

HP PC F10 Setup overview

2012, 2013, and 2014 Business Notebooks, Desktop PCs, and Workstations



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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 ProtectTools, 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 2012, 2013, and 2014.

- HP EliteBook 800 G1 series
- HP ProBook 600 G1 series
- HP ProBook 400 G0 and G1 series
- HP ElitePad 900 G1
- HP EliteDesk 800 G1 series
- HP EliteOne 800 G1 series
- HP ProDesk 600 G1 series
- HP ProOne 600 G1 series
- HP ZBook 17 Mobile Workstation
- HP ZBook 15 Mobile Workstation
- HP ZBook 14 Mobile Workstation
- HP Z440 Workstation
- HP Z640 Workstation
- HP Z840 Workstation

Enhancements

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

Updating BIOS over the network

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

This feature is available on select 2013 HP notebooks, desktops, and workstations¹. For more information on setting up a custom repository, refer to Appendix B.

HP Sure Start

Select Intel-based 2013 HP Business Notebook PCs² offer HP Sure Start, which provides hardware-based assurance of the following:

- HP-approved firmware is running on the HP Embedded Controller (EC)³ – 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 and critical, non-executable platform data residing in the main flash and provides self-healing mechanisms to restore any code or critical platform data that has been lost or is corrupted within the flash.

¹ Only supported on 2013 600/800 notebooks/desktops.

² Only supported on 2013 EliteBook and ZBook notebooks.

³ The EC is responsible for power control/power cycle, thermal monitor/fan control, many LEDs, and PS2 keyboard and mouse. For more information on using HP Sure Start, refer to the Embedded Controller option under Embedded Security in Table 1.

HP 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 a policy setting within BIOS setup that may be appropriate for advanced users.

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, the 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, the 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 not requiring any special actions by the local user.

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 the System Flash contents before it is repaired and 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 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.

Additional enhancements

The following additional enhancements are included on select 2013 HP Business Notebook PCs:

- Thunderbolt technology
- Megacity NFC support
- Switchable / Hybrid Graphics feature support
- Intel® SmartConnect technology

F10 Setup for HP Business Notebooks and Workstations

HP F10 Setup features for business notebooks and workstations 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 (not available on HP Z440, Z640, and Z840)
- Reset BIOS security to factory default (not available on HP Z440, Z640, and Z840)
- Ignore changes and exit
- Save changes and exit

The main menu for the HP Z440, Z640, and Z840 includes access to general options such as:

- Set machine unique data
- System IDs
- Replicated setup
- Language options
- Apply custom defaults and exit
- Save custom defaults
- Apply factory defaults 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 (not available on HP Z440, Z640, and Z840)
- Fingerprint reset on reboot (not available on HP Z440, Z640, and Z840)
- HP SpareKey (not available on HP Z440, Z640, and Z840)
- HP SpareKey enrollment (not available on HP Z440, Z640, and Z840)
- User management (not available on HP Z440, Z640, and Z840)
- Set security level (not available on HP Z440, Z640, and Z840)
- Restore security level defaults
- BIOS integrity checking (embedded controller) (not available on HP Z440, Z640, and Z840)
- TPM embedded security
- System Management Command (SMC)
- Anti-theft tools (not available on HP Z440, Z640, and Z840)
- Hard drive tools (not available on HP Z440, Z640, and Z840)
- System IDs (on the main menu for the HP Z440, Z640, and Z840)

The security menu for the HP Z440, Z640, and Z840 includes access to security options such as:

- Setup BIOS power-on password
- Change BIOS power-on password
- DriveLock security
- System security

Advanced menu

The advanced menu allows you to set other options including:

- System date and time (not available on HP Z440, Z640, and Z840)
- Language (on the main menu for the HP Z440, Z640, and Z840)
- Boot options
- BIOS power-on
- Device configuration
- Built-In device options and port options (not available on the HP Z440, Z640, and Z840)
- AMT options⁴ (on select models only - not available on the HP Z440, Z640, and Z840)

⁴Intel® 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.

The advanced menu for the HP Z440, Z640, and Z840 includes access to advanced options such as:

- Secure boot configuration
- Option ROM launch policy
- USB device control
- Power options
- Performance options
- Slot settings
- Legacy configurations
- Network BIOS update
- Manageability application configuration

Language support

HP F10 Setup for Business Notebooks and Workstations 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. Language support for the HP Z440, Z640, and Z840 is located on the F10 Setup main menu.

Overview of Business Notebook and Workstation options

Table 1 provides a detailed list of F10 Setup options for HP Business Notebooks and Workstations.

Table 1. Key features for F10 Setup on select 2013 HP Business HP Business Notebook PCs and Workstations. Some features may require a Windows 7 or Windows 8 operating system.

