

HP Compaq Business PC with vPro Technology AMT 2.1 Firmware Update



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Introduction

Active Management Technology (AMT) allows for out of band management (OOB) of systems regardless of their current power state. The initial version of AMT shipped with the HP Compaq dc7700 Business PC with vPro technology systems is referred to as AMT version 2.0. Version 2.0 will keep the management engine (ME) active executing the AMT firmware during sleep and power off states when OOB management is configured. With this configuration, the HP Compaq dc7700 Business PC with vPro technology will draw power during these states to provide the OOB capabilities. In some business configurations, power draw is a big concern. AMT 2.1 addresses this concern by allowing the ME to be placed into a lower power state to greatly reduce the power draw during system sleep and power states when OOB management actions are not taking place.

The procedure for updating system firmware is different than on past products. The ME firmware is a separate entity which can be updated independent of the system BIOS firmware. In the ME sections, the term “provisioned” describes a vPro AMT system that has been configured by the customer (user or administrator). Please consult the HP white paper “vPro Setup and Configuration for the dc7700 Business PC with Intel vPro Technology” (<http://h20000.www2.hp.com/bizsupport/TechSupport/DocumentIndex.jsp?contentType=SupportManual&lang=en&cc=us&docIndexId=179911&taskId=101&prod-TypeId=12454&prodSeriesId=3232028#7>) for information regarding the vPro provisioning process.

This white paper outlines Hewlett-Packard business PC BIOS flashing and ME update options for the 2006 vPro products. Users or administrators can choose the best method depending on the operating environment of the computer(s). BIOS and ME updates are available in a downloadable softpaq 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.

The remaining sections of this document answer frequently-asked questions concerning typical BIOS and ME flash scenarios.

AMT 2.1 Specific Changes

What is changing in the system upgrade process for AMT 2.1?

To properly configure the HP Compaq dc7700 Business PC with vPro technology for the AMT 2.1 functionality, the system must be altered in the following order:

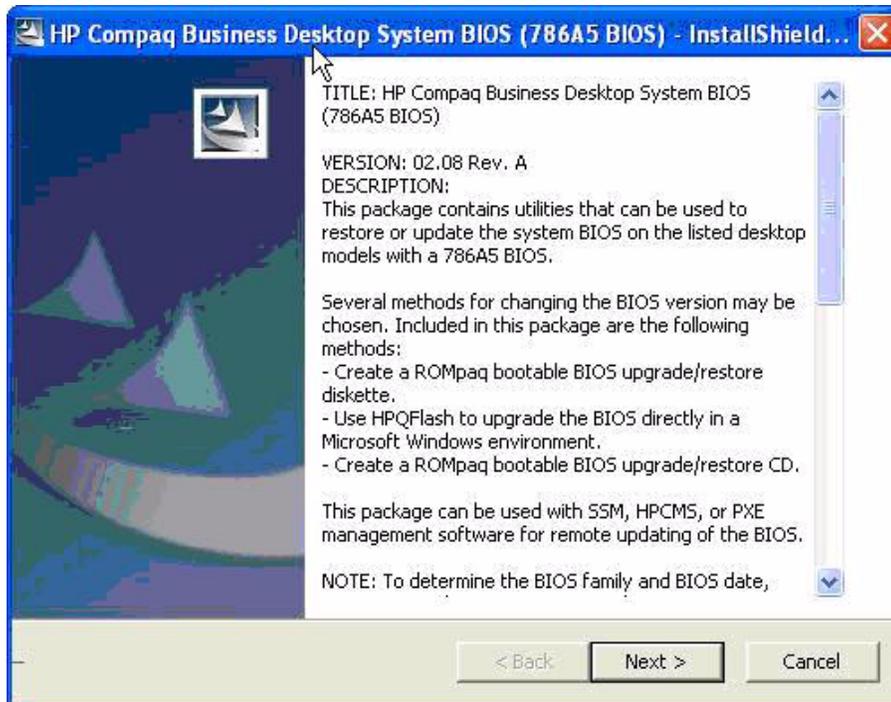
1. Update the ME firmware to 2.1.0.1029 or later.
2. Update the system BIOS firmware to version 2.0x or later.
3. Configure the ME firmware “Idle Timeout” to allow lower ME power states during OOB inactivity.

