Technical white paper

HP Business Notebook and Desktop PC F10 setup overview

2014 Business PC models

Table of Contents

CONTENTS

Executive summary

For decades, HP has provided unique customer value through an internally developed Read Only Memory Basic Input/Output System (ROM BIOS), a set of routines that enable a PC to load the operating system and communicate with various devices such as storage drives, keyboard, display, slots, and ports. The BIOS ensures that there is a high degree of integration between firmware and HP professional innovations such as HP Client Security Software Suite, HP Power Assistant, and HP Client Management Solutions.

HP F10 Setup, the BIOS configuration user interface provided with HP PCs, provides easy access to an impressive set of features.

Supported models

The F10 Setup described in this white paper is available on select models introduced in 2014. There are separate sections for HP notebook, desktop and tablet models.

- HP EliteBook Revolve 810 G3
- HP ZBook 14 Mobile Workstation
- HP ZBook 15u Mobile Workstation
- HP ZBook 17 Mobile Workstation
- HP Pro x2 612 G1
- HP Elite x2 1011 G1
- HP ElitePad 1000 G2
- HP EliteBook 1000 G2 series
- HP EliteBook 800 G2 series
- HP EliteBook Revolve 810 G3
- HP EliteBook 700 G1 and G2 series
- HP ProBook 400 G2 series

Most recent enhancements

HP has added several options to the 2014 version of the F10 Setup, including those outlined below.

Touch and Touch Keyboard support

On supported devices, you may choose to use the touchscreen and on-screen touch keyboard capabilities, or you may choose to disable both from the BIOS.

Always On Remote Management

On supported devices, you may enroll your HP PC to protect your device and data upon loss or theft. This advanced level of security is active even in low power computer states (sleep, hibernate and soft off). This feature requires a subscription to the HP Touchpoint Manager cloud service. Visit www.hp.com/touchpoint for more information.

Virtual Keyboard

On select devices you can change how your keyboard functions, so that it conforms with one of eighteen different keyboard languages.

Firmware updates

On select devices, you can control whether or not you wish to accept automatic firmware updates.

Security Hard Drive Tools

A wide variety of HP security tools, including DriveLock, Secure Erase and Disk Sanitizer, are now available in one place.

Security Device ID

The Asset Tracking Number and Ownership Tag have been consolidated under a single policy setting.

Independent Camera Control

The HP Pro x2 612 G1 includes the ability to separately manage each camera included in this device, via ”enable” and “disable” settings found in the F10 Setup menu.

NFC Disable by Default

On HP ElitePad 1000 devices, the default setting for NFC is now disabled.

Important Features

Updating BIOS over a network

BIOS Update via Network is the BIOS option that allows BIOS updates to be downloaded over a network from hp.com or a customer-created repository.

This feature is available on select HP notebooks, desktops, and workstations. For more information on creating a custom repository, refer to Appendix C.

HP Touchpoint Manager Always On Remote Management

Enrolling the PC in the HP Touchpoint Manager cloud service allows the owner to manage the device via the HP Touchpoint Manager console from a phone, tablet or PC using a standard web browser. After enrollment, when the machine is running Windows, the HP Touchpoint Manager agent on the platform forwards service commands to the system BIOS to execute security and management tasks including a machine lock and a hard drive wipe. If the machine is placed into a **Sleep**, **Hibernate**, **or Off state** the device will then periodically “call home” to the HP Touchpoint Manager server to report its status and retrieve/execute any pending commands. This feature also reports boot error codes to the Touchpoint Manager server to assist in problem resolution and decrease the number of returned systems.

For more information on setting up and using HP Touchpoint Manager Always On Remote Management, refer to Appendix D. For more information on boot error codes refer to Appendix E.

HP Sure Start

Select EliteBook PCs offer HP Sure Start, which provides hardware-based assurance of the following:

- HP-approved firmware is running on the HP Embedded Controller (EC) – EC Options in BIOS found under “BIOS Integrity Checking” and in some systems as “HP Sure Start.”
- An HP-approved BIOS is running on the host processor

HP Sure Start verifies the integrity of HP BIOS code residing in the main flash and provides self-healing mechanisms to restore any code that has been corrupted within the flash.

For more information, see the Sure Start section of this document (Appendix A).

Additional enhancements

For select PCs without HP Sure Start, HP has enhanced its protection against attacks at the BIOS level. This added security is a part of HP BIOSphere and includes:

- Inspection of the system BIOS prior to each boot of the host processor, ensuring only HP approved code executes at start-up
- Delivery of an enhanced core root of trust, based on hardware, not software, and not easily circumvented via physical replacement
- Support across multiple chipsets
- Platform support for HP 400 series ProBooks

F10 Setup for HP Business Notebooks

HP F10 Setup features for business notebooks include file, security, and system configuration categories.

Main menu

The Main menu provides access to general options such as:

- System Information

- System Diagnostics
- Update System BIOS
- Restore Defaults
- Reset BIOS security to factory default
- Ignore Changes and Exit
- Save Changes and Exit

Security menu

The Security menu provides access to security-related options such as:

- Create an Administrator password for BIOS F10 Setup
- Password Policy
- Change Password
- Fingerprint Reset on Reboot (if Present)
- HP SpareKey
- HP SpareKey Enrollment
- User Management
- Set Security Level
- Restore Security Level Defaults
- BIOS Integrity Checking (Embedded Controller)
- TPM Embedded Security
- System Management Command (SMC)
- Anti-Theft Tools
- Hard Drive Tools
- System IDs

Advanced menu

The Advanced menu allows you to set System Date and Time and Language. Other options include:

- Language
- Set System Date and Time
- Boot options
- BIOS Power-On
- Device Configuration
- Built-In Device OptionsPort Options
- AMT options[1] (on select models)
- HP Touchpoint Manager Options

Language support

HP F10 Setup for business notebooks has extensive language support. You can display the GUI in English, French, German, Spanish, Italian, Dutch, Danish, Japanese, Norwegian, Portuguese, Swedish, Finnish, Chinese Traditional, or Chinese Simplified.

[1] Intel® Active Management Technology (AMT) requires an Intel AMT-enabled chipset, network hardware and software, as well as connection with a power source and a corporate network connection. Setup requires configuration by the purchaser and may require scripting with the management console or further integration into existing security frameworks to enable certain functionality. It may also require modifications of implementation of new business processes.

Overview of Business Notebook options

Table 1 provides a detailed list of F10 Setup options for HP business notebooks.

Table 1. Key features for F10 Setup on select HP business notebook PCs. Some features may require a Windows 7 or Windows 8 operating system.

MAIN MENU			
Feature	**Function**	**Default setting, if applicable**	**Reboot required**
System Information	Provides key system information, such as serial number, model number, CPU type, and memory configuration		N/A
System Diagnostics	Provides access to diagnostic features, such as start-up test, run-in test, memory test, and hard disk test		N/A
Update System BIOS	Updates system firmware from FAT 32 partition on the hard drive, a USB disk–on-key, or the network Note: Updating BIOS over the network is supported on 600/800 notebook models.		N/A
• Check the Network for BIOS Updates	Updates the system BIOS by using an image stored on hp.com or some other configurable network		Yes
• BIOS Version Update Policy	Enabling will not allow any BIOS update from local media or from the network.	Disabled	No
• Allow BIOS Update using a Network	Enables or disabled the feature	Enabled	No
• Network Update Setting	User configurable settings		N/A
o Update BIOS using Local Media	Updates the system BIOS by using an image stored on local media such as the hard drive or a USB drive		Yes
o Back-up BIOS to Local Media	Puts an image of System BIOS on the HP_TOOLS partition Note: This option does not work if a BIOS administrator has been set.		Yes
Restore Defaults	Restores F10 settings to factory defaults		Yes
Reset BIOS Security to Factory Default	Resets BIOS and Protect Tool Users, clears fingerprint tokens and resets the TPM		Yes
Ignore Changes and Exit	Exits F10 Setup without saving any changes made during current session		N/A
Save Changes and Exit	Exits F10 Setup and saves all changes made during current session		N/A
SECURITY MENU			
Setup BIOS Administrator Password	Establishes the BIOS Administrator password for admin privileges		No
Password Policy	Allows the administrator to select various rules for BIOS password qualification[2]		No
• Password Minimum Length	Allows the administrator to specify the minimum number of characters required for the F10 power-on password		No
• At least one symbol required	Allows the administrator to require at least one symbol, such as $, %, ^, &, or # for F10 power-on password	Disabled	No
• At least one number required	Allows the administrator to require at least one number, such as 1, 2, or 3 for F10 power-on password	Disabled	No