Feature	Function	Default setting, if applicable	Reboot required
Main menu			
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 2013 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 (See Advanced menu>Network BIOS update to check the network for BIOS updates on the HP Z440, Z640, and Z840)		Yes
• BIOS version update policy	Enabling will not allow any BIOS update from local media or from the network (not available on the HP Z440, Z640, or Z840)	Disabled	No
• Allow BIOS update using a network	Enables or disabled the feature (not available on the HP Z440, Z640, or Z840)	Enabled	No
• Network update setting	User-configurable settings (See Advanced menu>Network BIOS Update>Configurations to update network setting for the HP Z440, Z640, and Z840)		N/A

– 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 (not available on the HP Z440, Z640, or Z840)	Yes
– Backup BIOS to local media	Puts an image of system BIOS on the HP_TOOLS partition (not available on the HP Z440, Z640, or Z840) Note: This option does not work if a BIOS administrator has been set	Yes
Restore defaults	Restores F10 settings to factory defaults (not available on the HP Z440, Z640, or Z840)	Yes
Reset BIOS security to factory defaults	Resets BIOS and Protect Tool users, clears fingerprint tokens, and resets the TPM (See Security>Restore security settings to default to reset BIOS security to factory defaults for the HP Z440, Z640, and Z840)	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
Set machine unique data	Allows the user to set/view data that is unique to each machine such as feature byte, build ID, serial number, SKU number, product family, and product name (available only on the HP Z440, Z640, and Z840)	N/A
System IDs	Allows the user to set/view the asset tracking number and ownership tag (available only on the HP Z440, Z640, and Z840)	
Replicated setup	Allows the user to set/save multiple BIOS settings (available only on the HP Z440, Z640, and Z840)	Yes
Language options	Allows the user to select the language to use for the display and keyboard (available only on the HP Z440, Z640, and Z840)	N/A
Save custom defaults	Saves BIOS settings specific to this system (available only on the HP Z440, Z640, and Z840)	N/A
Apply custom defaults and exit	Restores the BIOS settings to the custom defaults for this system (available only on HP Z440, Z640, and Z840)	N/A

Table 1. Key features for F10 Setup on select 2013 HP Business Notebook PCs and Workstations. Some features may require a Windows 7 or Windows 8 operating system. (continued)

Security menu			
Feature	Function	Default setting, if applicable	Reboot required
Setup BIOS administrator password	Establishes the BIOS administrator password for admin privileges (Change BIOS administrator password feature available on the HP Z440, Z640, and Z840)		No
Password policy	Allows the administrator to select various rules for BIOS password qualification ⁵		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
• 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 (Setup BIOS power-on password and change BIOS power-on password available on the HP Z440, Z640, and Z840)		No
Fingerprint reset on reboot (if present)	Clears all registered fingerprints (not available on the HP Z440, Z640, and Z840)	Disabled	Yes
HP SpareKey	Allows users to establish a set of failsafe questions in the event the power-on password is lost (not available on the HP Z440, Z640, and Z840)	Enabled	No
HP SpareKey enrollment	Allows user configuration of HP SpareKey by answering any three of ten questions for enrollment (not available on the HP Z440, Z640, and Z840)		No

⁵BIOS administrator password is required

• Enrollment questions	<ul style="list-style-type: none"> • 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? (not available on the HP Z440, Z640, and Z840)	No
• Reset HP SpareKey questions and answers	Deletes current challenge-and-answer questions (not available on the HP Z440, Z640, and Z840)	No
• DriveLock security	Available only on the HP Z440, Z640, and Z840	Disabled
• System security	<ul style="list-style-type: none"> • Virtualization technology (VT-x) • Intel VT Directed I/O (VT-d) • Intel TXT (LT) support (available only on the HP Z440, Z640, and Z840)	Disabled
• System management command	(available only on the HP Z440, Z640, and Z840)	
• Restore security settings to default	(available only on the HP Z440, Z640, and Z840)	

Table 1. Key features for F10 Setup on select 2013 HP Business Notebook PCs and Workstations. Some features may require a Windows 7 or Windows 8 operating system. (continued)

User management			
Feature	Function	Default setting, if applicable	Reboot required
User management	Allows BIOS administrator to manage BIOS and ProtectTools users – for example, for BIOS users, the admin can: <ul style="list-style-type: none"> • Create additional users • Specify privilege levels • Create passwords (which can be changed by the individual user) (not available on the HP Z440, Z640, and Z840)		No
Set security level	Allows administrator to restrict visibility or configurability of F10 Setup options for standard users (not available on the HP Z440, Z640, and Z840)		Yes
Restore security defaults	Restores the security level of F10 Setup options to default (not available on the HP Z440, Z640, and Z840)		Yes