ME firmware “Idle Timeout” determines the minutes the ME will wait for management activity during OOB situations (system in a sleep state) before the ME will transition to a lower power state. This feature allows the ME to draw less power during inactive OOB situations. If a remote console requests management information, the ME wakes the system, reconfigures the ME, and places the system back into the original sleep state. After this operation, the ME will respond to any management query and begin the wait cycle again before going back to a lower power state. The section [“How do I configure the ME Idle Timeout?” on page 6](#) provides a detailed description of how the feature is configured.



What files and directories are in a BIOS dc7700 softpaq?

BIOS and ME 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. In cases like AMT 2.1 where ME and BIOS upgrades must be synchronized, the softpaq will contain the files necessary for updating both entities. 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 allows the user or administrator to extract the contents to any directory. The following files and directories are an example of those extracted from a typical BIOS and ME softpaq; however, individual softpaqs may differ. Please see the softpaq documentation files for exact contents.

- 786xx.cab - Compressed BIOS image that System Software Manager (SSM) can use to remotely update a system.
- SPxxxxx.cva - Identification file used in SSM remote BIOS upgrade.
- BIOS Flash.htm - Web document describing the softpaq contents, ME, and BIOS upgrade methods.
- How to Use.txt - Text document describing the softpaq contents, ME, 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):
 - BIOS.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 that allows the user (typically a system administrator) to create an encrypted password file that 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):
 - XXX_bbbb.bin - Binary ME firmware update image.
 - Local-DOS (directory).
 - FWUpdLcl.exe - Local DOS ME firmware update tool.
 - Local-Win (directory).
 - FWUpdLcl.exe - Local Windows ME firmware update tool.

In what operating systems can I update the PC BIOS and Management Engine Firmware?

You can update or restore the BIOS in Windows XP and Vista using the HPQFlash application. DOS environments can use the Flashbin.exe utility. In situations with other Windows versions (NT, 95, ME), Linux, or other operating systems, you can update the BIOS using F10 setup "Flash System ROM" feature.

You can update or restore the ME firmware locally in Windows XP using the FWUpdLcl.exe (Windows version). DOS environments can use the DOS version of the FWUpdLcl.exe tool.

You can execute remote ME firmware updates through the Intel AMT WebGUI when configured in SMB mode. You can remotely update enterprise configurations through ISV console applications. Consult the "vPro Setup and Configuration for the dc7700 Business PC with Intel vPro Technology" white paper for AMT setup and configuration details.

Updating ME Firmware

How do I update the ME firmware in DOS locally?

The DOS tool, FWUpdLcl.exe, is used locally by entering the tool name followed by ME firmware name. In the following example, the command is entered `fwupd1cl.exe 210_1028.bin`. The tool begins the updating process and displays “Performing Update ...”. Once the process is complete, the tool displays “Update finished successfully”.

```
C:\MEUPDATE\LOCAL-~1>fwupd1cl.exe 210_1028.bin
Firmware Update Utility version 2.1.0.1028
Copyright (C) Intel Corporation, 2006

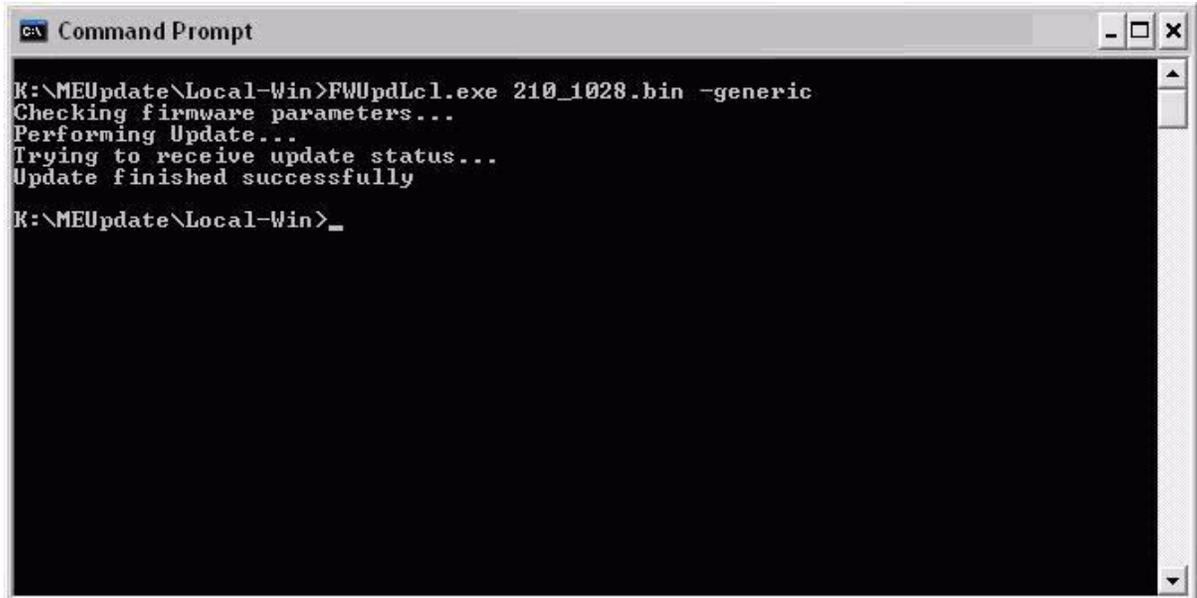
Checking firmware parameters...
Performing Update...
Trying to receive update status...
Update finished successfully

C:\MEUPDATE\LOCAL-~1>_
```