[2] BIOS Administrator password is required

Feature	Function	Default setting, if applicable	Reboot required
• At least one upper-case character required	Allows the administrator to require at least one upper case character, such as A, B, C, or D for F10 power-on password	Disabled	No
• At least one lower-case character required	Allows the administrator to require at least one lowercase character, such as a, b, c, or d for F10 power-on password	Disabled	No
• Are spaces allowed in password?	Allows the administrator to permit spaces, such as “New York,” in F10 power-on password	Disabled	No
Change Password	Change BIOS user password		No
Fingerprint Reset on Reboot (if present)	Clears all registered fingerprints	Disabled	Yes
HP SpareKey	Allows users to establish a set of failsafe questions in the event the power-on password is lost	Enabled	No
HP SpareKey Enrollment	Allows user configuration of HP SpareKey by answering any three of ten questions for enrollment		No
• Enrollment questions	• What was the name of the first school you attended? • What is the name of your first pet? • What is your father’s middle name? • What is your mother’s middle name? • Who was your first employer? • Who was your first teacher? • What city were you born in? • In what city was your mother born? • In what city was your father born?		No
• Reset HP SpareKey Questions and Answers	Deletes current challenge-and-answer questions		No
USER MANAGEMENT			
User Management	Allows BIOS Administrator to manage BIOS and HP Client Security Software Suite Users – for example, for BIOS users, the admin can: • Create additional users • Specify privilege levels • Create passwords (which can be changed by the individual user)		No
Set Security Level	Allows administrator to restrict visibility or configurability of F10 Setup options for standard users		Yes
Restore Security Defaults	Restores the security level of F10 Setup options to default		Yes
EMBEDDED SECURITY			
HP Sure Start	Only supported on EliteBook and ZBook notebooks		N/A
Verify Boot Block on every boot	Verify the integrity of the system’s boot block on boot.	Disabled	Yes
• BIOS Data Recovery Policy	Recover System Data (For manual recovery during boot up press (Up Arrow + Down Arrow + ESC) to restore System Data	Automatic	Yes
• Restore Network Configuration to factory defaults	Restore the network address and other network parameters to factory default		Yes

Feature	Function	Default setting, if applicable	Reboot required
• TPM Embedded Security	Manages TPM Module settings		N/A
• TPM Device	Exposes the integrated TPM module	Available	Yes
• Embedded Security Device State	Enables the integrated TPM module	Disabled	Yes
• TPM Reset to Factory Default	Sets TPM Embedded Security settings to factory default	No	Yes
• OS Management of TPM	Allows operating system to manage TPM module	Enabled	Yes
• Reset of TPM from OS	Allows reset of TPM module from within the operating system	Disabled	Yes
System Management Command	Allows authorized personnel to reset security settings in case of a service event Note: In the event BIOS password is lost and this option is disabled authorized personnel will not be able to remove lost password.	Enabled	Yes
UTILITIES			
Anti-Theft Tools			N/A
• Intel Anti-Theft	Server-based security		N/A
o Active	Activates this option	Enabled	Yes
o Suspend	Allows the feature to be disabled temporarily	Disabled	Yes
• Absolute Persistence Module			N/A
o Current State	Read-only setting that reports the current status [Inactive/Active/Permanent Disabled]	Inactive	N/A
Hard Drive Tools			N/A
• Save/restore Master Boot Record (MBR) of the system hard drive	Saves a baseline MBR that can be restored if a change is detected Note: Not applicable for UEFI boot modes	Disabled	Yes
• DriveLock	Allows configuration of DriveLock Master and User passwords	Disabled	N/A
• Automatic DriveLock	Requires the BIOS to authenticate the user before the drive is unlocked. The user can be a BIOS user (managed by F10 Setup) or a HP Client Security Software Suite user (managed by the OS). Following authentication, the BIOS automatically supplies the DriveLock password. A BIOS administrator password is required for this feature and is set as the DriveLock master password.	Disabled	N/A
• Disk Sanitizer	Erases all data on selected hard drive; typically used prior to repurposing or donation (Not supported under RAID mode or on SSDs)		N/A
• Secure Erase	Uses a built-in command drive to erase data on an SSD		N/A
System IDs			N/A
• Asset Tracking Number	Allows custom configuration of an asset tag (up to 18 characters)	Serial Number	No
• Ownership Tag	Allows custom configuration of an ownership tag (up to 40 characters)	Blank	No
• Ownership Tag 2	Allows custom configuration of an ownership tag (up to 40 characters)	Blank	No
ADVANCED MENU			
Language	Selects between 14 languages Note: Affects the BIOS, not the OS	English	Yes

Feature	Function	Default setting, if applicable	Reboot required
Set System Data and Time	Allows entry of the current data and time		Yes
Boot Options			N/A
Startup Menu Delay (seconds)	Allows user configuration of the length of time the Startup Menu is displayed during POST	0	No
• Multiboot Express Boot Popup Delay (seconds)	Allows user configuration of the length of time the Express Boot option (F9) is displayed	0	No
• Audio Alerts During Boot	Enables audible error beeps during POST	Disabled	Yes
• Custom Logo	Enables use of custom logo screen during POST[3]	Disabled	No
• Display Diagnostics URL	Displays the HP support web address for diagnostics	Enabled	No
• Custom Help and URL Message	Allows display of customized message and URL during POST	Disabled	No
• Require Acknowledgement of Battery Errors	Displays battery error screen until user presses the enter key	Disabled	No
Fast Boot	Reduces POST time by bypassing boot to USB, optical drive, PXE, and DOS	Enabled	No
• CD-ROM Boot	Allows boot from optical media	Enabled	No
• SD Card Boot	Allows boot from SD card	Enabled	No
• Floppy Boot	Allows boot from USB floppy	Enabled	No
• PXE Internal NIC Boot	Allows boot from LAN in legacy or hybrid boot mode	Enabled	No
• PXE Internal IPV4 NIC Boot	Allows PXE boot to IPv4 in native UEFI boot mode (enable on Win8 orders)	Disabled	No
• PXE Internal IPV6 NIC Boot	Allows PXE boot to IPv6 in native UEFI boot mode (enable on Win8 orders)	Disabled	No
• USB Device Boot	Allows boot from USB storage device	Disabled	No
• Upgrade Bay Hard Drive Boot	Allows boot from hard disk drive mounted in upgrade bay	Enabled	No
• eSATA Boot	Allows boot from eSATA storage device	Enabled	No
• Customized Boot	Allows boot from a custom boot path; loads the boot loader from the path defined in Define Customized Boot Option (see below)	Enabled	No
Secure Boot Configuration	Allows Secure Boot feature (which verifies signature of boot loader before loading OS) to be enabled or disabled; clears Secure Boot keys	Disabled	N/A
• Secure Boot	Enables Secure Boot (enable on Win8 orders)	Disabled	Yes
• Clear Secure Boot Keys	Clears the Secure Boot keys	Disabled	Yes
• User Mode	Selects which keys the BIOS uses	HP Factory Keys, Customer Keys	Yes

[3] For more information, refer to the *HP Business Notebook EFI Guidelines* white paper.

Feature	Function	Default setting, if applicable	Reboot required
• Boot Mode	Controls how OS is booted. Depending on the OS, options are: • Legacy or UEFI Hybrid (with CSM) Selected on NON Win8 orders • UEFI Native (without CSM) Selected on Win8 orders	Legacy	No
• UEFI Boot Order	Specifies UEFI boot order; requires boot mode set to UEFI Hybrid or UEFI Native (applicable on Win8 orders)	NB Upgrade Bay (UEFI), OS Boot Manager, NB Ethernet (UEFI), USB hard drive, eSATA hard drive, SD card, HP HV Secure Boot, Generic USB device, Customized Boot	No
• Legacy Boot Order	Specifies the legacy boot order; requires boot mode set to Legacy or UEFI Hybrid (applicable on NON Win8 orders)	NB Upgrade Bay, NB Hard Drive, NB Hard Drive 2 (on select models), USB Floppy, USB CD-ROM, USB Hard Drive, NB Ethernet, SD Card, Dock Upgrade Bay, eSATA	No
• Define Customized Boot Option	Specifies path for the customized boot option Note: Only boots from this path if Customized Boot is enabled.		No
• BIOS Power-On Time (hh:mm)	Automatically powers system on based on preset schedule Shuts down Windows gracefully and ensures feature is on in F10 Setup In Windows 7, set **Allow wake timers** to **Enable** in the desired power plan (**Control Panel→Power Options**) Note: This option is only supported on AC power.		No
Sunday Monday Tuesday Wednesday Thursday Friday Saturday	Day of week selection		Yes
• BIOS Power-On Time (hh:mm)	Time of day entry		Yes
Device Configurations			N/A
• Fn Key switch	Accessibility feature to provide support for a function key press and release followed by the function feature key, instead of both keys having to be simultaneously pressed	Disabled	Yes
• USB Legacy Support	Enables mouse/keyboard support	Enabled	Yes
• Parallel Port Mode	Specifies parallel port mode	ECP	Yes
• Fan Always on while on AC	Leaves the fan on while running on AC power	Enabled	Yes
• Data Execution Prevention	Enables DEP on Intel-based systems, which strengthens security by preventing applications/services from executing code from non-executable memory regions	Enabled	Yes