Embedded security (not available on the HP Z440, Z640, and Z840)

Feature	Function	Default setting, if applicable	Reboot required
BIOS integrity checking (Note: HP Sure Start is only supported on 2013 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 users 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
• TPM embedded security	Manages TPM module settings (This feature available under Security for the HP Z440, Z640, and Z840)		N/A
• TPM device	Exposes the integrated TPM module (This feature available under Security for the HP Z440, Z640, and Z840)	Available	Yes
• Embedded Security Device state	Enables the integrated TPM module (This feature available under Security for the HP Z440, Z640, and Z840)	Disabled	Yes
• TPM reset to factory default	Sets TPM embedded security settings to factory default (This feature available under Security for the HP Z440, Z640, and Z840)	No	Yes
• OS management of TPM	Allows operating system to manage TPM module (This feature available under Security for the HP Z440, Z640, and Z840)	Enabled	Yes
• Reset of TPM from OS	Allows reset of TPM module from within the operating system (This feature available under Security for the HP Z440, Z640, and Z840)	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

Table 1. Key features for F10 Setup on select 2013 HP Business Notebook PCs and Workstations. Some features may require a Windows 7 or Windows 8 operating system. (continued)

Utilities (not available on the HP Z440, Z640, and Z840)

Feature	Function	Default setting, if applicable	Reboot required
Anti-theft tools			N/A
• Intel® anti-theft	Server-based security		N/A
– Active	Activates this option	Enabled	Yes
– Suspend	Allows the feature to be disabled temporarily	Disabled	Yes
• Absolute Software Computrace			N/A
– 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 (This feature available under Security for the HP Z440, Z640, and Z840)	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 ProtectTools 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)		No

Table 1. Key features for F10 Setup on select 2013 HP Business Notebook PCs and Workstations. Some features may require a Windows 7 or Windows 8 operating system. (continued)

Advanced menu			
Feature	Function	Default setting, if applicable	Reboot required
Language	Selects between 14 languages Note: Affects the BIOS, not the OS (See Main Menu for this feature on the HP Z440, Z640, and Z840)		Yes
Set system date and time	Allows entry of the current date and time (not available on the HP Z440, Z640, and Z840 - date/time are set in the OS)		N/A
Boot options			No
• Startup menu delay (seconds)	Allows user configuration of the length of time the startup menu is displayed during POST (not available on the HP Z440, Z640, and Z840)	0	No
• Multiboot Express Boot popup delay (seconds)	Allows user configuration of the length of time the Express Boot option (F9) is displayed (not available on the HP Z440, Z640, and Z840)	0	Yes
• Audio alerts during boot	Enables audible error beeps during POST (not available on the HP Z440, Z640, and Z840)		No
• Custom logo	Enables use of custom logo screen during POST ⁶ (not available on the HP Z440, Z640, and Z840)	Disabled	No
• Display diagnostics URL	Displays the HP support web address for diagnostics (not available on the HP Z440, Z640, and Z840)	Disabled	No
• Custom Help and URL message	Allows display of customized message and URL during POST (not available on the HP Z440, Z640, and Z840)	Enabled	No
• Require acknowledgement of battery errors	Displays battery error screen until user presses the Enter key (not available on the HP Z440, Z640, and Z840)	Disabled	No
Fast boot	Reduces POST time by bypassing boot to USB, optical drive, PXE, and DOS (See Advanced menu>Boot Options for this feature on the HP Z440, Z640, and Z840)	Disabled	No
• CD-ROM boot	Allows boot from optical media (Optical media boot support on the HP Z440, Z640, and Z840 enabled by default)	Enabled	No
• SD card boot	Allows boot from SD card (not available on the HP Z440, Z640, and Z840)	Enabled	No

⁶For more information, refer to the HP Business Notebook EFI Guidelines white paper.

• Floppy boot	Allows boot from USB floppy (not available on the HP Z440, Z640, and Z840)	Enabled	
• 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) (not available on the HP Z440, Z640, and Z840)	Enabled	No
• PXE internal IPV6 NIC boot	Allows PXE boot to IPv6 in native UEFI boot mode (enable on Win8 orders) (not available on the HP Z440, Z640, and Z840)	Disabled	No
• USB device boot	Allows boot from USB storage device (USB media boot support on the HP Z440, Z640, and Z840 enabled by default)	Disabled	No
• Upgrade bay hard drive boot	Allows boot from hard disk drive mounted in upgrade bay (not available on the HP Z440, Z640, and Z840)	Enabled	No
• eSATA boot	Allows boot from eSATA storage device (See Advanced menu>Device Configurations for this feature on the HP Z440, Z640, and Z840)	Enabled	No

