HP Commercial Systems Automatic BIOS Update Through Windows Update Whitepaper

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Introduction

The purpose of this paper is to detail changes to HP's process for releasing system firmware to Microsoft Windows Update. This paper will provide details on the upcoming change, the benefits of this new policy, as well as methods an IT Administrator can take to block these updates if desired.

HP Platforms Covered in This Document

Product Names	
Note Book	**Desktop**
2020	**2019**
HP ProBook 430 G7 Notebook PC	HP EliteDesk 800 G5 TWR
HP ProBook 440 G7 Notebook PC	HP EliteDesk 800 G5 SFF
HP ProBook 450 G7 Notebook PC	HP EliteOne 800 G5 AIO
HP ZHAN 66 Pro 14 G3 Notebook PC	HP EliteDesk 800 G5 DM
	HP EliteDesk 705 G5 SFF
2019	HP EliteDesk 705 G5 SFF
HP ZBook 17 G6 Mobile Workstation	HP EliteDesk 705 G5 DM
HP ZBook 15 G6 Mobile Workstation	HP ProDesk 600 G5 MT
HP EliteBook x360 1040 G6 Notebook PC	HP ProDesk 600 G5 PCI MT
HP Elite Dragonfly Notebook PC	HP ProDesk 600 G5 SFF
HP EliteBook x360 1030 G4 Notebook PC	HP ProDesk 600 G5 DM
HP Elite x2 G4	HP ProOne 600 G5 AiO
HP EliteBook 850 G6 Notebook PC	HP ProOne 400 G5 AiO
HP EliteBook 840 G6 Notebook PC	HP ProOne 440 G5 AiO
HP Zbook Studio 15u G6 Mobile Workstation	HP ProDesk 400 G6 SFF
HP Zbook Studio 14u G6 Mobile Workstation	HP ProDesk 400 G6 MT
HP EliteBook 840 G6 Healthcare Edition Notebook PC	HP ProDesk 480 G6 MT
HP EliteBook 830 G6 Notebook PC	HP ProDesk 400 G5 DM
HP EliteBook x360 830 G5 Notebook PC	HP ProDesk 405 G4 DM
HP EliteBook x360 830 G6 Notebook PC	HP ProDesk 680 G4 Microtower PC

HP ZHAN X 13 G2 Notebook PC	
HP ProBook 745 G6 Notebook PC	**2018**
HP ProBook 735 G6 Notebook PC	HP EliteOne 1000 G2 AIO
HP ProBook 650 G5 Notebook PC	HP EliteDesk 800 G4 TWR
HP ProBook 640 G5 Notebook PC	HP EliteDesk 880 G4 TWR
HP ProBook 445R G6 Notebook PC	HP EliteDesk 800 G4 SFF
HP ProBook 455R G6 Notebook PC	HP EliteOne 800 G4 AIO
HP ProBook 445R G6 Notebook PC	HP EliteDesk 800 G4 DM
HP ProBook 455R G6 Notebook PC	HP EliteDesk 705 G4 MT
HP ProBook 430 G6 Notebook PC	HP EliteDesk 705 G4 MT
HP ProBook 440 G6 Notebook PC	HP EliteDesk 705 G4 MT
HP ProBook 450 G6 Notebook PC	HP EliteDesk 705 G4 SFF
HP Zhan 66 Pro 13 G2 Notebook PC	HP EliteDesk 705 G4 SFF
HP Zhan 66 Pro 14 G2 Notebook PC	HP EliteDesk 705 G4 SFF
HP Zhan 66 Pro 15 G2 Notebook PC	HP EliteDesk 705 G4 DM
HP ProBook x360 11 G3 Education Edition	HP EliteDesk 705 G4 DM
HP ProBook x360 11 G4 Education Edition	HP ProDesk 600 G4 MT
	HP ProDesk 680 G4 MT
2018	HP ProDesk 600 G4 SFF
HP ZBook 17 G5 Mobile Workstation	HP ProOne 600 G4 AiO
HP ZBook 15 G5 Mobile Workstation	HP ProOne 400 G4 AiO
HP ZBook Studio G5 Mobile Workstation	HP ProDesk 600 G4 DM
HP ZBook Studio x360 G5 Convertible Workstation	HP MP9 G4 Retail System
HP EliteBook 1050 G1 Notebook PC	HP ProDesk 400 G5 MT
HP Elite x2 1013 G3 Tablet	HP ProDesk 480 G5 MT
HP EliteBook x360 1040 G5 Notebook PC	HP ProDesk 400 G5 SFF
HP EliteBook x360 1030 G3 Notebook PC	HP ProDesk 480 G5 SFF
HP EliteBook 840 G5 Notebook PC	HP ProDesk 400 G4 DM
HP EliteBook 846 G5 Notebook PC	HP Engage Flex Pro Retail System
HP EliteBook 850 G5 Notebook PC	HP Engage Flex Pro-C Retail System
HP ZBook 14u G5 Mobile Workstation	
HP ZBook 15u G5 Mobile Workstation	
HP EliteBook 830 G5 Notebook PC	
HP EliteBook 836 G5 Notebook PC	
HP EliteBook 840 G5 Healthcare Edition Notebook PC	
HP EliteBook 840r G4 Notebook PC	
HP EliteBook 846r G4 Notebook PC	
HP EliteBook 745 G5 Notebook PC	
HP EliteBook 735 G5 Notebook PC	
HP mt44 Mobile Thin Client	
HP ProBook 645 G4 Notebook PC	

