Hewlett Packard Enterprise

Cray XD Platform Firmware Update Tool User Guide

Acknowledgments

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Overview

The Cray XD Platform Firmware Update Tool (PFUT) provides a mechanism to quickly update BMC and BIOS components of HPE Cray XD Server nodes, whether individually or many at a time. It has the support for Cray XD225v, XD220v, XD295v, XD670 models. This Python based tool can be executed from either Linux or Windows, management or administrator nodes to update the BIOS and BMC only. This tool can also be used to create firmware inventory reports for HPC cluster nodes. It is necessary to install a full Python environment and other prerequisites on the management workstation as it is a Python script-based tool.

Supported operating systems

The tool supports execution from either a Linux or Windows console.

Prerequisites

- Python3 (Version 3.6.13 and above) https://www.python.org/downloads/

- Pandas module for Python (Version 1.1.5) https://pypi.org/project/pandas/1.1.5/

- Redfish module for Python (Version 3.1.6) https://pypi.org/project/redfish/3.1.6/

- Jinja2 module for Python https://pypi.org/project/Jinja2/

- pysqlitecipher module for Python (Version 0.22) (pip install pysqlitecipher==0.22)

Supported Target Platforms for Updates

- Cray XD2000 AMD – Inventec using ASPEED/AMI BMC firmware

- Cray XD2000 Intel - Inventec using ASPEED/AMI BMC firmware

- Cray XD6500 – Gigabyte using Aspeed/AMI BMC firmware

Downloading and Installing PFUT

- Download Platform Firmware Update Tool (PFUT) from <**HPE Support Centre**.>. Install PFUT by unzipping the Platform_Firmware_Update_Tool_V_XX.zip package into the Management Workstation, from which the user chooses to deploy the firmware. We can also download PFUT by cloning from this repository https://github.com/HewlettPackard/CrayXD_PFUT.

- **Note:**
  - ➢ IP refers to IP addresses or it can be Host Names or FQDNs of the systems.

  - ➢ To access the nodes using HostNames/FQDNs, hosts file should be configured as C:\Windows\System32\drivers\etc\hosts for Windows and /etc/hosts for Linux

# IPv4 address	FQDN	Hostname
10.93.17.73	vp2-node1.cray.hpe.com	vp2-node1
10.93.17.223	node2.cray.hpe.com	node2

- IPV6 addresses are not supported with the current PFUT.

  Note: IP addresses refer to IPv4 only and not to IPv6.

- The unzipped folder contains:

  - ° `Platform_Firmware_Update_Tool.py` – The main Python executable file, which is responsible for

flashing and report generation.

- ° `list.txt` – It contains one or more IP/host names/FQDNs and their credentials for performing BMC or BIOS firmware updates or generating reports.
- ° `FirmwareToDeploy.txt` – It contains BMC or BIOS firmware details to be flashed.
- ° `Helper Python Scripts` – Other Python scripts that are required by the main Python scripts..

Firmware files

- Download the latest BMC and BIOS firmware pack from **<HPE Support Centre>**.
- To configure firmware packs to use with PFUT, perform the following instructions:
    - ° Only HPM application or octet-stream files can be used to flash BMC and BIOS.
    - ° The files used for updating are to be placed in the same directory as the script files used for flashing.
    - ° The `FirmwareToDeploy.txt` file present in the extracted directory along with the binary files should contain details of the BMC or BIOS firmware to be updated.

Host Names of the systems

- While running PFUT, the hostnames of the systems should be DNS configured. Host Names can be found in GUI as here. Changing hostname will change the FQDN.
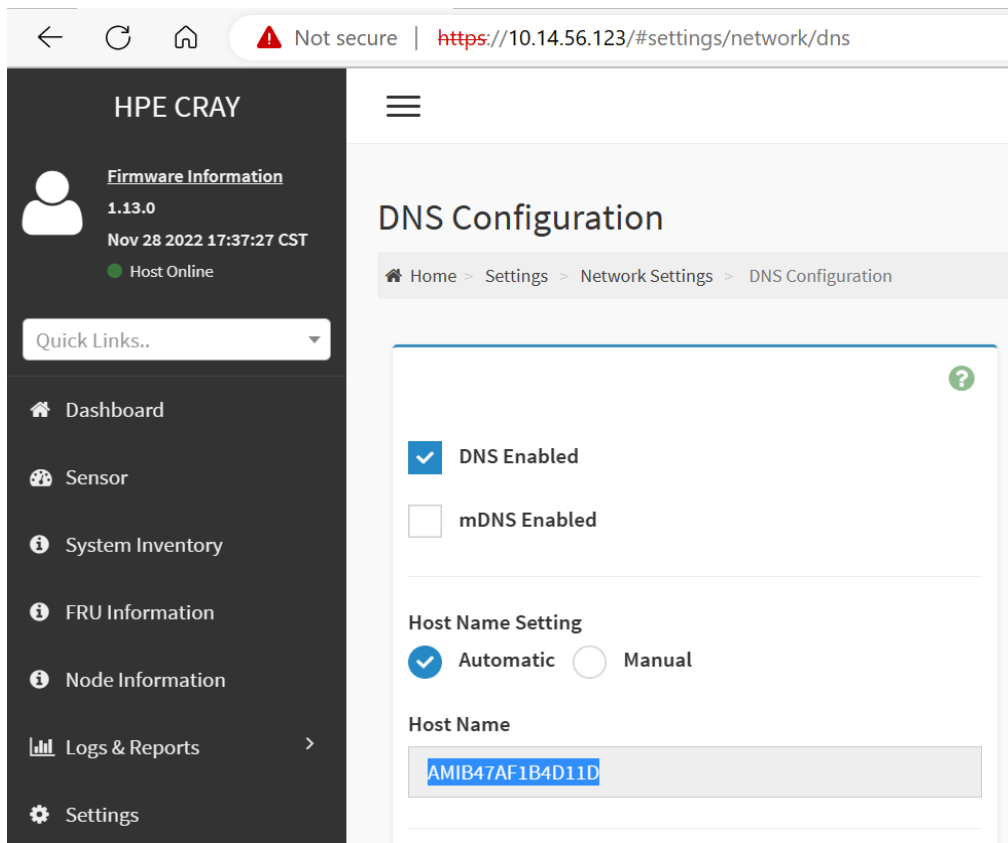
Command-Line options digest