Feature	Function	Default setting, if applicable	Reboot required
Language	Selects between 14 languages Note: Affects the BIOS, not the OS	English	Yes
• SATA Device Mode	Enables and selects SATA Mode for internal drives	AHCI; For Smart Response Technology models, RAID, IDE	Yes
• Wake on USB	Allows the system to resume from sleep when a USB input device is triggered (such as mouse movement or keyboard key-press)	Enabled	Yes
• USB Charging Port	Allows an external device to charge until a specified battery charge level is reached	Enabled, 10%	Yes
• Secondary Battery Fast Charge	Stops charging the primary battery at 90% and begins charging a secondary battery to optimize the charge cycle	Enabled	Yes
• Virtualization Technology	Enables VT on Intel-based systems – a feature that is often used to run virtual machines	Disabled	Yes
• Virtualization Technology for Directed I/O	Grants virtual machines direct access to peripheral devices on select Intel platforms	Disabled	Yes
• TXT Technology	Enables Trusted Execution Technology on select Intel platforms, a feature that defends against software-based attacks on sensitive information stored on the system	Disabled	Yes
• Multi Core CPU	Enables dual/quad processor cores	Enabled	Yes
• Intel HT Technology	Enables Hyper-Threading on select Intel-based systems	Enabled	Yes
• NumLock on at boot	Enables Number Lock at boot	Disabled	Yes
• Hybrid Graphics	Enable / Disable or allow BIOS to automatically enable / disable Hybrid Graphics based on OS (when set to Auto). When set to Auto, Hybrid Graphics is disabled for certain Linux OS. When set to Disable, only the integrated graphics adapter is used on selected platform. On Workstation, only the discrete graphics adapter is used. When set to Enable, both the integrated and discrete graphics adapters are used.	Enabled (Auto on Workstation)	Yes
• Hybrid Graphics Enhanced Display Feature	Enable additional display capability to allow pre-OS applications to be visible on any one of the available display at boot. When disabled, pre-OS applications can only be visible on certain displays (Internal Panel, VGA, System Display Port on selected platforms) at boot. Digital displays attached to dock will not support pre-OS applications.	Enabled	Yes
• Max SATA Speed	Selects the maximum SATA port speed between SATA II (3.0 Gbps) or SATA III (6.0 Gbps)	3.0 Gbps / 6.0 Gbps	Yes
• Ctrl I Prompt	Enables the Ctrl +I Prompt, which allows the user to enter the RAID Configuration Utility	Disabled	Yes
• HP HV Secure Boot	Enables HP Dynamic Protection, which allows a thin hypervisor layer to run concurrently and share the system hardware	Disabled	Yes
• HP HV Secure Version Control	ENABLES BIOS TO CHECK THE SPECIFIC VERSION OF THE HP DYNAMIC PROTECTION PACKAGE AGAINST THE ALLOWED VERSION STORED IN BIOS **Note:** The platform only boots to the default boot loader configuration file that is distributed with the target package.	Disabled	Yes
• HP HV Secure Boot Configuration Lockdown	Enables the hypervisor to verify its current configuration against a saved setting	Disabled	Yes

Feature	Function	Default setting, if applicable	Reboot required
Intel Rapid Start Technology	Enables Intel Rapid Start Technology, which improves battery life and system resume time above current Standby and Hibernate levels. **Note:** This feature only works when an SSD is detected. Currently, it is only supported in mSATA SSD-based solutions.	Disabled	Yes
Entry on S3 RTC wake	Enables RTC wake to trigger the transition from S3 to Intel Rapid Start Technology	Disabled	Yes
S3 Wake Timer	Specifies the length of time the system remains in S3 before an RTC wake event is triggered	5 minutes	Yes
Entry on S3 Critical Battery wake event	Enables critical battery event support on Intel Rapid Start Technology; wakes the system to provide an alert that the battery-level is low	Disabled	Yes
Express Card Link Speed	Sets speed for Express Card Link. Generation 1 will set the Link Speed to max 2.5 Gbit/s and Generation 2 will set the Link Speed to a maximum of 5.0 Gbit/s	Generation 2	Yes
• Dynamic Platform and Thermal Framework (DPTF) 6.0	Allows users to set maximum power consumption on select Intel platforms	Enabled	Yes
• Configurable TDP Lock	Thermal Design Power (TDP) Lock feature locks power consumption to a nominal value on select Intel platforms	Disabled	Yes
• LPM	Uses Low Power Mode (LPM) setting requested by OS	OS-specific	N/A
• Configurable TDP Boot Mode	Allows the user to specify the default power consumption on select Intel platforms	TDP Down	Yes
• Smart Card Reader Power Setting	Disables the power-saving feature of the Smart Card reader, thus maintaining a session when the card is removed	Powered on if card is present	Yes
Power Control	Allows the scheduling of a peak shift period and a battery-charging period	Enabled	Yes
• Power on unit when AC is detected	Turns on the unit when AC power is applied	Disabled	Yes
• Deep Sleep	Turns off power to the chipset during Sleep in order to enhance battery life Off: Disables the feature On: Power to the chipset is always turned off during Sleep. Auto: System decides whether or not to turn power off depending on battery state	Auto	Yes
Built-in Device Options[4]			N/A
• Wireless Button State	Enables wireless button **Note:** If this feature is disabled, the WLAN device cannot be toggled on and off using the wireless button	Enabled	Yes
• Embedded WLAN Device	Enables integrated 802.11 device	Enabled	Yes
• Embedded WWAN Device	Enables integrated WWAN device	Enabled	Yes
• WWAN Quick Connect	Maintains power to the WWAN device to provide faster network connection Note: Also maintains power during S3	Enabled	Yes
• Embedded GPS Device	Enables integrated GPS device	Enabled	Yes

[4] All devices not supported on all systems.

Feature	Function	Default setting, if applicable	Reboot required
• Embedded Bluetooth®	Enables integrated Bluetooth device	Enabled	Yes
• Embedded LAN Controller	Enables integrated network interface controller (NIC) device	Enabled	Yes
• LAN/WLAN Switching	Enables automatic switching between embedded WLAN device and embedded LAN controller; disables WLAN when LAN connection is detected	Disabled	Yes
• Wake on LAN	Enables system to wake when a magic packet is received via LAN	Boot to Network	Yes
• Wake on LAN in Battery/DC Mode	When powered by battery, enables system to wake via LAN	Disabled	Yes
NB Upgrade Bay	Enables integrated upgrade bay	Enabled	Yes
• Fingerprint	Enables fingerprint reader	Enabled	Yes
• Integrated Camera	Enables integrated camera	Enabled	Yes
• Audio Device	Enables integrated audio device	Enabled	Yes
• Modem Device	Enables integrated modem	Enabled	Yes
• Microphone	Enables integrated microphone	Enabled	Yes
• Speakers and Headphones	Enables internal speakers and headphone jack	Enabled	Yes
• Wake Unit from Sleep When Lid is Opened	Opening the lid wakes the computer from Sleep mode	Disabled	Yes
• Power on Unit When Lid is Opened	Opening the lid powers on the computer	Disabled	Yes
• mSATA	Enables mSATA support	Enabled	Yes
• Boost Converter	Draws power from the battery when the system is on AC in order to give the CPU a momentary performance gain by increasing the overall power available to the CPU	Enabled	Yes
• Backlit Keyboard Timeout	Specifies the timeout period for the keyboard's backlit LEDs	15 seconds	Yes
Port Options			N/A
• Serial Port	Enables integrated serial port	Enabled	Yes
• Parallel Port	Enables integrated parallel port	Enabled	Yes
• Flash Media Reader	Enables integrated media card reader	Enabled	Yes
• USB Port	Enables integrated USB port	Enabled	Yes
• 1394 Port	Enables integrated 1394 port	Enabled	Yes
• Express Card Slot	Enables integrated Express Card slot	Enabled	Yes
• Smart Card	Enables integrated Smart Card slot	Enabled	Yes
• eSATA Port	Enables integrated eSATA port	Enabled	Yes
• Thunderbolt Port[5]	Enables integrated Thunderbolt port	PCIe and DisplayPort	Yes
AMT Options			N/A
• USB Key Provisioning	Enables AMT provisioning using USB disk–on- key	Disabled	Yes

[5] Thunderbolt is new technology. Install all the latest drivers for your Thunderbolt device before connecting the device to the Thunderbolt port. Thunderbolt cable and Thunderbolt device (sold separately) must be compatible with Windows. To determine whether your device is Thunderbolt Certified for Windows, see https://thunderbolttechnology.net/products.