Table 1. Key features for F10 Setup on select 2013 HP Business Notebook PCs and Workstations. Some features may require a Windows 7 or Windows 8 operating system. (continued)

Feature	Function	Default setting, if applicable	Reboot required
• Customized boot	Allows boot from a custom boot path; loads the boot loader from the path defined in "Define customized boot option" (see below) (not available on the HP Z440, Z640, and Z840)	Enabled	N/A
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	Yes
• Secure boot	Enables secure boot (enable on Win8 orders)	Disabled	Yes
• Clear secure boot keys	Clears the secure boot keys	Disabled	
• User mode	Selects which keys the BIOS uses (not available on the HP Z440, Z640, and Z840)	HP factory keys, customer keys	Yes

• Boot mode	<p>Controls how OS is booted depending on the OS, options are:</p> <ul style="list-style-type: none"> • Legacy or UEFI hybrid (with CSM) selected on non Win8 orders • UEFI native (without CSM) selected on Win8 orders <p>(See Advanced menu>Option ROM Launch Policy for this feature on the HP Z440, Z640, and Z840)</p>	Legacy	No
• UEFI boot order	<p>Specifies UEFI boot order; requires boot mode set to UEFI hybrid or UEFI native (applicable on Win8 orders)</p>	<p>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</p>	No
• Legacy boot order	<p>Specifies the legacy boot order; requires boot mode set to Legacy or UEFI hybrid (applicable on non Win8 orders)</p>	<p>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</p>	No
• Define customized boot option	<p>Specifies path for the customized boot option Note: Only boots from this path if “customized boot” is enabled (not available on the HP Z440, Z640, and Z840)</p>		No
• BIOS power-on time (hh:mm)	<p>Automatically powers system on based on preset schedule Shuts down Windows gracefully and ensures feature is on in F10 Setup</p> <ul style="list-style-type: none"> • In Windows 7 and Vista, set “Allow wake timers” to Enable in the desired power plan (Control Panel > Power Options) <p>Note: This option is only supported on AC power</p>		No
<ul style="list-style-type: none"> – Sunday – Monday – Tuesday – Wednesday – Thursday – Friday – Saturday 	Day of week selection		Yes

Table 1. Key features for F10 Setup on select 2013 HP Business Notebook PCs and Workstations. Some features may require a Windows 7 or Windows 8 operating system. (continued)

Feature	Function	Default setting, if applicable	Reboot required
• BIOS power-on time (hh:mm)	<p>Time of day entry (This feature is split into two options - hour and minute - on the HP Z440, Z640, and Z840)</p>		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 (not available on the HP Z440, Z640, and Z840)	Disabled	Yes
• USB legacy support	Enables mouse/keyboard support (not available on the HP Z440, Z640, and Z840)	Enabled	Yes
• Parallel port mode	Specifies parallel port mode (not available on the HP Z440, Z640, and Z840)	ECP	Yes
• Fan always on while on AC	Leaves the fan on while running on AC power (not available on the HP Z440, Z640, and Z840)	Enabled	Yes
• Data Execution Prevention	Enables DEP on Intel-based systems, which strengthens security by preventing applications/services from executing code from nonexecutable memory regions (not available on the HP Z440, Z640, and Z840)	Enabled	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) (See Advanced menu>Boot Options for this feature on the HP Z440, Z640, and Z840)	Enabled	Yes
• USB charging port	Allows an external device to charge until a specified battery charge level is reached (not available on the HP Z440, Z640, and Z840)	Enabled, 100%	Yes
• Secondary battery fast charge	Stops charging the primary battery at 90% and begins charging a secondary battery to optimize the charge cycle (not available on the HP Z440, Z640, and Z840)	Enabled	Yes
• Virtualization technology	Enables VT on Intel-based systems – a feature that is often used to run virtual machines (See Advanced menu>System Security for this feature on the HP Z440, Z640, and Z840)	Disabled	Yes
• Virtualization technology for directed I/O	Grants virtual machines direct access to peripheral devices on select Intel platforms (See Advanced menu>System Security for this feature on the HP Z440, Z640, and Z840)	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 (See Advanced menu>System Security for this feature on the HP Z440, Z640, and Z840)	Disabled	Yes

• Multi core CPU	Enables dual/quad processor cores (See Advanced menu>Performance Options>Active CPU Cores per Processor for this feature on the HP Z440, Z640, and Z840)	Enabled	Yes
• Intel® HT technology	Enables hyper-threading on select Intel-based systems (See Advanced menu>Performance Options for this feature on the HP Z440, Z640, and Z840)	Enabled	Yes
• NumLock on at boot	Enables number lock at boot	Disabled	Yes