The following parameter help shows up using `--help` or when invalid parameters are found as input:

-h --help

show this help message and exit

Multiple modes of target

-t IP_HostName_FQDN,prompt

Requests IP Username and Password

-t promptall

All IPs from list.txt are prompted for a username and password

-t **IP_HostName_FQDN,Username,Password**

To specify a single target.

-t prompt

Prompts for one target's IP_HostName_FQDN, username, and password

Two modes of component

-c BIOS

To choose BIOS update.

-c BMC

To choose BMC update.

-db --database

If the credentials of IP addresses/hostnames/FQDNs in the input file need to be extracted from the database, this option should be set.

-f --file

Name of file with IP/Hostnames/FQDNs and credentials. Defaults to list.txt.

-z --update

perform the required flash operations for BMC or BIOS update. Only BMC and BIOS update is supported by this tool.

-d --discovery

The Node Discovery Report displays the HPC cluster's IP Address, Host Name, FQDN and Server Model.

-i –-inventory

The IP Address, Host Name, FQDN, Server Model, BIOS Version, and BMC Version of the HPC cluster are displayed in the Node Inventory Report.

-F --Force

When the version to be updated is the same as the current version, installation is forced.

NOTE: The version should be the same as reported by device via redfish or PFUT inventory.

-P --Power

When updating, AC Power Cycles are applied; if not, the updates are not reflected. This is specifically necessary for the BIOS update. No AC power cycling is necessary for the BMC update.

-a --all

Displays the HPC cluster's firmware details.

-p --password

session password; this can be used when all nodes have a common password.

-u --username

session username; this can be used when all nodes have a common username.

-D, --Debug

It shows all the debug information while updating the firmware. There is no effect on the report generation.

Update the database with the IP/HostName/FQDN and its credentials

Run the database_update.py file along with any input files, if any, to create pysqlitecipher.db. If no input file is specified as an argument to be imported, prompts for the IP address/HostName/FQDN and its credentials are displayed.
The -f flag is used for updating databases with input files. If the database is already created, run the same command with the existing password to update the entries in the database or append a new entry. Currently, there are no options to update the database password. The IP/HostName/FQDN and its credentials are encrypted in the database. The format of the input file to be imported is the same as the input file mentioned in the "IP Selection" section.

Sample format for `demo_database_text.txt`
NOTE: The delimiter of .txt file should be ";"
```
#This is a comment line
#IP/Host Name/FQDN(Necessary);User Name(Optional);Password(Optional)
10.14.56.52;username;passsword
10.14.56.123;username;passsword
```

Sample format for `demo_database_text.csv`
NOTE: The column names of .csv file should be IP_HostName_FQDN,Username,Password (case-sensitive) and the delimiter of should be ","
```
#This is a comment line
IP_HostName_FQDN,Username,Password
10.14.56.52,username,passsword
10.15.2.1,username,password
vp2-amd-1-1-node1,username,password
```

Updating the database to add IP/HostName/FQDN entries with an imported file(.txt/.csv) using add operation:
- `python3 database_update.py -f demo_database_text.txt -o add`
```
Please enter the database password
Password:
INFO: Before performing any database operation, Database is empty!!

INFO: Final IP_HostName_FQDNs entries in database are 10.14.56.52, 10.14.56.123
```