The DOS tool update will work regardless of whether the ME firmware has been provisioned. If the HP Compaq dc7700 Business PC with vPro technology has not been provisioned, this method is best for update ease.

How do I update the ME firmware in Windows locally?

The Windows tool (FWUpdLcl.exe) is used locally in a Command Window with the format `fwupd1cl.exe <meffirmware.bin> -generic`. The AMT configuration does not have to be provisioned for this tool to function. In the following example, the command is entered `fwupd1cl.exe 210_1028.bin -generic`. The tool begins the updating process and displays “Performing Update ...”. Once the process is complete, the tool displays “Update finished successfully”.



```
C:\ Command Prompt
K:\MEUpdate\Local-Win>FWUpdLcl.exe 210_1028.bin -generic
Checking firmware parameters...
Performing Update...
Trying to receive update status...
Update finished successfully
K:\MEUpdate\Local-Win>_
```

How do I configure the ME Idle Timeout?

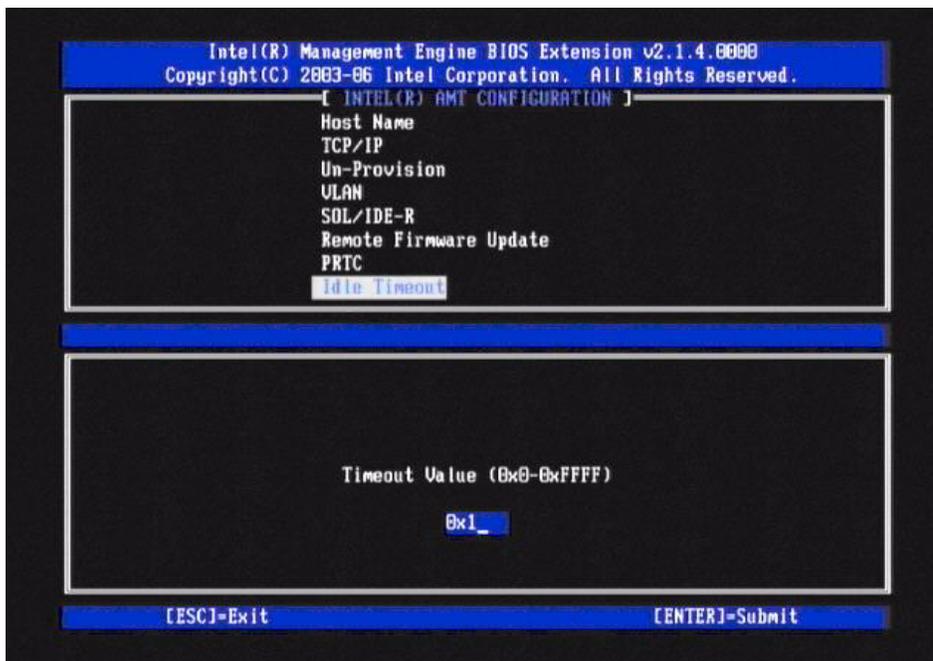
Once you have updated the ME firmware and system BIOS, you can configure the ME firmware Idle Timeout on provisioned systems to allow the ME to transition to lower power states during OOB sleep state management. The Idle Timeout feature is operational only when the setting **Intel ME ON in Host sleep states** is set to **ON** in the MEBx ME configuration menu. The default setting for this option is **OFF**.

