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## **HP-FLASH User's Guide**

'**hp-flash**' and '**hp-repsetup**' are a toolset provided by HP Workstations R&D for updating **UEFI** System BIOS's from the Linux command line. It is intended for use on the following **HP Workstations** only:

- Z440
- Z640
- Z840
- Z238
- Z240
- Z1 G3
- Z2 Mini G3

This utility will not work on any platforms missing from the list above.

'**hp-flash**', '**hp-resetup**' and supporting kernel module, '**hpuefi-mod**,' are distributed without warrantee or guaranteed compatibility with future systems. This version of '**hp-flash**' (herein defined to mean both binary utilities and matching source-level kernel module) was tested on Red Hat Enterprise Linux 6.5 (RHEL 6.5), SuSE Linux Enterprise Desktop 11 (SLED11, SP3), and Canonical Ubuntu 14.04 distributions running 64-bit kernels.

## **What's in the package?**

'**hp-flash**' has two main components, the '**hpuefi**' kernel module, and the '**hp-flash**' application.

- The '**hpuefi**' kernel module is distributed as a source RPM called
  - hpuefi-mod.<version>.src.rpm
- The '**hp-flash**' application set ('**hp-flash**', '**hp-repsetup**') is distributed as an RPM called
  - hp-flash-<version>.<architecture>.rpm

Non RPM-based distributions can be supported with:

- hpuefi-mod-x.x.x.tgz # manual build/installation
- hp-flash-<version><architecture>.tgz # manual installation

## **Installation**

The kernel module must be installed before the application. Be sure that you have the ‘development’ option for RHEL (or ‘C/C++ development’ option for SLED) installed on your system before you attempt to install the ‘**hpuefi**’ module and app. One of these rpms that HP is providing requires you to build a binary component from source. To do this will require the ‘**rpmbuild**’ application. If ‘**rpmbuild**’ is not installed on your system, you will need to load it from the RHEL installation media. The ‘**rpm-build.<version>.rpm**’ can be found in the “Workstation” directory on the installation media. You may find while installing the ‘**rpm-build**’ rpm that there are other packages which are missing from your system and need to be installed before you can proceed. Take note of the missing packages and install each one directly from the RHEL media. Once you have these dependencies taken care of, complete installation of the ‘rpm-build’ .rpm and proceed with the installation instructions below.

- **Note** – ‘root’ administration privileges are required for build, installation, and execution of these utilities. In particular, the build-from-source steps (‘rpmbuild’) may occur in differing locations according to prevailing system defaults, user definitions ( \$HOME/.rpmmacros ), or other environmental overrides. On some distributions, the following command can help determine the location of build source:

```
rpmbuild -showrc | grep _topdir
```

The value for `%{_topdir}` reported by the command above may include any of the following paths for your distribution and revision:

- /usr/src/redhat
- \$HOME/rpmbuild
- /usr/src/packages

The command examples below use the `$HOME/rpmbuild` version for demonstration.

## **RPM-based Distribution Installation**

To install the kernel module:

- `rpm -i hpuefi-mod-<version>.src.rpm`
- `rpmbuild -bb $HOME/rpmbuild/SPECS/hpuefi-mod.spec`
- `rpm -i $HOME/rpmbuild/RPMS/<architecture>/hpuefi-mod-<version>.rpm`

To install the application:

- `rpm -i hp-flash-<version>.<architecture>.rpm`

The utility applications and current help documentation files are now installed on the system in the following parent directory:

```
/opt/hp/hp-flash
```

## **Non RPM-based Distribution Installation**

To install the kernel module:

- `tar xzf hpuefi-mod-x.x.x.tgz`
- `cd hpuefi-mod-x.x.x/`
- `make`
- `sudo make install`

To install the utility applications:

- `tar xzf hp-flash-<version><architecture>.tgz`
- `cd hp-flash-<version><architecture>`
- `sudo ./install.sh`

The utility applications and current help documentation files are now installed on the system in the following parent directory:

`/opt/hp/hp-flash`

## **BIOS Flashing**

**Attention: The flashed BIOS image is NOT checked for validity. ONLY flash the system BIOS with BIN file from the HP support website. BIOS files that are not supported by the hp-flash tool and the target platform may report an error. See further documentation below.**

‘**hp-flash**’ can be used to update a system’s BIOS.