Feature	Function	Default setting, if applicable	Reboot required
• Unconfigure AMT on Next Boot	Resets AMT configuration options on next boot,	Disabled	Yes
• SOL Terminal Execution Mode	Specifies terminal emulation mode	ANSI	Yes
• Firmware Progress Event Support	Enables AMT progress events, allowing the status of clients to be monitored remotely	Disabled	Yes
• Initiate Intel CIRA	Enables Intel CIRA feature	Disabled	Yes
HP Always On Remote Management Options			N/A
• Status	Read only. Indicates the current state of the feature, either Activated, or Not Activated	Not Activated	N/A
• Allow Activation	Allows enrollment when enabled or un-enrolls and blocks any current enrollment if disabled	Enabled	Yes
• Accept Commands	Only available when Allow Activation is Enabled. Setting to While set to disabled, the platform will not accept commands from HP Touchpoint Manager	Disabled	Yes

F10 Setup for HP Business Desktops

File menu

The File menu provides access to general options such as:

- View system information
- Set date and time
- Exit F10 Setup with or without saving changes to settings
- Update system ROM

Storage menu

The Storage menu provides access to mass storage device configuration, general options, and boot order.

Security menu

The Security menu provides access to security-related options such as:

- Power-on and DriveLock passwords
- Secure boot configuration
- Asset tag configuration
- Integrated security device configuration

Table 2. Key features for F10 Setup on select HP Business Desktop PCs .

Feature	Function	Default setting, if applicable	Reboot required
FILE MENU			
System Information	Provides key system information, such as chassis serial number, product name, CPU type, and memory configuration		Yes
Set Time and Date	Configures system time (hh:mm) and date (mm:dd:yyyy)		No
Flash System ROM	Updates system firmware from a FAT 32 partition on a USB disk-on-key or hard drive		Yes
Replicated Setup	Saves setup to or restores setup from a USB storage device		Yes
Default Setup	Saves current settings as default or restores factory settings as default		Yes
Apply Defaults and Exit	Exits F10 Setup and restores settings to user defaults, if created (see Default Setup above)		Yes
Ignore Changes and Exit	Exits F10 Setup without saving any changes made during current session		Yes
Save Changes and Exit	Exits F10 Setup and saves all changes made during current session		Yes
STORAGE MENU			
Device Configuration	Displays storage device information and enables the configuration of SATA translation mode	Automatic	Yes
Storage Options			Yes
SATA Emulation	Sets SATA emulation mode		Yes
Removable Media Boot	Boots from removable media	Enabled	Yes
Boot Order			Yes
• UEFI Boot Sources	Specifies UEFI boot order	USB Floppy/CD, USB Hard Drive, ATAPI CD/DVD Drive	Yes
• Legacy Boot Sources	Specifies the legacy boot order	ATAPI CD/DVD Drive, USB Floppy/CD, Hard Drive USB Hard Drive, SATA0 Network Controller	Yes

Power menu

The power menu provides access to OS and hardware power management configuration and system thermal controls.

Advanced menu

The advanced menu provides access to:

- Power-on options
- Integrated device configuration
- Port options
- Update via Network options
- AMT options (on select models)

Overview for HP Business Desktops

Table 3 provides a detailed list of F10 Setup options for HP business desktops.

Note: Use the F8 hotkey to change the selected language.

Table 3. Key features for F10 Setup on select HP business desktop PCs. Some features may require a Windows 7 or Windows 8 operating system.

Feature	Function	Default setting, if applicable	Reboot required
SECURITY MENU			
Setup Password	Establishes a setup password with administrator privileges		No
Power-on Password	Establishes a power-on password with user privileges		No
Password Options	Available when you are configuring a setup or power-on password		Yes
• Lock Legacy Resources	Limits ACPI control of legacy COM and LPT ports	Disabled	Yes
• Setup Browse Mode	Gives non-admin limited access to BIOS setup	Enabled	Yes
• Password Prompt on F9, F11 & F12	Requires admin password for BIOS hotkeys	Enabled	Yes
• Network Server Mode	Enables network server mode, allowing the system to bypass the power-on password	Disabled	Yes
• Stringent Password	Prevents the passwords from being cleared	Disabled	Yes
Smart Cover	If options are present, allows chassis cover features to be set		Yes
Cover Lock	Engages cover lock solenoid	Unlock	Yes
Cover Removal Sensor	Sets system policy in response to cover removal (Notify User, Setup Password)	Disabled	Yes
Device Security			Yes
• Embedded Security Device	Sets embedded device security availability to the OS.	Device available	Yes
• System Audio	Sets system audio availability	Device available	Yes
• Network Controller	Sets network controller availability	Device available	Yes
• SATA0	Sets SATA0 availability	Device available	Yes
• SATA1	Sets SATA1 availability	Device available	Yes
• SATA2	Sets SATA2 availability (on some tower systems	Device available	Yes
• SATA3	Sets SATA3 availability	Device available	Yes
• SATA5	Sets SATA5 availability	Device available	Yes
USB Security	Note: Dependent upon chassis type:		Yes
• Front USB Ports			Yes
o USB3 Port 1	Sets USB port status	Enabled	Yes
o USB3 Port 2	Sets USB port status	Enabled	Yes
USB Port 1	Sets USB port status	Enabled	Yes
USB Port 2	Sets USB port status	Enabled	Yes

Feature	Function	Default setting, if applicable	Reboot required
• Rear USB Ports			Yes
o USB3 Port 1	Sets USB port status	Enabled	Yes
o USB3 Port 2	Sets USB port status	Enabled	Yes
o USB Port 1	Sets USB port status	Enabled	Yes
o USB Port 2	Sets USB port status	Enabled	Yes
o USB Port 3	Sets USB port status	Enabled	Yes
o USB Port 4	Sets USB port status	Enabled	Yes
• Accessory USB Ports			Yes
o USB Port 1	Sets USB port status	Enabled	Yes
o USB Port 2	Sets USB port status	Enabled	Yes
o USB Port 3	Sets USB port status	Enabled	Yes
o USB Port 4	Sets USB port status	Enabled	Yes
o USB Port 5	Sets USB port status	Enabled	Yes
o USB3 Port 1	Sets USB port status	Enabled	Yes
Slot Security	Note: Information displayed may vary with form factor		Yes
• PCI Express x16 Slot 1	Sets PCI Express x16 slot availability	Enabled	Yes
• PCI Express x4 Slot 1	Sets PCI Express x4 slot availability	Enabled	Yes
• PCI Express x1 Slot 1	Sets PCI Express x1 slot availability	Enabled	Yes
• PCI Express x1 Slot 2	Sets PCI Express x1 slot availability	Enabled	Yes
• PCI Express x1 Slot 3	Sets PCI Express x1 slot availability	Enabled	Yes
Network Boot	Sets network boot status	Enabled	Yes
System IDs	Sets Asset Tag, Ownership Tag, Keyboard Layout, and UUID		No
Master Boot Record Security	Protects MBR from corruption	Disabled	Yes
System Security			Yes
• Data Execution Prevention	Enables DEP to protect against certain OS security breaches on Intel-based systems	Enabled	Yes
• Virtualization Technology (VTx)	Enables VT on Intel-based systems	Disabled	Yes
• Virtualization Technology Directed I/O (VTd)	Grants virtual machines direct access to peripheral devices on select Intel-based systems	Disabled	Yes
• Trusted Execution Technology	Enables Trusted Execution Technology on select Intel-based systems Note: Enabling this feature disables OS management of Embedded Security Device, prevents a reset of the Embedded Security Device, and prevents the configuration of VTx, VTd, and Embedded Security Device.	Disabled	Yes
• Embedded Security Device	Enables Trusted Platform Module (TPM) Note: Configuring the Embedded Security Device requires a setup password.	Enabled	Yes