Table 1. Key features for F10 Setup on select 2013 HP Business Notebook PCs and Workstations. Some features may require a Windows 7 or Windows 8 operating system. (continued)

Feature	Function	Default setting, if applicable	Reboot required
• Hybrid Graphics	<p>Enable / disable or allow BIOS to automatically enable / disable Hybrid Graphics based on OS (when set to auto)</p> <p>When set to auto, Hybrid Graphics is disabled for certain Linux OS</p> <p>When set to disable, only the integrated graphics adapter is used on selected platform</p> <p>On Workstation, only the discrete graphics adapter is used</p> <p>When set to Enable, both the integrated and discrete graphics adapters are used (not available on the HP Z440, Z640, and Z840)</p>	Enabled (Auto on Workstation)	Yes
• Hybrid Graphics enhanced display feature	<p>Enable additional display capability to allow pre-OS applications to be visible on any one of the available display at boot</p> <p>When disabled, pre-OS applications can only be visible on certain displays (Internal Panel, VGA, System Display Port on selected platforms) at boot</p> <p>Digital displays attached to dock will not support pre-OS applications (not available on the HP Z440, Z640, and Z840)</p>	Enabled	Yes
• Max SATA speed	Selects the maximum SATA port speed between SATA II (3.0 Gbps) or SATA III (6.0 Gbps) (not available on the HP Z440, Z640, and Z840)	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 (not available on the HP Z440, Z640, and Z840)	Disabled	Yes
• HP Secure Zone (renamed from HP HV secure boot in 2014)	Enables the HP Hypervisor, which allows multiple operating systems to run concurrently and share the system hardware (not available on the HP Z440, Z640, and Z840)	Disabled	Yes

<p>• HP HV secure version control</p>	<p>Enables BIOS to check the specific version of the HP Hypervisor package against the allowed version stored in BIOS (not available on the HP Z440, Z640, and Z840)</p> <p>Note: The platform only boots to the default boot loader configuration file that is distributed with the target HP Hypervisor package</p>	Disabled	Yes
<p>• HP HV secure boot configuration lockdown</p>	<p>Enables the HP Hypervisor to verify its current configuration against a saved setting (not available on the HP Z440, Z640, and Z840)</p>	Disabled	Yes
<p>• Intel® Rapid Start technology</p>	<p>Enables Intel® Rapid Start technology, which improves battery life and system resume time above current Standby and Hibernate levels. (not available on the HP Z440, Z640, and Z840)</p> <p>Note: This feature only works when an SSD is detected</p> <p>Currently supported in mSATA SSD-based solutions only</p>	Disabled	Yes

Table 1. Key features for F10 Setup on select 2013 HP Business Notebook PCs and Workstations. Some features may require a Windows 7 or Windows 8 operating system. (continued)

Feature	Function	Default setting, if applicable	Reboot required
<p>• Entry on S3 RTC wake</p>	<p>Enables RTC wake to trigger the transition from S3 to Intel® Rapid Start technology (not available on the HP Z440, Z640, and Z840)</p>	Disabled	Yes
<p>• S3 wake timer</p>	<p>Specifies the length of time the system remains in S3 before an RTC wake event is triggered (not available on the HP Z440, Z640, and Z840)</p>	5 minutes	Yes
<p>• Entry on S3 critical battery wake event</p>	<p>Enables critical battery event support on Intel® Rapid Start technology; wakes the system to provide an alert that the battery-level is low (not available on the HP Z440, Z640, and Z840)</p>	Disabled	Yes
<p>• Express Card link speed</p>	<p>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 (not available on the HP Z440, Z640, and Z840)</p>	Generation 2	Yes
<p>• Dynamic Platform and Thermal Framework (DPTF) 6.0</p>	<p>Allows users to set maximum power consumption on select Intel® platforms (not available on the HP Z440, Z640, and Z840)</p>	Enabled	Yes
<p>• Configurable TDP lock</p>	<p>Thermal Design Power (TDP) lock feature locks power consumption to a nominal value on select Intel® platforms (not available on the HP Z440, Z640, and Z840)</p>	Disabled	Yes
<p>• LPM</p>	<p>Uses Low Power Mode (LPM) setting requested by OS (not available on the HP Z440, Z640, and Z840)</p>	OS-specific	N/A