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HP ProBook 650 G4 Notebook PC	
HP ProBook 430 G5 Notebook PC	
HP ProBook 440 G5 Notebook PC	
HP ProBook 450 G5 Notebook PC	
HP ProBook 470 G5 Notebook PC	
HP ZHAN 66 Pro G1	
HP ZHAN 66 Pro G1	
HP ProBook 455 G5	
HP ProBook x360 440 G1 Notebook PC	
HP mt21 Mobile Thin Client	
HP mt31 Mobile Thin Client	
HP Engage Go Mobile System	
HP ProBook x360 11 G3 Education Edition	

Why is HP Releasing BIOS Updates as Automatic via Windows Update?

Modern devices depend on up-to-date firmware for performance and security. Updating a system BIOS can be challenging, particularly as remote work is proliferating and leveraging Windows Update for BIOS updates simplifies the process. The additional advantage of servicing BIOS via Windows Update is,security vulnerabilities which require a BIOS update can be remediated in a quick, efficient and automatic manner. HP believes this change is in the best interest of our customers and will increase adoption of updated system firmware without undue end-user friction.

How is BIOS Updated Through Windows Update?

To update system firmware Windows Update leverages a mechanism built into the Unified Extensible Firmware Interface (UEFI) standard called UEFI Capsule.

What is UEFI Capsule?

UEFI capsule is a mechanism which is used to pass the data from runtime (OS present) to UEFI BIOS. UEFI capsule consists of header with a GUID to identify device and content, along with a firmware image and code that handles the secure update process. UEFI capsule is delivered by device vendors to Windows systems via Microsoft Windows Update service or Linux systems via Linux Vendor Firmware Service (LVFS). A UEFI capsule update package includes the UEFI capsule and other files that work with the OS update service. With UEFI capsule, firmware updates behave the same way as software/driver updates at the OS level, but updates occurs in the more secure and stable UEFI environment.

Does HP Already Submit BIOS to Windows Update?

Yes. Today HP submits BIOS updates to windows update as manual/optional updates.

Manual Updates via Windows Update

- HP currently submits all WU as optional to Microsoft in every BIOS release
- Microsoft will not push the manual/optional BIOS capsule package; to install, a customer needs to search for the System Firmware update from *device manager -> System Firmware* on the client system

What is changing?

HP will begin submitting updates to Windows Update via Automatic Updates when the following criteria are met.