- `cat demo_database_text.txt`
```
#This is a comment line
10.14.56.52;username;passsword
10.14.56.72;username;passsword
10.14.56.123;username;passsword
```
- `python3 database_update.py -f demo_database_text.txt`
```
Enter the operation to be performed on the database, Choose A/a or B/b or C/c
A)Add B)Delete C)View
a
Please enter the database password
Password:

INFO: Table already exists, appending the data if any

INFO: Before performing any database operation, IP_HostName_FQDNs entries in database are
10.14.56.52, 10.14.56.123

INFO: Given 10.14.56.52 is already in the database and will be updated with the latest credentials
provided in input file.
INFO: Given 10.14.56.123 is already in the database and will be updated with the latest
credentials provided in input file.

NOTE: The credentials of the following IP_HostName_FQDNs were updated successfully in the
database: 10.14.56.52, 10.14.56.123

INFO: Final IP_HostName_FQDNs entries in database are 10.14.56.52, 10.14.56.123, 10.14.56.72
```

Using prompts to update the database by adding IP/HostName/FQDN entries using add operation:
- `python3 database_update.py`
```
Enter the operation to be performed on the database, Choose A/a or B/b or C/c
A)Add B)Delete C)View
a
Please enter the database password
Password:

INFO: Table already exists, appending the data if any

INFO: Before performing any database operation, IP_HostName_FQDNs entries in database are
10.14.56.52, 10.14.56.123, 10.14.56.72

Enter IP_HostName_FQDNs to be added/updated to the database or Enter 'q' to quit
10.5.1.41
```

```
Enter 10.5.1.41 Username: username
Enter 10.5.1.41 Password:
Enter IP Address or Hostname to be added/updated to the database or Enter 'q' to quit
10.4.5.1
Enter 10.4.5.1 Username:
Enter 10.4.5.1 Password:
WARNING: Missing credentials for 10.4.5.1 will not be appended to database
Enter IP_HostName_FQDNs to be added/updated to the database or Enter 'q' to quit
q

INFO: Final IP_HostName_FQDNs entries in database are 10.14.56.52, 10.14.56.123, 10.14.56.72,
10.5.1.41
```

When the incorrect password is entered, an error message is displayed:
- python3 database_update.py

```
Please enter the database password
Password:
Traceback (most recent call last):
  File "database_update.py", line 40, in <module>
    obj = sqlitewrapper.SqliteCipher(dataBasePath="pysqlitecipher.db" , checkSameThread=False ,
password=database)
  File "/usr/lib/python3.6/site-packages/pysqlitecipher/sqlitewrapper.py", line 100, in __init__
    raise RuntimeError("password does not match to password used to create data base")
RuntimeError: password does not match to password used to create data base
```

Updating the existing IP/HostName/FQDN entries in the database with new credentials using add operation:
- python3 database_update.py

```
Enter the operation to be performed on the database, Choose A/a or B/b or C/c
A)Add B)Delete C)View
a
Please enter the database password
Password:

INFO: Table already exists, appending the data if any

INFO: Before performing any database operation, IP_HostName_FQDNs entries in database are
10.14.56.52, 10.14.56.123, 10.14.56.72, 10.5.1.41

Enter IP_HostName_FQDNs to be added/updated to the database or Enter 'q' to quit
10.14.56.123
INFO: Given 10.14.56.123 is already in the database and will be updated with the following given
latest credentials.
Enter 10.14.56.123 Username: username
Enter 10.14.56.123 Password:
Enter IP_HostName_FQDNs to be added/updated to the database or Enter 'q' to quit
10.14.56.52
INFO: Given 10.14.56.52 is already in the database and will be updated with the following given
latest credentials.
Enter 10.14.56.52 Username: username
Enter 10.14.56.52 Password:
Enter IP_HostName_FQDNs to be added/updated to the database or Enter 'q' to quit
q

NOTE: The credentials of the following IP_HostName_FQDNs were updated successfully in the
database: 10.14.56.123, 10.14.56.52

INFO: Final IP_HostName_FQDNs entries in database are 10.14.56.52, 10.14.56.123, 10.14.56.72,
10.5.1.41
```

Using prompts to update the database by deleting some IP/HostName/FQDN entries using delete operation:
- python3 database_update.py

```
Enter the operation to be performed on the database, Choose A/a or B/b or C/c
A)Add B)Delete C)View
b
Please enter the database password
Password:
```

```
INFO: Table already exists

INFO: Before performing any database operation, IP_HostName_FQDNs entries in database are
10.14.56.52, 10.14.56.72, 10.5.1.41

Enter the IP_HostName_FQDNs to be deleted or Enter 'q' to quit: 10.14.56.72
Enter the IP_HostName_FQDNs to be deleted or Enter 'q' to quit: 10.14.56.72
WARNING: Wrong input  10.14.56.72  is given or there is no given entry in database.. Please try
again
Enter the IP_HostName_FQDNs to be deleted or Enter 'q' to quit: q
INFO: The following IP_HostName_FQDNs are deleted successfully from the database: 10.14.56.72

INFO: Final IP_HostName_FQDNs entries in database are 10.14.56.52, 10.5.1.41
```

Updating the database by deleting IP/HostName/FQDN entries with an imported file(.txt/.csv) using delete operation:

NOTE: It is not mandatory to provide the credentials of IP/HostNames/FQDNs while deleting list of IP/HostNames/FQDNs using .txt/.csv files.