The initial step to configuring the Idle Timeout is to enter the Management Engine BIOS Extension (MEBx) setup menu by pressing **CTRL+P** during BIOS POST. If an administrator password has been established in BIOS F10 setup, you must enter the administrator password to access the MEBx setup menu. If the HP Compaq dc7700 Business PC with vPro technology has not been provisioned, you must change the ME Password from the initial "admin" value to a strong password. The MEBx Password must be a strong password with the following requirements:

- Must be between 8 and 32 characters.
- Must contain both upper and lower case Latin characters (e.g. A, a, B, b).
- Must contain at least one digit character (e.g. 0, 1, 2, ... 9).
- Must have at least one non-alphanumeric character from the following valid list:
 - Valid characters: ! @ # \$ % ^ * _
 - Invalid characters: " ' , > < : & (space)



After you enter or establish the strong password, you can select **Intel AMT Configuration > Idle Timeout**. ME firmware images that have been field upgraded to AMT 2.1 initially have this value set to “0x0”, which disables the ME from entering a lower power state during OOB system management. To enable this function, enter a non-zero value in either HEX or DECIMAL. In the following example, the **Idle Timeout** value is set to “0x1”, which configures the ME to transition to a lower power state if AMT is configured to provide OOB during system sleep states after 1 minute of idle time. All **Idle Timeout** values are in minutes. The lowest value of 1 minute offers the most energy savings.



After you enter a valid timeout value, exit the MEBx to allow the new configuration to take affect. The timeout value applies only to AMT monitoring of systems during sleep states such as Suspend to RAM (S3/Stand by), Suspend to Disk (S4/Hibernation), or Soft Off (S5). This value will not affect the power draw for AMT functionality while the system is active.

Will I lose my AMT setup configurations when updating ME firmware?

Any AMT configurations created with the AMT 2.0 image are maintained after the update process to AMT 2.1. ME firmware updates do not modify any data previously stored by the ME. Any new configuration options that are available only in AMT 2.1 and beyond are initialized to a default value.

Updating PC BIOS

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 XP or Vista?

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.

How do I update the BIOS in a DOS environment?

You can execute the Flash Bin Firmware Upgrade Utility (Flashbin.exe) 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 USB flash media (Disk On Key - DOK) or CD can be created to deliver the Flashbin utility, driver, and BIOS image.

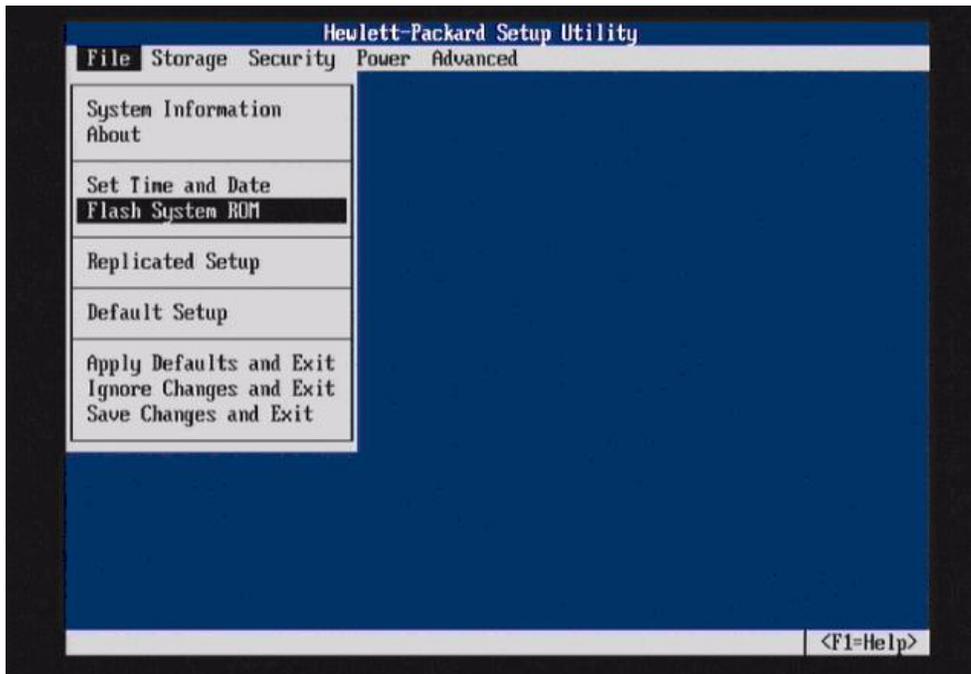
If the administrator/setup password has been established on the business PC, the Flashbin utility driver must be assigned the password. Assign Password (Assignpw.exe) can be used with DOS Flash if an administrative/setup password has been previously set on the target PC. To assign a password to DOS Flash, change directories to the directory that contains Flashbin.exe and type `assignpw flsh.cpu`. You will be prompted to type in the password. Press **Enter** 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 previ-