Automatic Updates via Windows Update Criteria

- Only apply for the following criteria:
    - Fix high priority security issues
    - Fix critical customer and functional issues
    - Microsoft will Automatically push the driver to eligible machines.

Which OS Versions are targeted

- HP currently targets WU with Windows 10, Version v1809(RS5) and later OS versions.

Quality Assurance via Windows Update

When updates are submitted to Windows Update, they are deployed using a flighting process to ensure the install process is a high-quality experience. This flighting Process works as follows:

- HP submits the Windows Update (WU) package with Windows update critical or optional. Microsoft will run the insider flighting for two weeks after Microsoft approval.
- During flighting period both Microsoft and HP will monitor the Firmware Telemetry reporting through insider adoption process. The insider flighting will stop if Mocrosoft detectes an arbitrary failure rate.
- When flighting process is successfully completed, Microsoft will start the gradual rollout
- Starting to push BIOS capsule package to general population. Microsoft will continue monitoring the data telemetry this time and the roll out will stop if problems are detected.

When this new update process will start

HP plans to start Windows Update Automatic submission for BIOS in the **January 2021**.

Potential Issues an IT Administrator Needs to Consider

Bios Version Lock

The UEFI Capsule BIOS update mechanism is designed to seamlessly update the HP System BIOS to the latest version via Microsoft's Windows Update. When these updates are released to Windows Update with an automatic install classification these BIOS updates will install without any user interaction. If your environment requires you to qualify each BIOS release before broad roll out, or if you need to lock

the HP BIOS to a specific version, the BIOS setting "Lock BIOS Version" should be set to "Enable" via either the F10 BIOS interface or some other method.
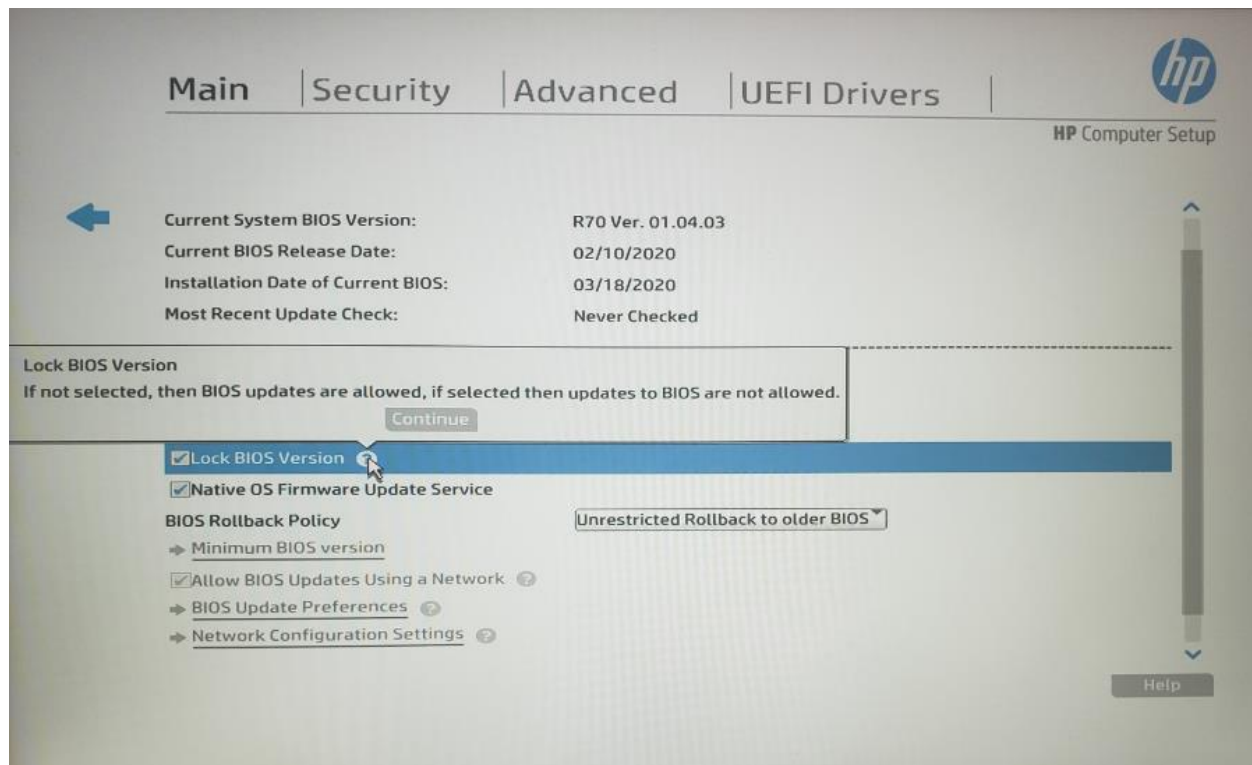
BitLocker Recovery Key