- cat demo_database.csv

```
IP_HostName_FQDN,Username,Password
10.14.56.52
10.3.2.1,username
10.34.1.35,username,passssword
10.42.13.3,
```

- python3 database_update.py -o delete -f demo_database.csv

```
Please enter the database password
Password:

INFO: Table already exists

INFO: Before performing any database operation, IP_HostName_FQDNs entries in database are
10.55.2.1, 10.14.56.52, 10.14.56.123, 10.33.2.1, 10.34.1.35, 10.42.13.3

WARNING: Wrong input  10.3.2.1  is given or there is no given entry in database.. Please try again
INFO: The following IP_HostName_FQDNs are deleted successfully from the database: 10.14.56.52,
10.34.1.35, 10.42.13.3
WARNING: The following IP_HostName_FQDNs cannot be deleted from the database as there are no
entries of these IP_HostName_FQDNs in the database: 10.3.2.1

INFO: Final IP_HostName_FQDNs entries in database are 10.55.2.1, 10.14.56.123, 10.33.2.1
```

Checking IP/HostName/FQDN entries in the database using view operation:

- python3 database_update.py -f demo_database.csv -o VIEW

```
Invalid Input... exiting
 INFO: VIEW operation does not need any input file
```

- python3 database_update.py -f demo_database.csv

```
Enter the operation to be performed on the database, Choose A/a or B/b or C/c
A)Update B)Delete C)View
c
Invalid Input... exiting
 INFO: VIEW operation does not need any input file
```

- python3 database_update.py -o View

```
Please enter the database password
Password:

INFO: Table already exists

INFO: Final IP_HostName_FQDNs entries in database are 10.55.2.1, 10.14.56.123, 10.33.2.1
```

IP selection

Several forms of target parameter -t cause the default list.txt credential file or file passed with the -f flag to be scanned to identify hosts and their corresponding credentials. (.csv) file can also be passed as an input file, The column headers to be given are IP_HostName_FQDN, Username, and Password. If no target parameter is passed, the credentials should be present in the files chosen as input.

An example of `list.txt` follows:
```
# list.txt
#
# This file may contain one or more IP or Host names and credentials.
# A '#' as the first character on a line makes it a comment line.
#
#IP/Host Name/FQDN(Necessary);User Name(Optional);Password(Optional)
#--------------;--------------;--------------------------------
10.12.23.123;username;password
Hostname1;myuser;mypass
FQDN1;myuser;mypass
```
There can be no blank lines in this file. A comment line starts with "#".

• A single IP address or hostname or FQDN can be specified along with credentials on the command line. The `list.txt` file is not used in this case.
```
-t 192.168.1.5,username,password
-t Hostname1,username,password
-t FQDN1,username,password
```

• This form of the command does not require that USERNAME and PASSWORD be specified in the `list.txt` file, as it prompts for the credentials for each entry in the list.txt or any file passed as input:
```
-t promptall
```

• A single IP or host name or FQDN is prompted for by using the "prompt" version of the targets command. IP or DNS, USERNAME, and PASSWORD is requested.
```
-t prompt
```

• A single IP or host name or FQDN followed by "prompt" is used when the USERNAME and PASSWORD are to be obtained via prompts.
```
-t IP,prompt
-t 10.234.12.123,prompt
-t HostName,prompt
-t FQDN1,prompt
```

To select credentials from the database, choose DB mode. The tool scans the IP/HostName/FQDN in the input file and accesses the credentials from database when the correct database password is passed as the prompt, an example of list.txt without credentials is as follows:

-db flag for Database.

```
# list.txt
#
# This file may contain one or more IP or Host names and credentials.
# A '#' as the first character on a line makes it a comment line.
#
#IP/Host Name/FQDN(Necessary);User Name(Optional);Password(Optional)
#--------------
10.12.23.123
Hostname1
FQDN1
```

Running the Utility for Reports

Node Discovery Report:

The tool allows the server administrator to generate a report that lists all of the HPC nodes discovered by the tool:

- An IP address or host name or FQDN in addition to the target parameter

- An input file (.csv or text file) that contains a list of IP addresses or host names or FQDNs and corresponding credentials in the same file or in a database.

In this report, the output generated is a list of the IP address, node hostname, node FQDN and HPE Server model type, sorted by IP address.