- To update (flash) the BIOS, obtain a current BIN file for the target system from the HP support website. Follow the posted instructions for extracting this file from the posted SoftPAQ archive, if necessary. A call made to the application (as a system administrator) to update the bios with the supplied BIN file will update the system immediately upon reboot:

o `/opt/hp/hp-flash/hp-flash [flags] <romfile.bin>`

- DO NOT restart the system **WHILE** flashing is in progress. The system will become unresponsive for a few seconds. The changes will take effect after a reboot.
- Usage: `hp-flash [-q -y -h -?] [-p admin_password] [-i filename]`
  - q (Quiet Mode) - Minimize text output
  - y (Yes Mode) - Answer Yes to everything (non-interactive)
  - h, -? - Show this help message
  - p admin\_password - Input BIOS Admin Password
  - i filename | delete - Flash (or delete) a custom startup logo image
  - filename - ROM binary or image file to flash

## Other Useful Options

### Password

If a BIOS password is set on the system, it will need to be supplied on the command line using the `-p` option for changes to be made. For example:

```
/opt/hp/hp-flash/hp-flash -p <admin_password> <romfile.bin>
```

### Automate

Use the `-y` (Yes Mode) option to turn off user prompts for full automation / non-interactive execution of the process. For example:

```
/opt/hp/hp-flash/hp-flash -y <romfile.bin>
```

### Quiet

Use the `-q` (Quiet Mode) option to minimize output text. For example:

```
/opt/hp/hp-flash/hp-flash -q <setup passwd> <romfile.bin>
```

### Help

Use the `-h` or `-?` flags to display command line help messages for current usage.

### Custom Image Logo

Some versions of this utility will support alternate boot splash images for platform customization. See the file `/opt/hp/hp-flash/hp-flash-README` for details in your specific version.

## Replicated Setup

‘**hp-repsetup**’ replicated setup (repset) supports *limited* functionality to clone **UEFI** BIOS Settings in an enterprise environment of workstations of the same type running Linux. The repset feature mimics the BIOS F10 setup menu. BIOS settings are saved to a file, and can be restored from the file. ‘**hp-repsetup**’ implements repset from the command line. Here is a procedure for using this feature to clone BIOS settings from one unit to the next:

- Enter the BIOS setup menu (hit <F10> at boot) and customize settings.
- Reboot the system, and use ‘**hp-repsetup**’ to grab the repset file (“get” mode via the `-g` flag):
  - `/opt/hp/hp-flash/hp-repsetup -g <saverrep.txt>`
- This will save all BIOS settings to the file.
- Transfer the repset file to a target system of the same type. Apply the repset file via the “set” mode using the `-s` flag:
  - `/opt/hp/hp-lxbios/hp-repsetup -s <saverrep.txt>`
- This will apply all changes. Changes will take effect after a reboot

Note that only fields specified in a saved repset file will update the same settings when read and installed by the `hp-repsetup` tool. Editing the captured file with UCS-2 compatible editors (UTF-16 Unicode with fixed-width 16-bit characters) is allowed provided that formatting is not altered

(whitespace is significant). An ASCII-compatible dump is also supported by this tool (but the results are only usable by this tool and not other replicated setup utilities).

Usage information for this utility is:

```
Usage: hp-repsetup [-g | -s] [-q -a -h -?]  
                [-p admin_password | -n admin_passwd]  
                [-cspwdfilename filename | -nspwdfilename filename] [filename]  
-g (Get Mode)    - Get BIOS settings [requires get OR set command]  
-s (Set Mode)    - Set BIOS settings [requires get OR set command]  
-q (Quiet Mode)  - Minimize text output (default: Verbose Mode)  
-a (ASCII Mode)  - Create file in ASCII format (default: Unicode UCS-2) *  
                  * Note: ASCII file cannot be imported with other tools  
-h, -?          - Show this help message  
-p admin_password - Input current BIOS Setup Password  
-n admin_passwd  - Input new BIOS Setup Password  
-cspwdfilename filename - Input current BIOS Setup Password from filename**  
-nspwdfilename filename - Input new BIOS Setup Password from filename**  
                  ** Note: special file currently only creatable  
                        from Windows-based utilities  
filename        - Optional (default: HpSetup.txt)
```

## Other Useful Options

### Password

If a BIOS password is set on the system, it will need to be supplied on the command line (or through a file) using the `-p` option for changes to be made. For example:

```
/opt/hp/hp-flash/hp-repsetup -p <admin_password> <saverrep.txt>
```

If setting a new BIOS password, then that activity can be accommodated by providing the current password (if set) and the new password. For example:

```
/opt/hp/hp-flash/hp-repsetup [-p <cur_passwd>] -n <new_passwd>
```

BIOS setup passwords can be encoded into a special file to improve security (instead of entering them in clear text). *Currently, the only utilities available to do so are not available on Linux. See the appendix at the end of this document for examples of file generation.* The command requirements differ from the command-line version only in the type of file (or files) required as arguments. For example:

```
/opt/hp/hp-flash/hp-repsetup [-cspwdfilename curpassfile] -nspwdfilename newpassfile
```

### Quiet

Use the `-q` (Quiet Mode) option to minimize output text. For example:

```
/opt/hp/hp-flash/hp-repsetup -q <setup_passwd> <saverrep.txt>
```

### Help

Use the `-h` or `-?` flags to display command line help messages for current usage.