• Configurable TDP boot mode	Allows the user to specify the default power consumption on select Intel® platforms (not available on the HP Z440, Z640, and Z840)	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 (not available on the HP Z440, Z640, and Z840)	Powered on if card is present	Yes
Power control	Allows the scheduling of a peak shift period and a battery-charging period (not available on the HP Z440, Z640, and Z840)	Enabled	Yes
• Power on unit when AC is detected	Turns on the unit when AC power is applied (not available on the HP Z440, Z640, and Z840)	Disabled	Yes
• Deep sleep	Turns off power to the chipset during Sleep in order to enhance battery life (not available on the HP Z440, Z640, and Z840) <ul style="list-style-type: none"> • 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 options⁷			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 (not available on the HP Z440, Z640, and Z840)	Enabled	Yes
• Embedded WLAN device	Enables integrated 802.11 device (not available on the HP Z440, Z640, and Z840) (This setting removed from F10 Setup in 2014)	Enabled	Yes

Table 1. Key features for F10 Setup on select 2013 HP Business Notebook PCs and Workstations. Some features may require a Windows 7 or Windows 8 operating system. (continued)

Feature	Function	Default setting, if applicable	Reboot required
• Embedded WWAN device	Enables integrated WWAN device (not available on the HP Z440, Z640, and Z840)	Enabled	Yes
• WWAN Quick Connect	Maintains power to the WWAN device to provide faster network connection (not available on the HP Z440, Z640, and Z840) Note: Also maintains power during S3	Enabled	Yes
• Embedded GPS device	Enables integrated GPS device (not available on the HP Z440, Z640, and Z840)	Enabled	Yes
• Embedded Bluetooth®	Enables integrated Bluetooth® device (not available on the HP Z440, Z640, and Z840)	Enabled	Yes

⁷All devices not supported on all systems.

• Embedded LAN controller	Enables integrated Network Interface Controller (NIC) device (not available on the HP Z440, Z640, and Z840)	Enabled	Yes
• LAN/WLAN switching	Enables automatic switching between embedded WLAN device and embedded LAN controller; disables WLAN when LAN connection is detected (not available on the HP Z440, Z640, and Z840)	Disabled	Yes
• Wake on LAN	Enables system to wake when a magic packet is received via LAN (not available on the HP Z440, Z640, and Z840)	Boot to network	Yes
• Wake on LAN in battery/DC mode	When powered by battery, enables system to wake via LAN (not available on the HP Z440, Z640, and Z840)	Disabled	Yes
NB upgrade bay	Enables integrated upgrade bay (not available on the HP Z440, Z640, and Z840)	Enabled	Yes
• Fingerprint	Enables fingerprint reader (not available on the HP Z440, Z640, and Z840)	Enabled	Yes
• Integrated camera	Enables integrated camera (not available on the HP Z440, Z640, and Z840)	Enabled	Yes
• Audio device	Enables integrated audio device (not available on the HP Z440, Z640, and Z840)	Enabled	Yes
• Modem device	Enables integrated modem (not available on the HP Z440, Z640, and Z840)	Enabled	Yes
• Microphone	Enables integrated microphone (not available on the HP Z440, Z640, and Z840)	Enabled	Yes
• Speakers and headphones	Enables internal speakers and headphone jack (not available on the HP Z440, Z640, and Z840)	Enabled	Yes
• Wake unit from Sleep when lid is opened	Opening the lid wakes the computer from Sleep mode (not available on the HP Z440, Z640, and Z840)	Disabled	Yes
• Power on unit when lid is opened	Opening the lid powers on the computer (not available on the HP Z440, Z640, and Z840)	Disabled	Yes
• mSATA	Enables mSATA support (not available on the HP Z440, Z640, and Z840)	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 (not available on the HP Z440, Z640, and Z840)	Enabled	Yes
• Backlit keyboard timeout	Specifies the timeout period for the keyboard's backlit LEDs (not available on the HP Z440, Z640, and Z840)	15 seconds	Yes
Port options			N/A
• Serial port	Enables integrated serial port (not available on the HP Z440, Z640, and Z840)	Enabled	Yes

Table 1. Key features for F10 Setup on select 2013 HP Business Notebook PCs and Workstations. Some features may require a Windows 7 or Windows 8 operating system. (continued)