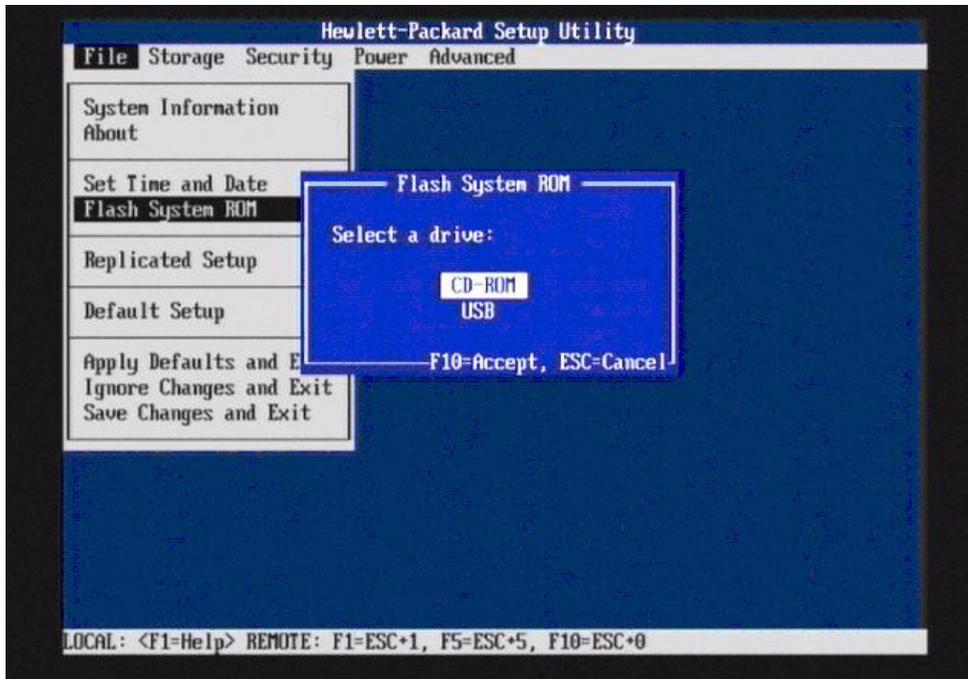
ously assigned password. You may need to do this if the administrative/setup password is deleted from the client machines. To assign a new password, run the Assign Password utility again.

How do I update the BIOS when not running Windows XP, Vista, or DOS?

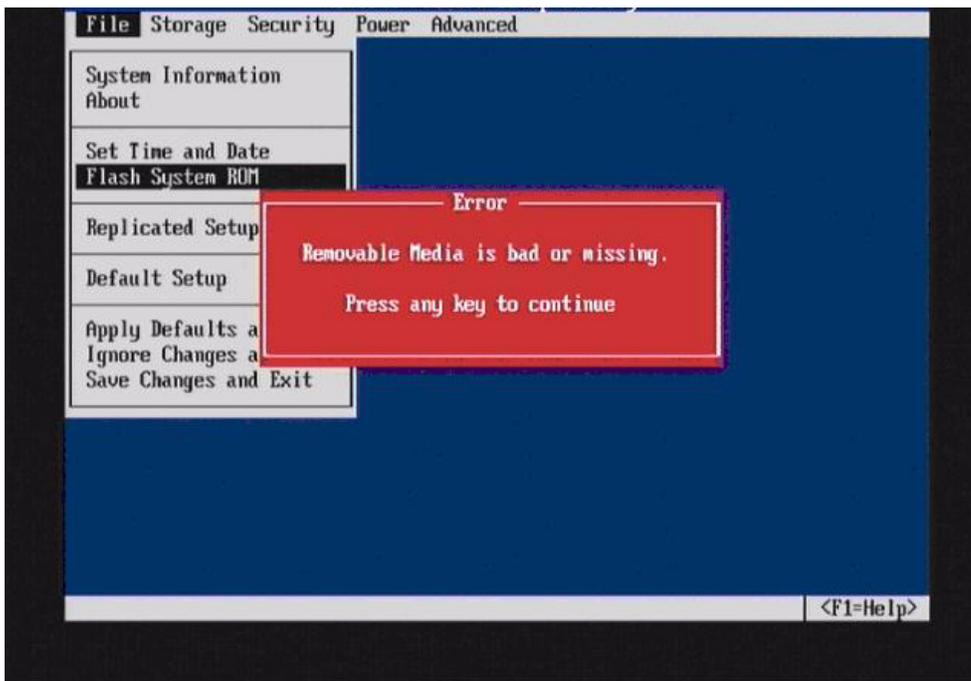
You can update BIOS using the F10 setup "Flash System ROM" feature. Reboot the PC and press **F10** to enter setup. In the **File** menu, select **Flash System ROM**.