If using any Bitlocker policies other than the Windows 10 defaults and BIOS updates via Windows Update are desired, it is recommended that customers consult with Microsoft on the likelihood of these updates triggering a Bitlocker Recovery key request. It is also recommended that some systems be placed on the insider ring so that they will receive early access to these updates for test.

EFI Partition Size Requirements

Details can be found here: https://support.hp.com/us-en/document/c06466416

Blocking Windows Update BIOS Updates with BIOS Settings

Native OS Firmware Update Service

The setting titled "Native OS Firmware Update Service" is the primary mechanism to enable or disable the UEFI Capsule BIOS update on an HP client. The default value for this setting is "Enable." When enabled the HP BIOS will accept updates from UEFI Capsule via Windows Update. To block the update from Windows Update set this setting to "Disable."
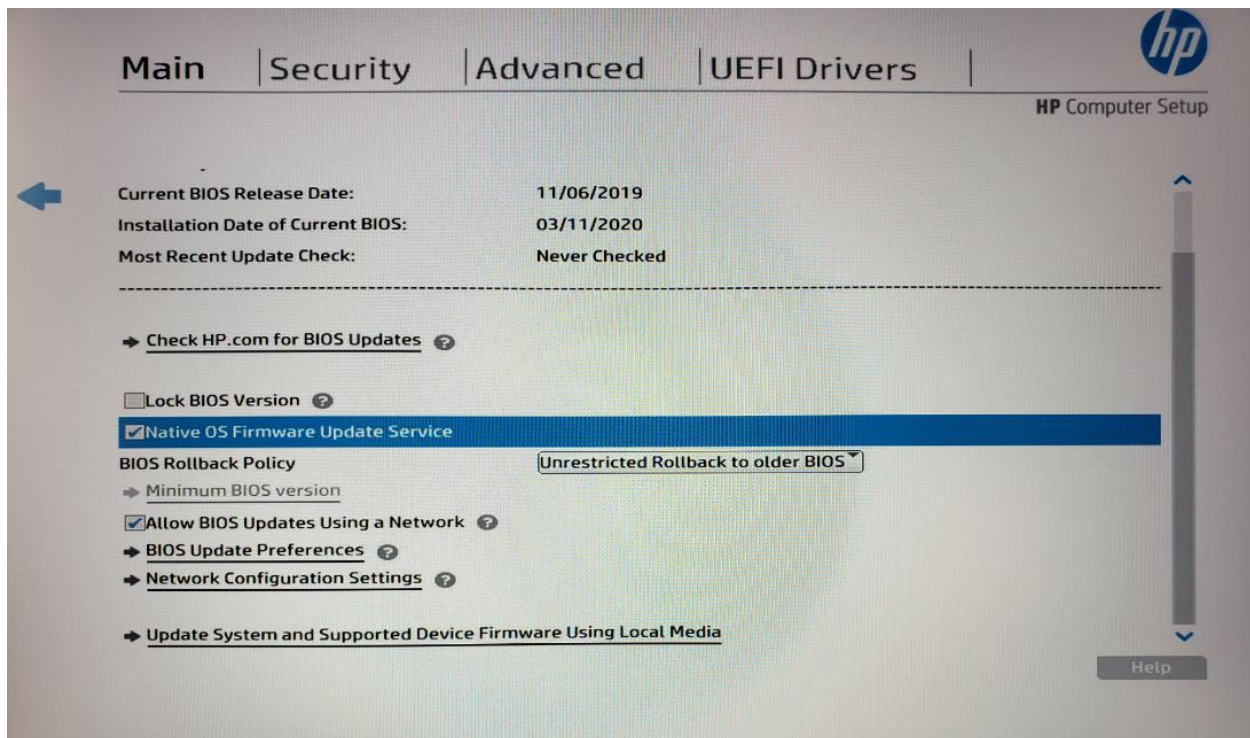
Prompt for Admin Authentication on Capsule Update