Feature	Function	Default setting, if applicable	Reboot required
• Parallel port	Enables integrated parallel port (not available on the HP Z440, Z640, and Z840)	Enabled	Yes
• Flash media reader	Enables integrated media card reader (This setting removed from F10 Setup in 2014)	Enabled	Yes
• USB port	Enables integrated USB port (not available on the HP Z440, Z640, and Z840)	Enabled	Yes
• 1394 port	Enables integrated 1394 port (not available on the HP Z440, Z640, and Z840)	Enabled	Yes
• Express Card slot	Enables integrated Express Card slot (This setting removed from F10 Setup in 2014)	Enabled	Yes
• Smart Card	Enables integrated Smart Card slot (not available on the HP Z440, Z640, and Z840)	Enabled	Yes
• eSATA port	Enables integrated eSATA port (not available on the HP Z440, Z640, and Z840)	Enabled	Yes
• Thunderbolt port⁸	Enables integrated Thunderbolt port (not available on the HP Z440, Z640, and Z840)	PCIe and DisplayPort	Yes
AMT options			N/A
• USB key provisioning	Enables AMT provisioning using USB disk-on-key (not available on the HP Z440, Z640, and Z840)	Disabled	Yes
• Unconfigure AMT on next boot	Resets AMT configuration options on next boot (not available on the HP Z440, Z640, and Z840)	Disabled	Yes
• SOL terminal execution mode	Specifies terminal execution mode (not available on the HP Z440, Z640, and Z840)	ANSI	Yes
• Firmware progress event support	Enables AMT progress events, allowing the status of clients to be monitored remotely (not available on the HP Z440, Z640, and Z840)	Disabled	Yes
• Initiate Intel® CIRA	Enables Intel® CIRA feature (not available on the HP Z440, Z640, and Z840)	Disabled	Yes

⁸Thunderbolt 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 thunderbolttechnology.net/products.

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 (not available on the HP Z440, Z640, and Z840)

Storage menu

The storage menu provides access to mass storage device configuration, general options, and boot order. (not available on the HP Z440, Z640, and Z840)

Security menu

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

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

Power menu

The power menu provides access to OS and hardware power management configuration and system thermal controls. (not available on the HP Z440, Z640, and Z840)

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 2 provides a detailed list of F10 Setup options for HP Business Desktops.

Note

Use the F8 hotkey to change the selected language.

Table 2. Key features for F10 Setup on select 2013 HP Business Desktop PCs

File menu			
Feature	Function	Default setting, if applicable	Reboot required
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
Feature	Function	Default setting, if applicable	Reboot required
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, SATAO network controller	Yes
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 and 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
Feature	Function	Default setting, if applicable	Reboot required
• 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:	Device available	Yes
• Front USB ports			Yes
– USB3 Port 1	Sets USB port status	Enabled	Yes
– 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
• Rear USB ports			Yes
– USB3 Port 1	Sets USB port status	Enabled	Yes
– 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
– USB Port 3	Sets USB port status	Enabled	Yes

– USB Port 4	Sets USB port status	Enabled	Yes
• Accessory USB ports			Yes
– USB Port 1	Sets USB port status	Enabled	Yes
– USB Port 2	Sets USB port status	Enabled	Yes
– USB Port 3	Sets USB port status	Enabled	Yes
– USB Port 4	Sets USB port status	Enabled	Yes
– USB Port 5	Sets USB port status	Enabled	Yes
– 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
Feature	Function	Default setting, if applicable	Reboot required
• 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	Enabled	No
Master Boot Record security	Protects MBR from corruption		Yes
System security		Disabled	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	Disabled	Yes
	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		

• Embedded Security Device	Enables Trusted Platform Module (TPM) Note: Configuring the Embedded Security Device requires a setup password.	Enabled	Yes
– 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
– Reset of Embedded Security Device through OS	Allows reset of TPM to be initiated from the OS	Disabled	Yes
– No PPI Provisioning	Allows the OS to take immediate control of the Embedded Security Device without requiring user interaction	Disabled	Yes
– 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
Feature	Function	Default setting, if applicable	Reboot required
• 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
– Enable/disable DriveLock	Enables DriveLock feature - prompts for setting a user password when set to Enable		Yes
– 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			
• Clear secure boot keys	By default HP keys installed and 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 It is beyond the scope of this paper to discuss methods for installing 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
Feature	Function	Default setting, if applicable	Reboot required
• 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
Feature	Function	Default setting, if applicable	Reboot required
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			
• 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

• 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
• Hyperthreading⁹	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
Feature	Function	Default setting, if applicable	Reboot required
• 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
• AMT¹⁰	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

⁹Intel® 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 intel.com/info/hyperthreading for more information.

¹⁰Intel® 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

• 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
– OS WatchDog timer	Sets OS WatchDog timer (minutes)	5	Yes
– 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 VBIOS or the UEFI driver in the BIOS is used to provide graphics setup and support	UEFI only for Windows 8 Legacy only for other	Yes
• 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

Feature	Function	Default setting, if applicable	Reboot required
• Update BIOS via network	Enables or disables the BIOS update via network feature Note: Updating BIOS over the network is supported on 2013 600/800 desktop models	Enabled	Yes
• Update source	Selects hp.com or a locally managed custom address to serve BIOS updates	HP	No
– 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
– 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
– 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: BIOS overview for 2012 HP ElitePad 900¹¹

Table A-1 outlines BIOS options for a 2012 HP ElitePad 900.