Feature	Function	Default setting, if applicable	Reboot required
o Reset to Factory Settings	Disables TPM and resets credentials	Do not reset	Yes
• Measure boot variables/devices to PCR1	Prevents changes in boot device configuration (e.g. adding to or changing boot order) from causing Bitlocker recovery mode	Disabled	Yes
• OS Management of Embedded Security Device	Allows OS to manage TPM	Enabled	Yes
o Reset of Embedded Security Device through OS	Allows reset of TPM to be initiated from the OS	Disabled	Yes
o No PPI Provisioning	Allows the OS to take immediate control of the Embedded Security Device without requiring user interaction.	Disabled	Yes
o Allow PPI policy to be changed by OS	Allows the OS to change how the user is prompted for changes to the Embedded Security Device	Disabled	Yes
• Button Retask Password Protection	Prevents All-in-One bezel buttons from being retasked without administrator privileges	Disabled	Yes
• DriveLock Security	Allows configuration of master and user DriveLock passwords Note: Hard drive security states cannot be changed after a warm reboot. Power off the system then boot directly to F10 Setup.		Yes
o Enable/Disable DriveLock	Enables DriveLock feature. Prompts for setting a user password when set to Enable.		Yes
o Configure Master Password	Allows Master DriveLock password to be set		Yes
Secure Boot Configuration			Yes
• Legacy Support	Provides support for older (non-EFI) operating systems	Disabled for Windows 8 Enabled for others	Yes
• Secure Boot	BIOS will verify that the software image it boots to is properly authenticated Note: Enabling Secure Boot impacts Legacy Support, Legacy Boot Sources, and Option ROM Launch Policies. Note: “Secure Boot Policy” warning appears if user tries to enable Legacy Support with Secure Boot on.	Enabled for Windows 8 Disabled for others	Yes
Key Management			Yes
• Clear Secure Boot Keys	By default HP keys are installed. They can be extended by valid updates from HP. Clearing the keys resets the keys to the initial BIOS defaults. If Custom keys have been selected, clearing the keys removes all the keys.	Don’t Clear	No
• Key Ownership	If Secure Boot is enabled, keys are used to ensure that only properly signed software can boot. The Key Ownership option allows you to specify HP or custom keys.	HP Keys	Yes
Fast Boot	Enables the Fast Boot option (with support for Fast Boot and Seamless Boot) for Windows 8 users	Enabled for Windows 8 Disabled for others	Yes

POWER MENU			
OS Power Management			Yes
• Runtime Power Management	Enables Runtime Power Management	Enabled	Yes
• Idle Power Savings	Increase OS Idle Power Savings	Extended	Yes
• Unique Sleep State Blink Rates	Assigns a unique LED blink pattern to S3 and S4	Disabled	No
• Hardware Power Management			Yes
• SATA Power Management	Enables SATA bus to enter low power states when idle	Enabled	Yes
• S5 Maximum Power Savings	Minimizes power consumption of system while in S5 (off) state. Note: Windows 8 with Fast Startup enabled powers off to the S4 (suspend to disk) state.	Disabled	Yes
• Thermal	Adjusts minimum fan speed in Idle Mode	0	Yes
ADVANCED MENU			
Power-on Options			Yes
• POST mode	Selects between default startup or self-testing during power-on	QuickBoot	Yes
• POST Messages	Displays messages instead of logo during POST	Disabled	Yes
• Press the ESC key for Startup Menu	Displays the **Press Esc for startup menu** prompt	Enabled	Yes
• Option ROM Prompt	Displays the Option ROM prompt on POST screen	Enabled	Yes
• After Power Loss	Specifies system state after power loss	Off	Yes
• POST Delay (in seconds)	Specifies amount of delay to add during POST for certain peripherals	None	Yes
• Remote Wakeup Boot Source	Specifies boot device after a remote wakeup event	Local Hard Drive	No
• Factory Recovery Boot Support	Enables BIOS support for HP Backup and Recovery tools	Disabled	Yes
• Bypass F1 Prompt on Configuration Changes	Allows system to boot without user input after configuration change (for example, memory size)	Disabled	No
BIOS Power-on	Specifies time and day(s) when system automatically wakes from the S5 (off) state	Disabled	Yes
Onboard Devices	Specifies a Legacy Device's IRQ, DMA, and I/O Range settings	Serial Port A: IO=3F8h, IRQ=4 Parallel Port: IO=378h, IRQ=7, DMA=1 Printer Mode: EPP+ECP	Yes
Bus Options			Yes
• PCI SERR# Generation	Enables PCI device to generate SERR# (System Error), as defined by the PCI specification	Enabled	Yes
• PCI VGA Palette Snooping	Enables VGA palette registers snooping	Disabled	Yes
Device Options – All-in-One (AIO) systems			Yes
• Turbo Mode	Enables processor feature that optimizes core frequencies can be optimized for performance based on the load on each core	Enabled	Yes
• Num Lock State at Power-on	Enables Number Lock at boot	Off	Yes

Feature	Function	Default setting, if applicable	Reboot required
• LVDS Panel Select	Enables panel type/vendor selection override	Automatic	Yes
• Internal Speaker	Enables or disables the internal speaker	Enabled	Yes
• USB EHCI Port Debug	Forces all USB ports to use USB 2 for debugging utilities and other applications that do not support USB 3	Disabled	Yes
• Multi-processor	Enables BIOS to report multiple processor cores to the OS	Enabled	Yes
• Hyperthreading[6]	Enables hyperthreading capability on Intel processors; some programs may run better with this feature disabled.	Enabled	Yes
• USB Charging Port	The top left-side USB port on AIO systems can be used to charge USB devices when the system is powered off.	Enabled	Yes
Device Options – Other systems			Yes
• Turbo Mode	Enables processor feature that optimizes core frequencies can be optimized for performance based on the load on each core	Enabled	Yes
• Num Lock State at Power-on	Enables Num Lock at boot	Off	Yes
• Integrated Video	Enables integrated video controller	Enabled	Yes
• Internal Speaker	Enables or disables the internal speaker	Enabled	Yes
• USB EHCI Port Debug	Forces all USB ports to use USB 2 for debugging utilities and other applications that do not support USB 3	Disabled	Yes
• Multi-processor	Enables BIOS to report multiple processor cores to the OS	Enabled	Yes
• VGA Configuration	Selects whether the graphics card or the integrated graphics is chosen to display as Primary VGA device during boot-up (available when a graphics card is installed)	(Add-in graphics is set as primary)	Yes
Management Operations			Yes
• AMT[7]	Allows all AMT (Intel® Active Management Technology) functions to be enabled or disabled	Enabled	Yes
• Unconfigure AMT/ME	Clears all AMT settings on the next boot	Disabled	Yes
• Hide Unconfigure ME Confirmation Prompt	If Unconfigure AMT/ME is selected, this suppresses the confirmation prompt after the required reboot.	Disabled	Yes
• WatchDog Timer	Enables AMT/ME watchdog timer	Enabled	Yes
o OS WatchDog Timer	Sets OS WatchDog Timer (minutes)	5	Yes
o BIOS WatchDog Timer	Sets BIOS WatchDog Timer (minutes)	5	Yes
Option ROM Launch Policy			Yes
• PXE Option ROMs	Specifies whether the legacy option ROM or the UEFI driver in the BIOS is used to provide PXE services	UEFI Only for Windows 8 Legacy Only for other	Yes
• Storage Option ROMs	Specifies whether the legacy option ROM or the UEFI driver in the BIOS is used to provide RAID setup and support	UEFI Only for Windows 8 Legacy Only for other	Yes

[6] Intel HT Technology (HT) is designed to improve performance of multi-threaded software products and requires a computer system with a processor supporting HT and an HT-enabled chipset, BIOS and OS. Please contact your software provider to determine compatibility. Not all customers or software applications will benefit from the use of HT. See http://www.intel.com/info/hyperthreading for more information.

[7] Intel® Active Management Technology requires an Intel® AMT-enabled chipset, network hardware and software, as well as connection with a power source and a corporate network connection. Setup requires configuration by the purchaser and may require scripting with the management console or further integration into existing security frameworks to enable certain functionality. It may also require modifications of implementation of new business processes.

Feature	Function	Default setting, if applicable	Reboot required
• Video Option ROMs	Specifies whether the legacy VBIOS or the UEFI driver in the BIOS is used to provide graphics setup and support	Legacy Only	Yes
• Netclone Option ROMs	Enables or disables Netclone support	Do Not Launch	Yes
• Connected BIOS	Enables or disables BIOS network support	Enabled	Yes
• Use Proxy	When enabled, displays **Proxy Address** field to configure the URL of the proxy server.	Disabled	No
• Update BIOS via Network	Enables or disables the BIOS update via network feature Note: Updating BIOS over the network is supported on 600/800 desktop models.	Enabled	Yes
• Update Source	Selects hp.com or a locally managed custom address to serve BIOS updates	HP	No
o Update Address	For custom source, URL of the locally managed server, if custom source is selected		No
• Automatic BIOS Update Setting	Enables or disables the network BIOS update scheduler	Disabled	No
o Automatic Update Frequency	Sets the frequency of checks to the BIOS update server. If a newer version of BIOS has been made available on the network server, the system will prompt to update the BIOS.	Monthly	No
o Force Check on Next Reboot	Independent of the scheduled frequency, check if an updated BIOS has been made available during the next boot.	Disabled	Yes

Appendix A: HP Sure Start

Sure Start verifies that the BIOS and other critical firmware are intact at startup. If there any problems are found, Sure Start will repair the problem automatically.