The -d option generates a Node Discovery Report

```
• python3 Platform_Firmware_Update_Tool.py -d -f new_input_file.txt
INFO: No session password and session username common to all nodes was passed as arguments, Parsing the file
HPE Node Discovery Report

11/30/22 19:35:41 PM
2 items found

Sl No    IP Address        HostName                                     FQDN            Model
   1    10.14.56.52    AMIB47AF1B4A1D5          AMIB47AF1B4A1D5.its.hpecorp.net  HPE Cray XD220v
   2   15.119.206.20   AMI74563C48945F  AMI74563C48945F.asiapacific.hpqcorp.net   HPE Cray XD670

INFO: Saved the 30_11_2022_193541NodeDiscoveryReport.csv in report

• python3 Platform_Firmware_Update_Tool.py -d -t AMIB47AF1B4D11D,admin,superuser
INFO: Spliting IP_HostName_FQDN,Username,Password to extract credentials
HPE Node Discovery Report

04/12/23 12:17:55 PM
1 items found

Sl No        HostName                              FQDN     IP Address          Model
   1    AMIB47AF1B4D11D  AMIB47AF1B4D11D.its.hpecorp.net   10.14.56.123   HPE Cray XD295v

INFO: Saved the 12_04_2023_121755NodeDiscoveryReport.csv in report
```

Node Inventory Report:

The tool allows the server administrator to generate a report that lists all the HPC nodes discovered by the tool.

- An IP address or host name. in addition to the target parameter

- An input file (.csv or text file) that contains a list of IP addresses or host names and corresponding credentials in the same file or in a database

In this report, the output generated is a list of the IP address, node hostname, server model, BMC version, and BIOS version of a compute node type sorted by IP address.

The -i option generates a Node Inventory Report

Example of Node Inventory Report:

```
• python3 Platform_Firmware_Update_Tool.py -i -t 10.14.56.52,prompt
INFO: Prompts Username and Password for 10.14.56.52
Enter the Username: admin
Enter the Password:
HPE Node Inventory Report

04/12/23 12:20:08 PM
1 items found
```

```
Sl No    IP Address       HostName       BIOS Ver BMC Ver          Model
     1  10.14.56.52  AMIB47AF1B4A1D5  CU2K_5.29_v1.01  1.12.0  HPE Cray XD220v


INFO: Saved the 12_04_2023_122008NodeInventoryReport.csv in report
```

All Firmware Inventory Report:

The tool allows the server administrator to generate a report that lists all the HPC nodes discovered by the tool .

- An IP address or host name, in addition to the target parameter

- An input file (.csv or text file) that contains a list of IP addresses or host names and corresponding credentials in the same file or in a database

In this report, the output generated is a list of the IP address, node hostname, server model followed by various firmware version details of a compute node type sorted by IP address.

The -a option generates All firmware inventory report

Example of All Firmware Inventory Report:

- `cat list.txt`

```
#IP/Host Name/FQDN(Necessary);User Name(Optional);Password(Optional)
AMIB47AF1B4D11D;admin;superuser
10.14.56.52;admin;superuser
```

- `python3 database_update.py -o view`

```
Please enter the database password
Password:

INFO: Table already exists

INFO: Final IP_HostName_FQDNs entries in database are AMIB47AF1B4D11D, 15.119.206.20,
AMI74563C48945F.asiapacific.hpqcorp.net, 10.14.56.52
```

- `python3 Platform_Firmware_Update_Tool.py -a -db`

```
INFO: Extracting Credentials from database for IP_HostName_FQDN in input text file
Enter the Database Password:
HPE All Firmware Inventory Report

04/13/23 06:29:20 AM
2 items found

 Sl No        HostName                          FQDN    IP Address       BIOS Ver BMC Ver
HDDBPPIC Ver MainCPLD Ver  PDBPIC Ver PFRCPLD Ver          Model
     1  AMIB47AF1B4D11D  AMIB47AF1B4D11D.its.hpecorp.net  10.14.56.123  CA2K_5.27_v1.10  1.13.0
00.52.0000   13.13.0000   00.70.0000  15.15.0000  HPE Cray XD295v
     2  AMIB47AF1B4A1D5  AMIB47AF1B4A1D5.its.hpecorp.net   10.14.56.52  CU2K_5.29_v1.01  1.12.0
00.52.0000   27.27.0000  01.00.0000  16.16.0000  HPE Cray XD220v

INFO: Saved the 13_04_2023_062920NodeAllFirmwareInventoryReport.csv in report
```

NOTE: All generated reports are saved in.csv format in the /report directory.

Running the Utility for BMC and BIOS Update

The tool allows the server administrator to update the BMC and BIOS firmware of the nodes An IP address or host name or FQDN, in addition to the target parameter

- An input file (.csv or text file) that contains a list of IP addresses or host names or FQDNs and corresponding credentials in the same file or in a database
- The BMC or BIOS firmware details are to be populated in `FirmwareToDeploy.txt`.

```
An example of FirmwareToDeploy.txt as follows:
```

```
#FirmwareToDeploy.txt
#
# This file may contain one or more Server Model detail along with BMC/BIOS Firmware details to
be flashed.
# A '#' as the first character on a line makes it a comment line.
#
# Model;Firmware Type;Firmware Version;HPM file name
#-------------- -------------- --------------------
HPE Cray XD670;BMC;1.07.00;XD670_BMC_v1.07.hpm
#HPE Cray XD670;BIOS;0.08;CUXD670_5.29_v0.08.hpm
#HPE Cray XD670;BIOS;0.09;CUXD670_5.29_v0.09.hpm
HPE Cray XD670;BIOS;0.11;CUXD670_5.29_v0.11.hpm
#There cannot be any blank lines in this file. A line must be a comment line starting with "#"
```

In FirmwareToDeploy.txt, the following details are to be specified, separated by ";" in the same order:

> **Model Name**: The name of the model reported by Redfish.
> **Firmware Type**: It should be BMC or BIOS based, depending on the component to be updated.
> **Firmware Version**: Version to be updated as reported by device via redfish.
> **HPM file name**: Name of the HPM binary file.