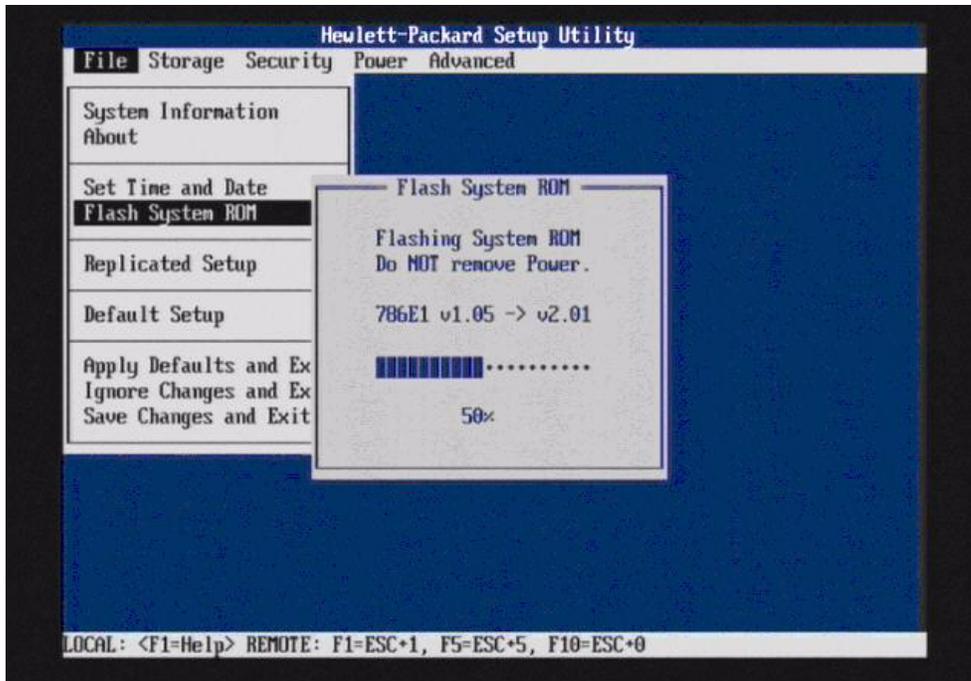
This flash utility will present the user with the option to select the media containing the BIOS image file (7E1_MMmm.bin). F10 ROM based flash can accept the binary file from the root directory of any removable media such as USB and CD. Use the BIOS.iso file included in the softpaq to create a BIOS 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 is displayed and another media source can be selected.



Once the desired binary image is selected and confirmed, the BIOS begins the flashing process. Do not interrupt the flash process. The percentage completion displays 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 steps are necessary to execute the HPQFlash utility?