Verify Boot Block on every boot

Disabled (Default): When set to the default, HP Sure Start will verify the integrity of the BIOS in system flash each time the system is in a sleep, hibernate, or off state such that assurance is provided that it has not been tampered with before the host CPU executes that code as part of the process of resuming from the low power state.

Enabled: When this box is checked, HP Sure Start will continue to verify the integrity of the BIOS in system flash each time the system is in a sleep, hibernate, or off state. Additionally, HP Sure Start will verify the integrity of the BIOS in system flash on each warm boot (Windows restart).

BIOS data recovery policy

Automatic (Default): Any problems that are found by HP Sure Start will be automatically repaired without any user action required.

Manual (For Advanced Users only): Any problems found by HP Sure Start will not be repaired automatically and will require a special key sequence input by the local user to proceed with the repair. This mode is only intended for scenarios where the machine owner would prefer to perform forensics on system flash content before it is repaired. This is not recommended for the typical user. In the case of HP Sure Start finding an issue with the initial BIOS code, the system will refuse to boot and will flash a special LED sequence until the special key sequence is pressed on the internal keyboard.

Restore Network Controller configuration to the factory defaults

This manual control will restore the network parameters (used by the Intel integrated network controller) stored in system flash to their factory defaults.

Lock BIOS version

Disabled (Default): When set to default, the BIOS can be updated using any one of the supported processes. The HP Sure Start Recovery image will also be updated by default when this setting is disabled.

Enabled: When this box is checked, all HP BIOS update tools will refuse to update the BIOS. The HP Sure Start recovery image is fixed when this setting is enabled.

Sure Start policy controls

Although HP Sure Start is enabled out of the box with default settings that are optimized for the typical user, HP provides policy setting within BIOS setup that may be appropriate for advanced users.

Note: If you change the Sure Start recovery option from Automatic (Default) to Manual, the automatic verification and repair process will not take place on startup.

On rare occasions, the system may experience BIOS corruption when Sure Start has been set to Manual.

Identifying BIOS corruption

1. Attach AC adapter and turn on unit.
2. If the unit fails to start up, and the Caps Lock or Num Lock light blinks eight times, this indicates BIOS corruption.
3. Turn off the unit and follow the directions for **Recovering from BIOS corruption**.

Recovering from BIOS corruption

1. Attach AC adapter and press the power button.
2. Hold Up Arrow + Down Arrow + esc for one second during system startup.
3. The power LED turns to white, then amber, and then starts blinking while the system runs HP Sure Start recovery.
4. Wait up to 30 seconds to complete HP Sure Start recovery. Watch for a brief prompt message to press Esc.
5. Press Esc after recovery is complete.
6. Press F10 to enter the setup menu.

7. Set BIOS Data Recovery Policy back to Automatic (default setting).
8. Save change and exit F10 setup menu.
9. Allow automatic repair process to run.

Appendix B: BIOS overview for HP ElitePad 1000

Category	BIOS setting name	Default setting	Read -only setting	Physical presence required for setting changes
Main/System Information				
	Manufacturer	Hewlett-Packard	Y	N
	Product Name	NA	N	N
	System Board CT	NA	N	N
	System Configuration ID	NA	N	N
	Enter Feature Byte	NA	N	N
	Enter Build ID	NA	N	N
	System Board ID	2157	Y	N
	Universally Unique Identifier (UUID)	NA	Y	N
	Processor Type	NA	Y	N
	SKU Number	NA	N	N
	Born on Date	NA	N	N
	Processor Speed	NA	Y	N
	SKU Number	NA	N	N
	Born on Date	NA	N	N
	Processor Speed	NA	Y	N
	Memory Size	NA	Y	N
	BIOS Date	NA	Y	N
	System BIOS Version	NA	Y	N
	Serial Number	NA	N	N
	Video BIOS Revision	NA	Y	N
	Embedded Controller Version	NA	Y	N
	Primary Battery Serial Number	NA	Y	N
	Secondary Battery Serial Number	NA	Y	N
	Product Family	103C_5336AN G=N	N	N
	System FCC ID	NA	Y	N
Main				
	Restore Defaults			
	Reset BIOS Security to factory default			

Category	BIOS setting name	Default setting	Read – only setting	Physical presence Required to modify setting
	Ignore Changes and Exit			
	Save Changes and Exit			
Security/System IDs				
	Asset Tracking Number	NA	N	N
	Ownership Tag	NA	N	N
	Ownership Tag 2	NA	N	N
Security/TPM				
	Reset of TPM from OS	Disable	N	N
	Manage TPM from OS	Enable	N	N
	TPM Setting	Based on PCID China TPM bit	N	Y
	TPM Set to Factory Defaults			
Security				
Category	BIOS setting name	Default setting	Read-only setting	Physical Presence Required to modify setting
	Setup BIOS Administrator Password	Null	N	N
Security/Password Policy				
	Password Minimum Length	8	N	N
	At least one symbol required	No	N	N
	At least one number required	No	N	N
	At least one upper case character required	No	N	N
	At least one lower case character required	No	N	N
	Are spaces allowed in password	No	N	N
Security/Utilities				
	Secure Erase			
Advanced/Boot Options				
	Custom Logo	Disable	N	N
	USB device boot	Enable	N	N
	SD Card boot	Enable	N	N
	PXE Ethernet boot	Enable	N	N

Category	BIOS setting name	Default setting	Read -only	Physical presence required to modify setting
	UEFI Boot Order	*OS Boot Manager,USB Hard Drive, USB ODD, Ethernet IPV4, Ethernet IPV6,Micro SD Card	N	N
	Express Boot Popup Delay(Sec)	0	N	N
	SecureBoot	Disable	N	N
	User Mode	HP Factory Keys	N	N
	Clear Secure Boot Keys	Disable	N	N
Advanced				
	Language	English	N	N
	Set System Date and Time			
Advanced/Device Configurations				
	Data Execution Prevention	Enable	N	N
	Multi Core CPU	Enable	N	N
	Virtualization Technology (VTx)	Disable	N	N
Advanced/ Device Options				
	SD Card	Enable	N	N
	External USB Devices	Enable	N	N
	Front Camera	Enable	N	N
	Rear Camera	Enable	N	N
	Blue Tooth	Enable	N	N
	WWAN and GPS	Enable	N	N
	Near Field Communication	Enable	N	N
	WLAN Device	Enable	N	N

Appendix C: Creating an in-house repository to support BIOS updates

Introduction

HP notebooks, desktops, or workstations can receive BIOS updates over a network from a repository on a pre-defined HP HTTP /FTP site. Alternatively, the BIOS Update via Network option also supports updates from an in-house server.

This appendix describes how to configure a repository on an in-house HTTP/ FTP server[8] in order to store approved BIOS files for HP platforms.

Terminology

HTTP server – Uses HTTP protocol to interact with clients such as web browsers; common implementations include Microsoft Internet Information Server (IIS) and Apache.

FTP server – Uses FTP protocol to interact with FTP client such as web browsers, as well as applications such as WS-FTP and FileZilla; common implementations include Microsoft IIS and Apache.

SysID – System ID: four hexadecimal characters that uniquely identify a particular HP platform. This is reported through the SMBIOS.

BIOS Update via Network – HP feature designed to allow manual or automatic BIOS updates to be performed directly through cloud delivery.

Finding a particular BIOS file

The HP repository (an HTTP/FTP file store) has a different folder for each SysID, each containing the following:

- A catalog (.xml file) that lists supported BIOS files for the particular platform
- Individual BIOS updates (.bin files)

Note: A custom implementation of an HTTP or FTP server requires a catalog and one or more BIOS files. Even if you are only providing a single BIOS update, a catalog file is required.

When using the BIOS Update via Network feature, the BIOS computes the address of the custom repository using a base address (*update_url*).The format of the repository address becomes:

update_url/*sysid*/*sysid*.xml

For example, if the repository address is http://example.com/files/pcbios and the SysID is 1909, the BIOS would attempt to download the catalog from http://example.com/files/pcbios/1909/1909.xml.

The domain portion of the URL is not case-sensitive; thus http://example.com and HTTP://EXAMPLE.COM are treated as the same.

The path portion of the URL is generally case-sensitive on UNIX or Linux platforms. Conversely, the path is generally **not** case-sensitive on Windows platforms. These statements are true regardless of the web server deployed. For example, if running Apache on Linux, http://example.com/bios and http://example.com/BIOS are generally not treated as being the same. If running IIS on Windows, http://example.com/bios and http://example.com/BIOS are generally treated as the same. Any case-sensitivity is determined by the HTTP or FTP server, not by the HP system running the BIOS Update via Network feature.

Organizing the catalog

The BIOS builds download URLs for the catalog and the update file using the same mechanism, ensuring that the update is downloaded from the appropriate repository folder.