To comment, "#" can be used, and no blank spaces are to be given in this text file.

The -z can be used for updating along with -c for choosing either BMC or BIOS to be updated. Based on the choice, all the BMC or BIOS components of the different server models mentioned in FirmwareToDeploy.txt will be updated. If component is not passed as a parameter, the prompt for component is displayed. It should be noted that only one firmware type (either BMC or BIOS) will be updated at a time. After flashing, a report on the update's status is displayed and .csv file generated based on the status is saved in update directory. The –P flag must be set to perform AC power cycle, which is required to reflect BIOS changes, ; power-cycling will be performed and subsequent reports will be generated based on this choice. By default, the existing version and the new version, if they are same, will not be updated; however, a force update can be performed using the '-F' flag.

Note: No AC power cycling is necessary for BMC.

Sample firmware update commands are mentioned below:

```
Python3 Platform_Firmware_Update_Tool.py -z -c BIOS -P
```
Note: Here it updates the nodes mentioned in the default file list.txt with the power argument set to do AC power cycling.

```
Python3 Platform_Firmware_Update_Tool.py -z -f newfile.txt -c BMC -F
```
Note: Here it updates the nodes mentioned in the file passed as an argument with the force install argument

```
Python3 Platform_Firmware_Update_Tool.py -t ip,username,password -z -c BMC
```
Note: Here it updates only one node mentioned in the target parameter

```
Python3 Platform_Firmware_Update_Tool.py -z -f newfile.txt -c BMC -db
```
Note: Here it updates the nodes mentioned in the file passed as an argument, and the credentials for them are in DB. The DB password is to be entered as a prompt

An example of a BMC update without Force when updating the same version.

```
   •  python3 Platform_Firmware_Update_Tool.py -z -c bmc -t 15.119.206.20,admin,MGEPD300111
INFO: Splitting IP_HostName_FQDN,Username,Password to extract credentials
HPE Firmware Update

INFO: BMC Update is Selected
WARNING: Update is halted because Force argument is not set, as the version is same as suggested
for the cluster having IP:  15.119.206.20 , Hostname:  AMI74563C48945F and FQDN:
AMI74563C48945F.asiapacific.hpqcorp.net
INFO: No update was done
```

An example of a BMC update with Force when updating the same version.

```
   •  python3 Platform_Firmware_Update_Tool.py -z -c bmc -t 15.119.206.20,admin,MGEPD300111 -F
INFO: Splitting IP_HostName_FQDN,Username,Password to extract credentials
```

```
HPE Firmware Update

INFO: BMC Update is Selected
****INFO: BMC Update Proceeding for: 0 Cray XD295v_XD220v_225v models, 1 Cray XD670 models
INFO: BMC Update v2.1 Proceeding for 15.119.206.20 and Firmware is preparing now, Do not cancel
process ****


INFO: Cray XD670: 1 Done
**** INFO: Following setups have successfully completed the BMC update: 15.119.206.20
**** INFO: Total 1 done ****
INFO: Please wait for reports to know the status of firmware update.
INFO: Sleeping for 5 minutes to let BMC reset to happen in the background
HPE Firmware Update Status Report

04/04/23 03:48:43 AM
1 items found, 1  success,  0  failure

 Sl No    IP Address       HostName                                 FQDN    Status  Pre-Ver
Post-Ver       Model
    1  15.119.206.20  AMI74563C48945F  AMI74563C48945F.asiapacific.hpqcorp.net  Success  1.07.00
1.07.00  HPE Cray XD670

INFO: The new directory for storing update records is created!

INFO: Saved the 04_04_2023_034843UpdateStatusReport_BMC.csv in update
```