## ASCII

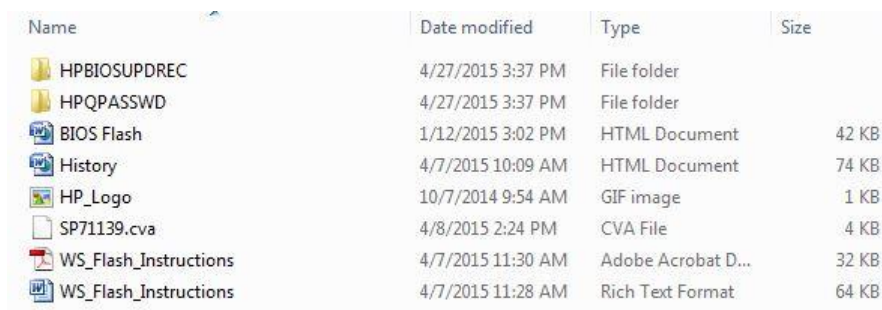
Use of the `-a` (ASCII Mode) option allows this tool to dump or read an ASCII compatible RepSet file instead of the BIOS standard default format which is in UCS-2 format (UTF-16 Unicode with fixed-width 16-bit characters).

**\*Attention: Data dumped in this format is not compatible with any other replicated setup tools and is unique to this utility. Use of this output with other tools or F10 is undefined and unsupported.**

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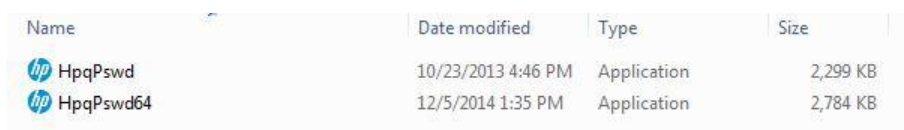
**\*\*Attention: Compatible hp-repsetup password files currently can only be generated by utilities available with HP Workstation BIOS packages for Windows systems. The following documentation shows the generation of these special password files with the provided utilities.**

- The utilities **HpqPswd** and **HpqPswd64** reside in **System BIOS packages for Windows** at least as early as **BIOS 1.53 RevA** for HP Z Workstations (Z440/Z640/Z840). Note that the utilities are **not** released with **Workstation BIOS Utilities for Windows**.
  - Example: download HP Z440/Z640/Z840 Workstation System BIOS (1.53 Rev.A – 7 Apr 2015) onto your Windows client and unpack it.
- With Windows Explorer, navigate to the appropriate folder after unpacking a system BIOS package. For example, see the HPQPASSWD sub-folder in the image below:
  - `c:\swsetup\SP71139\HPQPASSWD`



Name	Date modified	Type	Size
HPBIOSUPDREC	4/27/2015 3:37 PM	File folder	
HPQPASSWD	4/27/2015 3:37 PM	File folder	
BIOS Flash	1/12/2015 3:02 PM	HTML Document	42 KB
History	4/7/2015 10:09 AM	HTML Document	74 KB
HP_Logo	10/7/2014 9:54 AM	GIF image	1 KB
SP71139.cva	4/8/2015 2:24 PM	CVA File	4 KB
WS_Flash_Instructions	4/7/2015 11:30 AM	Adobe Acrobat D...	32 KB
WS_Flash_Instructions	4/7/2015 11:28 AM	Rich Text Format	64 KB

- Once there, you can execute either appropriate tool for your version of Windows (32-bit or 64-bit):



Name	Date modified	Type	Size
HpqPswd	10/23/2013 4:46 PM	Application	2,299 KB
HpqPswd64	12/5/2014 1:35 PM	Application	2,784 KB

- The GUI for HpqPswd[64] executable allows the input of the desired password to encode and a set of methods to name and locate the appropriate output file used for your Linux

installation. Use these files with `-cspwfile` and `-nspwfile` command flags to `hp-resetup`.



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