Note: In order to prevent buffer overflow attacks during the download process, the BIOS sets a hard-coded limit of 100 KB before downloading the catalog. Thus, custom catalog files should never be allowed to grow larger than 100 KB in size.

Catalog file schema

The schema shown in Figure B-1 is common to HP and customer repositories.

[8] Setting up the server is beyond the scope of this appendix.

Note: Only UCS Transformational Format – 8-bit (UTF-8) is supported (where UCS refers to the Unicode character set).

Figure B-1. Repository schema

```
<?xml version="1.0" encoding="utf-8"?>
<xs:schema
attributeFormDefault="unqualified"
elementFormDefault="qualified"
xmlns:xs="http://www.w3.org/2001/XMLSchema"
>
 <xs:element name="BIOS">
 <xs:complexType>
  <xs:sequence>
  <xs:element minOccurs="1" maxOccurs="1" name="SysId" type="xs:hexBinary" />
  <xs:element minOccurs="1" maxOccurs="100" name="Rel">
   <xs:complexType>
   <xs:attribute name="Ver" type="xs:string" />
   <xs:attribute name="Date" type="xs:date" />
   <xs:attribute name="Bin" type ="xs:string" />
   <xs:attribute name="RB" type ="xs:boolean" />
   <xs:attribute name="L" type ="xs:string" />
   <xs:attribute name="DP" type="xs:string" />
   <xs:attribute name="TXT" type="xs:string" />
   </xs:complexType>
  </xs:element>
  </xs:sequence>
 </xs:complexType>
 </xs:element>
</xs:schema>
```

Rel – BIOS releases
Ver – Version. E.g. 01.09
Bin – BIOS binary file name. e.g. L77_0109.bin
RB – Rollback Allowed flag, 1 – Rollback allowed, 0 – Rollback not allowed
L – Release Importance Level: 1- Important, 0 - Normal
DP – Dependent file version. The BIOS first has to be upgraded to the Dependent version before it can be updated to the this version. (optional, if not set, no dependence)
TXT – Allow IT administrator to communicate important notes with the user when scheduled update screen is displayed

Sample file

Figure B-2 shows a sample catalog file.

Figure B-2. Sample catalog file

```
<?xml version="1.0" encoding="utf-8"?>
<BIOS>
 <SysId>180F</SysId>
 <Rel Ver="01.09" Date="2012-03-20" Bin="L77_0109.bin" RB="0" L="1" DP="0108" />
 <Rel Ver="00.15" Date="2012-02-20" Bin="L77_0015.bin" RB="1" L="0" />
```

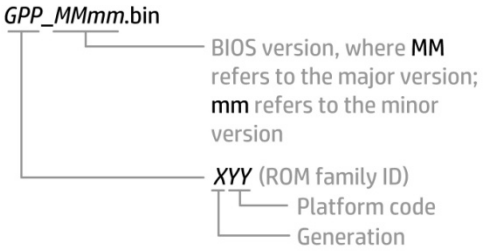
```
<Rel Ver="01.08" Date="2012-01-20" Bin="L77_0108.bin" RB="1" L="0" />
</BIOS>
```

Naming conventions

Figure B-3 outlines the naming conventions used by HP for BIOS files.

Note: You are advised to follow these conventions if you are setting up your own BIOS update repository.

Figure B-3. General naming conventions for a BIOS file



For example: **L12_D117.bin**
(Generation L, platform code 12, BIOS version D1.17)

Setting up a repository

After setting up an FTP or HTTP server, you should create a subdirectory that will be used to store the catalog and BIOS files.

This subdirectory can be a virtual or physical directory that is located anywhere in the directory hierarchy that is accessible via HTTP or FTP. The specific name used for the directory is at your discretion; for example, if the server's host name is www.server.com, then a simple approach would be to create a virtual directory at www.server.com/bios.

The directory name must be published so that it can be set in the BIOS[9] as part of the repository's custom URL. This URL must also include the protocol to be used to access the repository (for example, ftp://www.server.com/bios or http://www.server.com/bios).

Instructions

These setup instructions assume you have created subdirectory **bios** for an HTTP server.

Note: The organization of directories subordinate to BIOS is the same whether an FTP or HTTP server is being used.

Under **bios**, you must create one or more folders whose name(s) exactly match the SysID(s) of the systems you wish to update. For example, for a system with a SysID of 1909, you would create folder **1909**.

Each folder requires a catalog whose name also matches the SysID of the particular platform. In this example, you would place catalog file **1909.xml** in folder **1909**.

The contents of each .xml file must match the schema defined in Figure B-1.

Sample catalog file
Figure B-4 shows file **1909.xml**, which has been placed in folder **1909** within a repository at www.server.com/bios.

Figure B-4. Sample catalog

```
<?xml version="1.0" encoding="utf-8"?>
<BIOS>
 <SysId>1909</SysId>
 <Rel Ver="98.61" Date="2013-01-04" Bin="L70_9861.bin" RB="1" L="1" />
 <Rel Ver="98.63" Date="2013-02-04" Bin="L70_9863.bin" RB="1" L="0" />
 <Rel Ver="98.64" Date="2013-03-04" Bin="L70_9864.bin" RB="1" L="1" />
```

[9] Via F10 settings or WMI

```
</BIOS>
```

This sample catalog lists the following BIOS versions:

- 98.61
- 98.63
- 98.64

The respective file names and release dates of these versions are:

- L70_9861.bin – released January 4, 2013
- L70_9863.bin – released February 4, 2013
- L70_9864.bin – released March 4, 2013

All three versions support rollback to previous versions (RB="1")[10]

98.61 and 98.64 are considered important updates (L="1"), while 98.63 is a normal update (L="0").

Note: There must be no more than one entry in the catalog for a particular BIOS version. If the HTTP/FTP server is running on Linux, the filename is typically case-sensitive; if the server is running on Windows, the filename is not typically case-sensitive.

Final caveat

The catalog should accurately reflect the version, date, and other metadata associated with a particular BIOS version, thus allowing a BIOS to locate, download, and enforce the intended update. If the catalog were to provide an incorrect filename, for example, the BIOS would attempt to download and enforce an incorrect update.

Consider the following:

- If the BIOS referenced by the catalog entry for version 98.61 is actually version 99.53, then version 99.53 is installed and enforced.
- If the catalog indicates that a particular .bin file contains BIOS version 98.61 but the file actually contains version 98.60, the update process would report an error indicating a mismatch.
- If the catalog indicates that a particular BIOS version allows rollbacks, while the BIOS itself does not, then the rollback requirement from the catalog is ignored.

To summarize, the logic contained in a newly-updated BIOS is enforced, which may lead to unintended consequences if information contained in the catalog is incorrect.

[10] Quotation marks are required.

Appendix D: Enabling HP Touchpoint Manager Always On Remote Management

Supported Platforms

The 2014 platforms listed below support HP Touchpoint Manager Always On Remote Management, when Intel vPro processors are included

- HP Elite x2 1011 G1 Tablet
- HP Elitebook 1040 G2
- HP Elitebook Folio 1020 G1
- HP Elitebook 850 G2
- HP Elitebook 840 G2
- HP Elitebook 820 G2
- HP Zbook 14 G2
- HP Zbook 15u G2

The Always On Remote Management feature is enabled on select HP devices and is automatically activated when the HP Touchpoint Manager software is installed on an enrolled device.

With Always On Remote Management, HP Touchpoint Manager can communicate with a device while the device is in a low power mode, such as sleep (S3), hibernation (S4), or soft off (S5).

The following features are available when the IT administrator accesses the device through the HP Touchpoint Manager server using Always On Remote Management:

Remote Lock—Securely locks a lost or stolen device remotely. This lock requires a PIN number to unlock the computer. The IT administrator can view the unlock PIN number on the Device Details page. The PIN must be entered locally to unlock the device.

Remote Erase—Securely erases a device that has been lost, stolen, or reassigned.

Unlock—The IT administrator can view the unlock PIN number on the Device Details page. The PIN must be entered locally to unlock the device.

Boot Error Reporting—If the device cannot boot, it will report an error to the HP Touchpoint Manager server if communication can be established. The server sends an alert to the IT administrator with a brief description of the error.

To prevent or disable Always On Remote Management:

1. When the device restarts, access F10 BIOS Setup.
2. Select Advanced, and then select HP Touchpoint Manager Options.
3. Clear the **Allow Activation** check box.

Removing the check mark after a device has been enrolled and provisioned causes the device to be reprovisioned and prevents HP Touchpoint Manager from reprovisioning it. The device can be reprovisioned if Allow Activation is checked, and the settings are saved.

Note: HP recommends setting a BIOS administrator password to prevent unauthorized deprovisioning. Failure to implement a password allows anyone in physical possession of the device to inactivate or disable the Always On Remote management feature, including removal of the lock and erase features.