An example of a BMC update with −D flag:
- python3 Platform_Firmware_Update_Tool.py -z -c bmc -D

```
INFO: No session password and session username common to all nodes was passed as arguments,
Parsing the file
HPE Firmware Update

INFO: BMC Update is Selected
****INFO: BMC Update Proceeding for: 2 Cray XD295v_XD220v_XD225v models, 0 Cray XD670 models
WARNING: Update is halted because Force argument is not set, as the version is same as suggested
for the cluster having IP: 10.14.56.123, Hostname: AMIB47AF1B4D11D and FQDN:
AMIB47AF1B4D11D.its.hpecorp.net
****INFO: BMC Update Proceeding for: 1 Cray XD295v_XD220v_XD225v models, 0 Cray XD670 models
INFO: BMC Update v2.1 Proceeding for 10.14.59.226 and Firmware is preparing now, Do not cancel
process ****
DEBUG: 10.14.59.226 Preparing
DEBUG: 10.14.59.226 Downloading
DEBUG: 10.14.59.226 Firmware is flashing now
INFO: Cray XD295v_XD220v_XD225v: 1 Done
DEBUG: 10.14.59.226 BMC update completed.
**** INFO: Following setups have successfully completed the BMC update: 10.14.59.226
**** INFO: Total 1 done ****
INFO: Please wait for reports to know the status of firmware update.
INFO: Sleeping for 5 minutes to let BMC reset to happen in the background
HPE Firmware Update Status Report
05/18/23 00:16:28 AM
INFO: 1 items found, 1 success, 0 failure

Sl No    IP Address        HostName                          FQDN    Status Pre-Ver Post-Ver
Model
    1  10.14.59.226  AMIB47AF1B4A1D5  AMIB47AF1B4A1D5.its.hpecorp.net  Success  1.13.0   1.12.0
HPE Cray XD220v

INFO: Saved the 18_05_2023_001628UpdateStatusReport_BMC.csv in update
```

An example of a BIOS update with -P, which will perform an AC power cycle, which is required for a BIOS update:

- python3 Platform_Firmware_Update_Tool.py -z -c Bios −P

```
WARNING:  list.txt has Duplicate entries for  AMI74563C48945F.asiapacific.hpqcorp.net
INFO: Only one entry for a cluster is sufficient for the firmware updation
WARNING:  list.txt has Duplicate entries for  10.14.56.52
INFO: Only one entry for a cluster is sufficient for the firmware updation
INFO: No session password and session username common to all nodes was passed as arguments,
Parsing the file
```

```
HPE Firmware Update

INFO: BIOS Update Selected
****INFO: BIOS Update Proceeding for: 1 HPE Cray XD220v models, 1 HPE Cray XD670v models
INFO: BIOS Update may take upto 20-25 minutes as it includes AC Power Cycling and Update Status
Display
INFO: 10.14.56.52 and AMIB47AF1B4A1D5 must be of a single cluster only
INFO: 15.119.206.20 and AMI74563C48945F must be of a single cluster only
INFO: BIOS Update v2.1 proceeding for 10.14.56.52 and Firmware is preparing now, Do not cancel
process ****
INFO: BIOS Update v2.1 proceeding for 15.119.206.20 and Firmware is preparing now, Do not cancel
process ****
INFO: Sleeping for 200 seconds for CrayXD670 to prepare flash area, update file and verify
firmware  15.119.206.20
INFO: Cray XD295v_XD220v_XD225v: 1 Done
INFO: Following setups have successfully completed the BIOS update: 10.14.56.52
INFO: Cray XD670: 1 Done
INFO: Following setups have successfully completed the BIOS update: 10.14.56.52, 15.119.206.20
**** INFO: Total 2 done ****
INFO: Please wait for reports to know the status of firmware update.
INFO: Sleeping for 5 minutes, working on BIOS Update in the Background
INFO: Performing System Reset in background. Please wait for some time to know the status of
System Reset.
INFO: Performing Chassis Reset in background. Please wait for some time to know the status of
Chassis Reset.
**** INFO: System reset SUCCESS for 10.14.56.52, 15.119.206.20
**** INFO: Chassis reset SUCCESS for 10.14.56.52, 15.119.206.20
INFO: Sleeping for 5 minutes. Allowing power_Cycle.py to complete and Update to Reflect
HPE Firmware Update Status Report
04/04/23 14:42:50 PM
2 items found, 2  success,  0  failure


 Sl No     IP Address        HostName                                FQDN    Status
Pre-Ver            Post-Ver          Model
    1    10.14.56.52  AMIB47AF1B4A1D5          AMIB47AF1B4A1D5.its.hpecorp.net  Success
CU2K_5.29_v1.00     CU2K_5.29_v1.30  HPE Cray XD220v
    2  15.119.206.20  AMI74563C48945F  AMI74563C48945F.asiapacific.hpqcorp.net  Success
CUXD670_5.29_v0.11  CUXD670_5.29_v1.00   HPE Cray XD670

INFO: Saved the 04_04_2023_144250UpdateStatusReport_BIOS.csv in update
```

An example of a BIOS update without -P and no -c :

- python3 Platform_Firmware_Update_Tool.py -db -z

```
Enter the Database Password:
HPE Firmware Update

Enter the type of firmware to Update, Choose A/a or B/b
A)BMC B)BIOS
b
INFO: BIOS Update Selected
****INFO: BIOS Update Proceeding for: 1 HPE Cray XD220v models, 0 HPE Cray XD670v models
INFO: AC Power Cycling is not chosen for BIOS Update
INFO: Update Proceeding for: 10.14.56.52
INFO: BIOS Update v2.1 proceeding for 10.14.56.52 and Firmware is preparing now, Do not cancel
process ****
INFO: Cray XD295v_XD220v_XD225v: 1 Done
INFO: Following setups have successfully completed the BIOS update: 10.14.56.52
**** INFO: Total 1 done ****
INFO: Please wait for reports to know the status of firmware update.
INFO: The version changes for BIOS will not be reflected unless we complete an Chassis reset and
System reset
INFO: Please do the same for the BIOS version change, It may take around few minutes for version
to reflect
INFO: Perform Inventory report to know the status
INFO: Exiting
```

AC power cycling for a setup can be done in the Power Control section of the GUI obtained using the BMC IP (https:// BMC_IP
/#login).