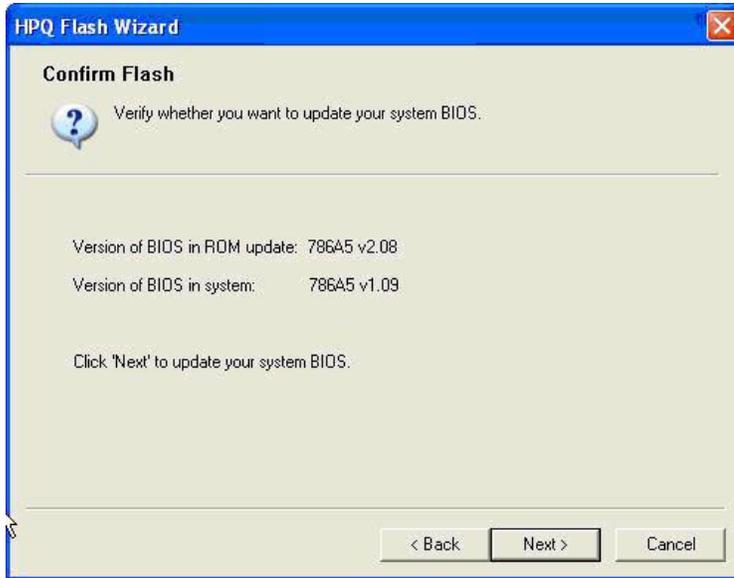
The HPQFlash application is executed in the Windows environment by selecting the HPQFlash.exe file. The initial HPQFlash application window is presented as follows, reminding the user that additional applications should be closed before proceeding.



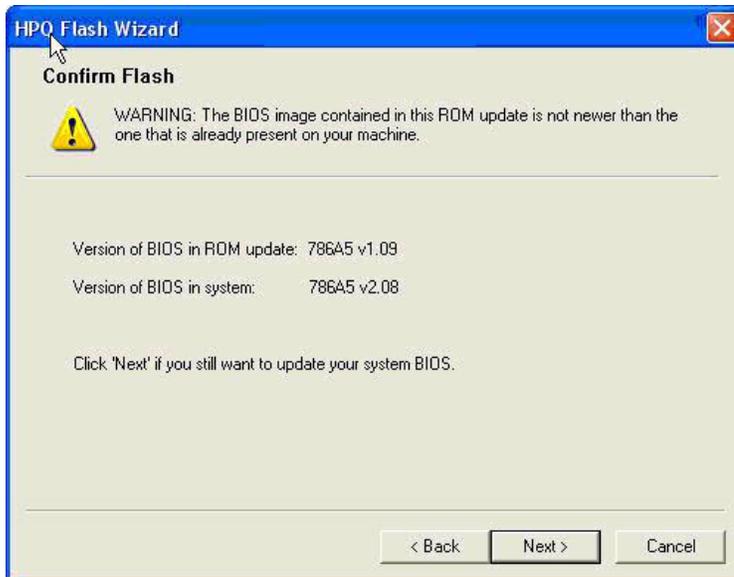
The user must have administrative privilege on the PC to proceed with the BIOS update. Otherwise, the application will respond with a warning message and exit without updating the BIOS image. If the PC has an administrative or setup password configured, HPQFlash will require the user to type the setup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



If you click the **Next** button, type the correct password (if needed), and have the appropriate rights, the application interrogates the current PC BIOS image and compares 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 displays. If the image is applicable, HPQFlash displays 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 that is currently installed, you receive the following warning; however you can restore the older image to the PC if you click **Next**.



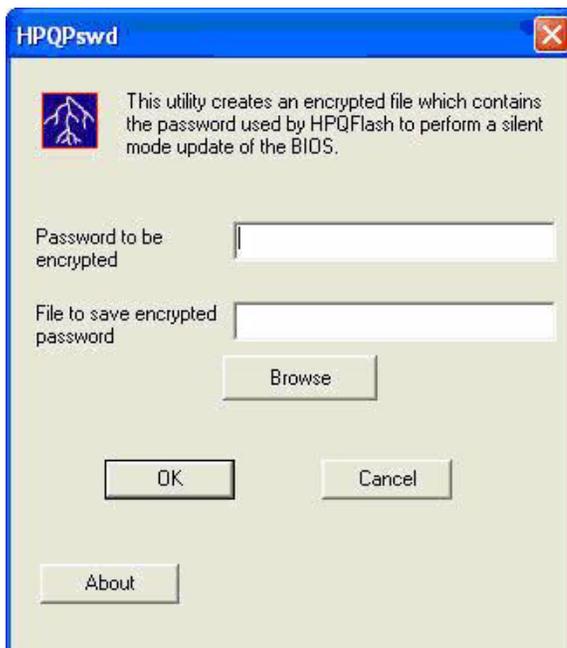
If you select **Next**, the BIOS flashing process begins, and you are warned not to interrupt the flashing process. Interrupting the flashing process can corrupt the BIOS image. If the BIOS does not update successfully, the PC enters flash recovery when rebooted.