The settings titled "Prompt for Admin authentication on Capsule Update" controls the password requirement for use with BIOS updates via UEFI Capsule. The default value is "Disable," which does not require a password for this flash mechanism.

How to Manage BIOS Settings Related to UEFI Capsule Update

F10 BIOS Interface

The F10 Bios interface is accessed by pressing the F10 key at system start up. If a BIOS password or Sure Admin is deployed to the client, authentication will be required to access the F10 BIOS menu.
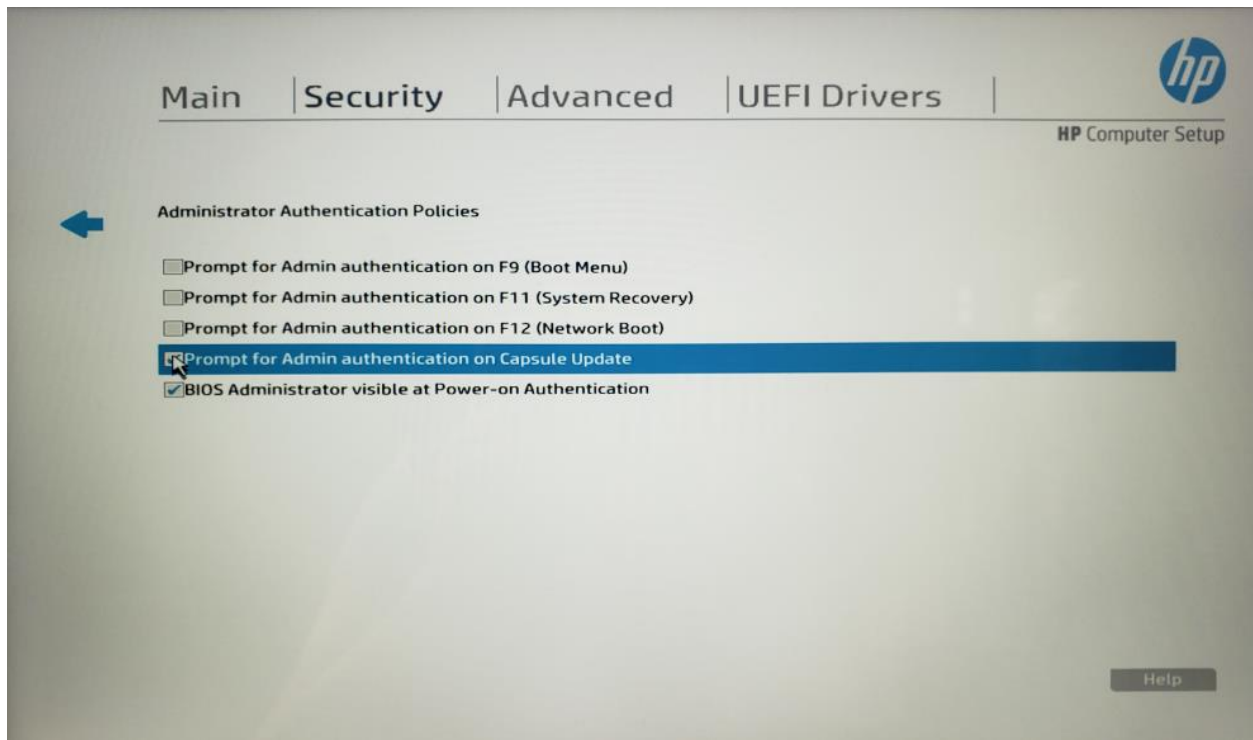
HP Client Management Script Library
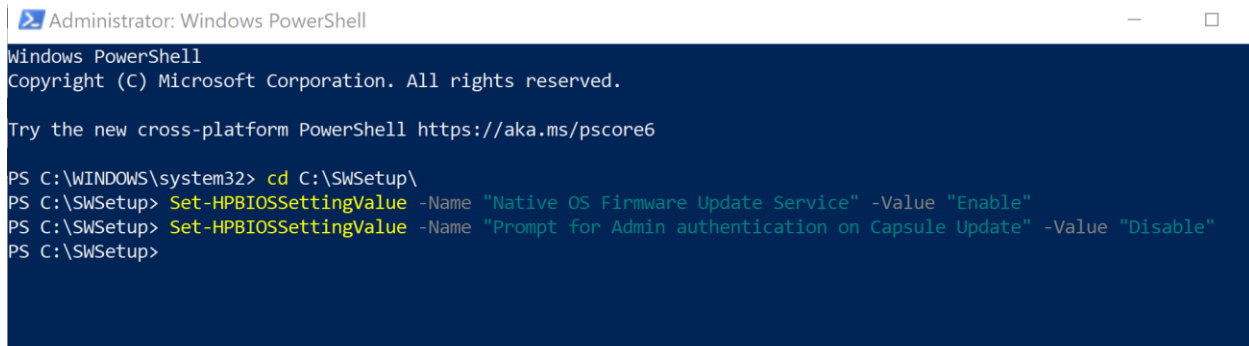
The HP Client Management Script Library is a set of PowerShell modules designed to make managing HP clients significantly easier for IT administrators. These modules can be installed from the PowerShell Gallery via install-module HPCMSL or via this download location. One of the modules deals with getting and settings BIOS settings. Documentation on this module can be found here.