Choose the "power cycle" option or use the following set of POST Redfish commands for AC power cycling:

/redfish/v1/Systems/Self/Actions/ComputerSystem.Reset
/redfish/v1/Chassis/Self/Actions/Chassis.Reset

The body for the POST call is {"ResetType": "ForceRestart"}.

An example of a BIOS update without and with -F flag :

- `cat FirmwareToDeploy.txt`

```
#This a Comment Line
#Model Name(Necessary) ;Firmware Type(Necessary) ;Firmware Version(Necessary) ;File
Name(Necessary)
HPE Cray XD670;BIOS;CUXD670_5.29_v1.00;CUXD670_5.29_v1.00.hpm
```

- `python3 Platform_Firmware_Update_Tool.py -z -c BIOS -P -t 15.119.206.20,admin,MGEPD300111 -D`

```
INFO: Spliting IP_HostName_FQDN,Username,Password to extract credentials
HPE Firmware Update

INFO: BIOS Update Selected

INFO: BIOS Update may take upto 20-25 minutes as it includes AC Power Cycling and Update Status
Display
WARNING: Update is halted because Force argument is not set, as the version is same as suggested
for the cluster having IP: 15.119.206.20 , Hostname:  AMI74563C48945F and FQDN:
AMI74563C48945F.asiapacific.hpqcorp.net
INFO: No update was done
```

- `python3 Platform_Firmware_Update_Tool.py -z -c BIOS -P -F -D`
  `AMI74563C48945F.asiapacific.hpqcorp.net,admin,MGEPD300111`

```
INFO: Spliting IP_HostName_FQDN,Username,Password to extract credentials
HPE Firmware Update

INFO: BIOS Update Selected
****INFO: BIOS Update Proceeding for: 0 HPE Cray XD220v models, 1 HPE Cray XD670v models
INFO: BIOS Update may take upto 20-25 minutes as it includes AC Power Cycling and Update Status
Display
INFO: BIOS Update v2.1 proceeding for AMI74563C48945F.asiapacific.hpqcorp.net and Firmware is
preparing now, Do not cancel process ****

INFO: Sleeping for 200 seconds for CrayXD670 to prepare flash area, update file and verify
firmware  AMI74563C48945F.asiapacific.hpqcorp.net

INFO: Cray XD670: 1 Done
DEBUG: AMI74563C48945F.asiapacific.hpqcorp.net BIOS update completed.
INFO: Following setups have successfully completed the BIOS update:
AMI74563C48945F.asiapacific.hpqcorp.net
**** INFO: Total 1 done ****
INFO: Please wait for reports to know the status of firmware update.
Sleeping for 5 minutes, working on BIOS Update in the Background
INFO: Performing System Reset in background. Please wait for some time to know the status of
System Reset.
DEBUG: System Reset successful for AMI74563C48945F.asiapacific.hpqcorp.net
INFO: Performing Chassis Reset in background. Please wait for some time to know the status of
Chassis Reset.
DEBUG: Chassis Reset successful for AMI74563C48945F.asiapacific.hpqcorp.net
**** INFO: System reset SUCCESS for AMI74563C48945F.asiapacific.hpqcorp.net
**** INFO: Chassis reset SUCCESS for AMI74563C48945F.asiapacific.hpqcorp.net
INFO: Sleeping for 5 minutes. Allowing power_Cycle.py to complete and Update to Reflect
HPE Firmware Update Status Report
04/04/23 10:30:37 AM
1 items found, 1  success, 0  failure

Sl No       HostName    IP Address                                FQDN    Status
Pre-Ver         Post-Ver         Model
    1  AMI74563C48945F  15.119.206.20  AMI74563C48945F.asiapacific.hpqcorp.net  Success
CUXD670_5.29_v1.00  CUXD670_5.29_v1.00  HPE Cray XD670
```

```
INFO: Saved the 04_04_2023_103037UpdateStatusReport_BIOS.csv in update
```
NOTE: Here, we are trying to update the same version as the existing version.

Scaling

BMC or BIOS firmware is one component of the firmware installation tool. The firmware installation tool permits simultaneous node updates. At most, 64 nodes can be simultaneously updated. Only 64 nodes can be updated at a time, and if the file containing the IP and its credentials contains more than 64 nodes, only the first 64 nodes will be processed.

Documentation feedback

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