You can invoke the HP BIOS settings application via the Windows control panel (Control Panel > HP BIOS Settings) or directly as an application.

Note

The options shown in Table A-1 constitute a subset of BIOS settings for the 2012 HP ElitePad 900.

Table A-1. BIOS settings

Feature	Function	Default setting, if applicable	Reboot required
Information	Provides key system information, such as serial number, model number, CPU type, and memory configuration	N/A	No
Boot settings			No
• Boot options			No
– Ethernet boot	Allows Ethernet boot	On	No
– USB device boot	Allows boot from USB storage device	On	No
• Device configurations			No
– Shutdown on battery	Initiate orderly shutdown when AC is removed	Off	No
– Secure boot	Enables the secure boot function, which verifies the boot loader signature before loading the OS	On	No
• Boot order	Specifies the UEFI boot order	OS Boot Manager, USB hard drive, USB ODD, Ethernet IP V4, Ethernet IP V6, Micro SD card	No
BIOS password			No
• Create password	Establishes the BIOS administrator password for admin privilege to access BIOS settings		No

Using BIOSConfigUtility to get/set BIOS settings

1. Download BIOSConfigUtility (BCU) tool, which is available at <ftp://ftp.hp.com/pub/softpaq/sp58501-59000/sp58888.exe>.
2. Run the BCU tool on the reference unit, creating an output text file (as shown in Figure A-1).

Note: You can run BCU in the local OS environment or in the service OS (for example, PXE boot.)

3. Update the text file based on the settings you wish to enforce.
4. Re-run the BCU tool using the updated text file as the input source.

¹¹ The integrated display resolution of this system is below the threshold for snapping apps, a new feature that allows two Windows apps to be viewed simultaneously side by side. This feature may be enabled by attaching an external display which supports a screen resolution of 1366 x 768 or higher

Figure A-1. Sample text file output from the BCU tool

```
Language
*English
Deutsch
Spanish
Italian
French
Japanese
Portuguese
Dansk
Suomi
Nederlands
Norsk
Svenska
Simplified Chinese
Traditional Chinese

Multiboot Express Popup Delay (Sec)
*0
5
10
15
20
25
30
35

Initiate orderly Shutdown when AC is removed
Enable
*Disable

Ethernet boot
*Enable
Disable

Data Execution Prevention
*Enable
Disable

Multi Core CPU
*Enable
Disable

Intel (R) HT Technology
*Enable
Disable

UEFI Boot Order
OS Boot Manager
USB Hard Drive
USB ODD
Ethernet IPV4
Ethernet IPV6
Micro SD Card

WWAN Device
*Enable
Disable

WLAN Device
*Enable
Disable

Near Field Communication
*Enable
Disable

SD Card Device
*Enable
Disable
```

OTG USB
*Enable
Disable

PTT
*Unhide
Hide

Device Configuration ID
0000000

Password Minimum Length
8

At least one symbol required
Yes
*No

At least one number required
Yes
*No

At least one upper case character required
Yes
*No

At least one lower case character required
Yes
*No

Are spaces allowed in password
Yes
*No

Secure Boot
*Enable
Disable

Clear Secure Boot Keys
Enable
*Disable

User Mode
*HP Factory Keys
Customer Keys

Appendix B: Setting up an in-house repository to support network updates

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Introduction

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

This appendix describes how to configure a repository on an in-house HTTP/ FTP server¹² 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; reported through the SMBIOS.

BIOS update from a network – HP feature designed to provide BIOS updates over the network

Finding a particular BIOS file

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

- 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 being the same.

The path portion of the URL is generally case-sensitive on UNIX or Linux platforms, regardless of the web server deployed, and is generally not case-sensitive on Windows platforms, again regardless of the web server deployed. Thus, if running Apache on Linux, for example, <http://example.com/bios> and <http://example.com/BIOS> are generally not treated as being the same; however, if running IIS on Windows, <http://example.com/bios> and <http://example.com/BIOS> are generally treated as being 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.

¹²Setting up the server is beyond the scope of this appendix

Catalog file schema

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

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>
```

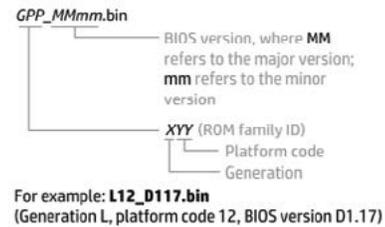
Naming conventions

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



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 BIOS¹³ 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" />
</BIOS>
```

¹³ Via F10 settings or WMI

This 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").¹⁴

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.

¹⁴Quotation marks are required.

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