Once installed, the Set-HPBIOSsettingvalue function can be used to set BIOS settings related to UEFI Capsule. The syntax for this function is Set-HPBIOSSettingValue -Name "Setting Name" -Value "Desired Value"

Examples:

Set-HPBIOSSettingValue -Name "Native OS Firmware Update Service" -Value "Enable"

Set-HPBIOSSettingValue -Name "Prompt for Admin authentication on Capsule Update" -Value "Disable"

BIOS Configuration Utility

HP's BIOS Configuration Utility (BCU) is a tool designed to deploy the BIOS settings found in a file to an HP System. BCU can be found [here](#).

Screenshot of Sample BCU file shown below

To deploy this file, after downloading and extracting BCU, open a command prompt and run

BIOSconfigutility64.exe /set:BCU.txt

FAQ

- What happens if my system is not plugged AC in while WU start updating BIOS?
  Before update starts, if AC is not plugged in and remaining battery is below 50%, a message will be displayed up to 30 seconds. If an AC source is still not plugged in, update will fail. On following boot, system firmware device in device manager will be yellow-banged.

- What if user Lock specific BIOS version (block BIOS update from any method) vs Native OS firmware update service (block firmware update from WU)?
  If your environment requires you to qualify each BIOS release before broad roll out, you are recommended to set "Native OS firmware update service" to "Disable" so that automatic update via WU will not occur. If you need to lock the HP BIOS to a specific version, the BIOS setting "Lock BIOS Version" should be set to "Enable" via either the F10 BIOS interface or some other method. With some early version of BIOS, when "Lock BIOS Version" is enabled, Update via WU will still be attempted and fail. In that case, yellow bang on system firmware device in device manager is expected.

- Detail for ESP partition: https://support.hp.com/us-en/document/c06466416

- System Firmware
  BIOS is always released as part of system firmware. System firmware also includes manageability engine and USB-C controller firmware.