP MS-DOS boot diskette, the following modifications must be made:

- Driver directory
    - o Delete all files except COMMAND.COM and CONFIG.SYS

In order to copy Flashbin.exe, flsh.cpu, and the BIOS binary image onto the FreeDOS boot diskette, the following modifications must be made:

- FreeDOS directory
    - o Delete all the files except FDAUTO.BAT and GPL.COM
    - o Modify FDAUTO.BAT to contain the following statements:
        - @echo off
        - set disksrc=A:
        - set bootsrc=realdisk
        - set cputype=80386
- Driver directory
    - o Delete all files except HIMEM.EXE
- Root directory
    - o Modify FDCONIG.SYS to contain the following statements:
        - !FILES=20
        - !BUFFERS=20
        - !LASTDRIVE=Z
        - !SET PATH=A:\FREEDOS
        - !SWITCHES=/F /N
        - !SHELLHIGH=A:\COMMAND.COM A:\ /D /K A:\FREEDOS\FDAUTO.BAT
        - !echo=Welcome to FreeDOS (http://www.freedos.org)!

For More Information

For the HP sales office nearest you, refer to your local phone directory, or call the HP regional office listed below.

Corporate and North American headquarters
Hewlett-Packard
3000 Hanover Street
Palo Alto, CA 94304-1185
Phone: (650) 857-1501
Fax: (650) 857-5518

Regional headquarters
Latin America
Hewlett-Packard
Waterford Building, 9th Floor
5200 Blue Lagoon Drive
Miami, Florida 33126 USA
Phone: (305) 267-4220

Europe, Africa, Middle East
Hewlett-Packard
Route du Nant-d'Avril 150
CH-1217 Meyrin 2
Geneva, Switzerland
Phone: (41 22) 780-8111

Asia Pacific
Hewlett-Packard Asia Pacific Ltd.
Hewlett-Packard Hong Kong Ltd.
9/F, Cityplaza One
111 King's Road
Taikoo Shing
Hong Kong
Phone: (852) 2599-7777