Activation

Go to www.hptouchpointmanager.com, sign up for an account and enroll your device. Reboot your system when prompted.

HP Touchpoint Manager after Activation

- The BIOS F10 setup menu will clearly display activation; two additional policy controls become available (**Allow Activation** and **Accept Commands**).
- While activated, the HP Touchpoint Manager agent can securely send platform management commands while the system is running Windows. Additionally, the device will periodically retrieve any commands for a platform lock or wipe directly from HP Touchpoint Manager while in the sleep, hibernate, or soft off states.
- While activated, the owner can modify the following settings via UI or WMI (Windows Management Instrumentation):
    - **Allow Activation**: Unchecking will cause the platform to immediately return to the default **Not Activated** state and will prevent subsequent enrollment until this setting is re-enabled.
    - **Accept Commands**: Unchecking this setting will result in the platform refusing to accept Always On Remote Management commands from the HP Touchpoint Manager server. . The PC will resume accepting commands from HP Touchpoint Manager when this setting is re-enabled. Note re-enrollment in the Touchpoint Manager service is not required.

Appendix E: Boot error codes

In some cases when the host processor is not executing or does not have the necessary code to drive the display, LED blink codes inform the user of a problem. When HP Always On Remote Management is activated, boot error codes are sent to the HP Touchpoint Manager administrator to assist in problem resolution and advising the user on appropriate next steps.

LED Sequence	Error
Amber Battery LED: blinks 1Hz continuously	Embedded Controller unable to load Firmware
CAPS / NUMLOCK LED's = 1 Blink	CPU not executing code
CAPS / NUMLOCK LED's = 2 Blinks	BIOS recovery code unable to find valid BIOS recovery image
CAPS / NUMLOCK LED's =3 Blinks	Memory Module error
CAPS / NUMLOCK LED's = 4 Blinks	Graphics Controller error
CAPS / NUMLOCK LED's = 5 Blinks	System Board Error
CAPS / NUMLOCK LED's = 6 Blinks	Intel Trusted Execution Technology (TXT) Error
CAPS / NUMLOCK LED's = 7 Blinks	Sure Start unable to find valid BIOS Boot Block image
CAPS / NUMLOCK LED's = 8 Blinks	Sure Start has identified a problem (Manual Recovery Policy Set)

CPU not executing code

This computer has experienced a problem due to the failure of certain code to execute, resulting in a failed start-up of the CPU. The issue could be related to the CPU or the system board in the machine. If the CPU is socketed, please ensure the CPU is seated correctly in the socket. If this error reoccurs, a service event is required to identify the source of the error and take the appropriate corrective action.

NOTE: The computer will attempt to notify the user of this problem through a series of blinking LEDs. When the user attempts to turn on the computer from an "Off" or "Hibernated" state, LEDs associated with the CAPS and NUMLOCK keys will both blink once followed by a pause, then continue in a repeating pattern.

BIOS recovery code unable to find valid BIOS recovery image

This computer has experienced a problem in locating a valid BIOS image, resulting in a failed start-up. This problem may be resolved by placing a clean copy of the system BIOS on a USB key or in the appropriate hard drive directory and performing a reboot. If you continue to experience this error and are unable to correct it using the process described in the link, a service event is required to identify the source of the error and take the appropriate corrective action.

NOTE: The computer will attempt to notify the user of this problem through a series of blinking LEDs. When the user attempts to turn on the computer from an "Off" or "Hibernated" state, LEDs associated with the CAPS and NUMLOCK keys will both blink twice followed by a pause, then continue in a repeating pattern.

Failure - Memory Module Error

This computer has experienced a memory initialization problem resulting in a failed start-up. This issue may be related to the memory modules in the computer. This problem may be resolved by ensuring that memory modules are correctly inserted and seated. If this error reoccurs, a service event is required to determine the source of the error (memory modules or system board) and take the appropriate corrective action.

NOTE: The computer will attempt to notify the user of this problem through a series of blinking LEDs. When the user attempts to turn on the computer from an "Off" or "Hibernated" state, LEDs associated with the CAPS and NUMLOCK keys will both blink three times followed by a pause, then continue in a repeating pattern.

Graphics Controller Error (No Controller)

This computer has experienced a graphics controller initialization problem resulting in a failed start-up. This issue may be related to the graphics controller in your machine. This problem may be resolved by ensuring that the graphics controller module is seated correctly on machines with modular graphics. If this error reoccurs, a service event is required to identify the source of the error and take the appropriate corrective action.

NOTE: The computer will attempt to notify the user of this problem through a series of blinking LEDs. When the user attempts to turn on the computer from an “Off” or “Hibernated” state, LEDs associated with the CAPS and NUMLOCK keys will both blink four times followed by a pause, then continue in a repeating pattern.

Failure - System Board Error

This computer has experienced a system board initialization problem resulting in a failed start-up. This issue may be related to the system board in the computer. A service event is required to identify the source of the error and take the appropriate corrective action.

NOTE: The computer will attempt to notify the user of this problem through a series of blinking LEDs. When the user attempts to turn on the computer from an “Off” or “Hibernated” state, LEDs associated with the CAPS and NUMLOCK keys will both blink five times followed by a pause, then continue in a repeating pattern.

Intel Trusted Execution Technology (TXT) Error

This computer has experienced a problem related to the Intel Trusted Execution Technology resulting in a failed start-up. The error occurs when: 1) the Intel Trusted Execution Technology (TXT) has been enabled on the computer, 2) policies have been set to prevent start-up if the BIOS measurement has changed, and 3) the BIOS measurement has changed. For more information about Intel TXT, click the following link:
http://www.intel.com/content/dam/www/public/us/en/documents/white-papers/trusted-execution-technology-security-paper.pdf

A service event is required to resolve this issue. NOTE: The computer will attempt to notify the user of this problem through a series of blinking LEDs. When the user attempts to turn on the computer from an “Off” or “Hibernated” state, LEDs associated with the CAPS and NUMLOCK keys will both blink six times followed by a pause, then continue in a repeating pattern.

Sure Start unable to find valid BIOS Boot Block image

This computer has experienced a problem in locating a valid BIOS image, resulting in a failed start-up. A service event is required to identify the source of the error and take appropriate corrective action.

NOTE: The computer will attempt to notify the user of this problem through a series of blinking LEDs. When the user attempts to turn on the computer from an “Off” or “Hibernated” state, LEDs associated with the CAPS and NUMLOCK keys will both blink seven times followed by a pause, then continue in a repeating pattern.

Sure Start has identified a problem (Manual Recovery Policy Set)

This computer has experienced a problem in locating a valid BIOS image, resulting in a failed start-up. HP Sure Start will normally repair this type of issue, however, on this computer HP Sure Start has been configured to operate in manual mode key sequence. To proceed with the repair, press and hold the following keys:<ESC>+<UP arrow>+<DOWN arrow> . It is recommended the HP Sure Start recovery policy be set to automatic to avoid the need for this manual recovery step. If this error reoccurs, a service event is required to identify the source of the error and take appropriate corrective action.

NOTE: The computer will attempt to notify the user of this problem through a series of blinking LEDs. When the user attempts to turn on the computer from an “Off” or “Hibernated” state, LEDs associated with the CAPS and NUMLOCK keys will both blink eight times followed by a pause, then continue in a repeating pattern.

For more information

Contact HP
hp.com/country/us/en/contact_us.html

HP Business Notebook Innovations
http://www.hp.com/go/professionalinnovations

HP Professional Innovations Quick Reference Guide
http://www.hp.com/sbso/solutions/pc_expertise/professional_innovations/hp-professional-innovations-quick-reference-guide.pdf

To help us improve our documents, please provide feedback at hp.com/solutions/feedback.

Disclaimer

The information contained within all sections of this document, including URLs, web site references and other specified documents are subject to change without notice and are provided for informational purposes only. No licenses with respect to any intellectual property are being granted, expressly or impliedly, by the disclosure of the information contained in this document. Furthermore, neither Hewlett Packard nor any of its subsidiaries makes any warranties of any nature regarding the use of the information contained within this document, and thus the entire risk, if any, resulting from the use of information within this document is the sole responsibility of the user. In addition, the names of the technologies, actual companies, and products mentioned within this document may be trademarks of their respective owners. Complying with all applicable copyright and trademark laws is the sole responsibility of the user of this document.

Hewlett Packard or its subsidiaries may have patents, patent applications, trademarks, copyrights, or other intellectual property rights covering the subject matter in this document. Except where expressly provided in any written license from Hewlett Packard or its subsidiaries, the furnishing of this document, or any ideas contained within, does not grant any license to these ideas, patents, trademarks, copyrights, or other intellectual property.

Sign up for updates
hp.com/go/getupdated

Share with colleagues

Rate this document

742410-004, August 2013, Updated January 2015