After the flash process successfully completes, the PC restarts automatically or immediately if you click **Restart** before the timer expires. You can click **Cancel** to avoid the restart, but this is not recommended since the updated BIOS image will not take effect until the PC reboots.



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 is presented as follows to the user or administrator.



As indicated in the image, this utility creates 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.

Updating - General Questions

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

The softpaq BIOS.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 BIOS.iso to 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 XP, Vista, or DOS?" on page 9](#) section.

What steps are necessary to create a bootable USB flash media (disk-on-key) for BIOS update?

A USB Flash Media Device can be made "bootable" 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.

Requirements:

- System supporting USB flash media boot. Any Hewlett-Packard business PC with the following system BIOS family:
 1. 6860
 2. 786A
 3. 786B
 4. 786C



5. 786D

6. 786E

To verify this in your system:

1. Press **F10** at boot time to enter Setup.
 2. Select **File > System Information** to verify the correct system BIOS.
- One of the USB flash media devices listed below:
 1. HP Drive Key.
 2. M-Systems USB DiskOnKey(R).
 - Microsoft Windows (Win 95 OSR2 or later) Startup diskette or DOS Bootable diskette with fdisk.exe and sys.com files on the diskette.

To create a bootable flash media:

1. Turn off power to the computer.
2. Insert the USB flash media device into any of the computer USB ports.
NOTE: Unplug all USB storage devices (except USB Floppy drive) connected to the system other than the USB flash media device that you plan to make bootable.
3. Insert Startup diskette or DOS Bootable diskette into the floppy drive.
4. Turn on power to the computer to boot from the Startup diskette.
5. Run Fdisk from the A:\ prompt by typing `Fdisk` and, then pressing **Enter**.
6. If prompted, select **Yes** to enable Large Disk support and answer **Yes** to any other questions that appear on the screen.
7. Select option **5** to show multiple drives in the system. Write down the partition drive letter that has been assigned to the USB flash media device. The drive letter is required to complete step 9. The drive letter should also display the respective capacity (in Megabytes) of the USB flash media device.
IMPORTANT: Data loss can occur if the correct drive letter is not noted.
8. Exit the Fdisk program by pressing the **Esc** key several times until you are back to the A:\ prompt.
9. At the A:\ prompt, type `sys x:` where `x:` is the drive letter for the USB flash media device noted in Step 7 above. Reconfirm that you have entered the correct drive letter for the USB flash media device. If confirmed, press **Enter**. You will then see the message "System transfer successful" if successful.
IMPORTANT: Make sure you have typed the correct drive letter noted in Step 7 or data loss can occur.
10. Remove the diskette and reboot the system. Do not remove the USB flash media device from the port it was originally inserted.
11. The system will boot the USB flash media device as drive C:
12. Any of the supported systems can now be booted from this USB flash media device.



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?” on page 8](#) section.

What steps are 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 Web site at:

<http://h18000.www1.hp.com/im/ssmwp.html>.

What steps are 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 by clicking **Start > Run**, and typing `cmd`.
2. Type `cd\express`
3. Type `cd ROMFlash`
4. Type `edit flash.bat`
5. 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`
6. Save the file.
7. 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 to display an Event Properties form.
4. Click **Add**.
5. Select **Run Script** to display a new form
6. Select **Run the script from file:**
7. Click on the **folder** button. This is the button to the right of **Run the script from file** button and has an 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 **Aclient**.
 - b. Follow the instructions. 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.
4. 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 or ME 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.



It will boot the PC in a recovery mode and search the root directory of the removable media sources (USB, or CD) for a compatible binary image. The BIOS.iso file, 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. USB media source 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 for the disaster recovery mode to successfully boot.

The ME upgrade process is controlled by the Management Engine. If the upgrade process is not successfully completed or the attempted upgrade image is corrupted, the ME will abort the process and continue with its current firmware image.

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 micro-

code 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.

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, 7EX would indicate a BIOS image from the 786E 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 I modify the BIOS POST splash screen?

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



Summary

HP's Business PC BIOS provides update methods to allow the user or administrator to manage the BIOS and ME upgrades in a flexible manner. ME firmware images can be updated locally in a DOS or Windows environment. HPQFlash offers a familiar, Windows application interface that allows the user to confidently update the BIOS. 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 or ME flash method, business PC products provide a high degree of upgrade reliability and offer failure safe recovery.

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