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## **Cray XD Platform Firmware Update Tool User Guide**

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Table of Contents

**Notices.....2**

**Acknowledgments .....2**

**Overview.....4**

**Supported operating systems .....4**

**Prerequisites .....4**

**Supported Target Platforms for Updates .....4**

**Downloading and Installing PFUT.....4**

    Firmware files .....5

**Command-Line options digest .....5**

**Update the database with the IP/HostName and its credentials.....6**

**IP selection .....9**

**Running the Utility for Reports.....10**

    Node Discovery Report:.....10

    Node Inventory Report:.....11

    All Firmware Inventory Report:.....11

**Running the Utility for BMC and BIOS Update .....12**

**Scaling.....16**

**Documentation feedback .....17**

# 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. 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

## Downloading and Installing PFUT

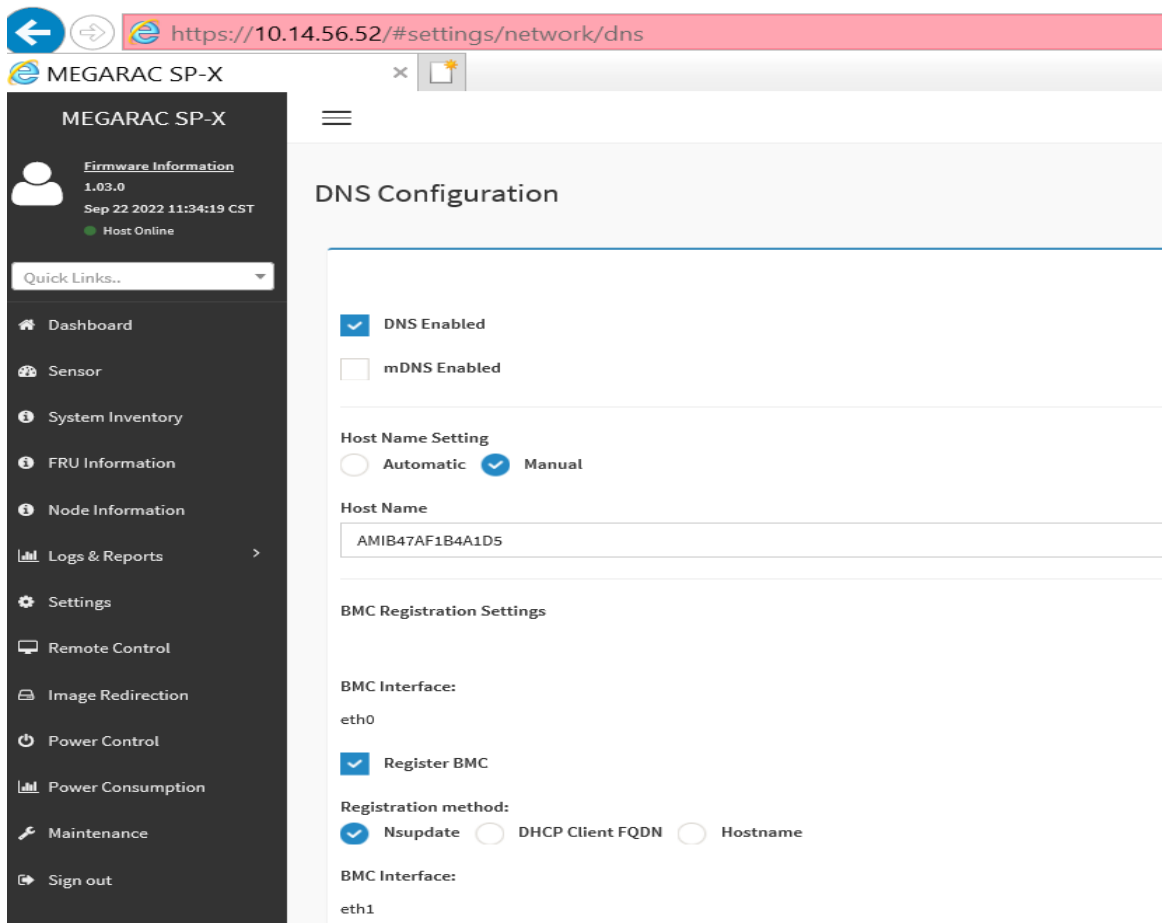
- Download Platform Firmware Update Tool (PFUT) from < [https://github.com/HewlettPackard/CrayXD\\_PFUT](https://github.com/HewlettPackard/CrayXD_PFUT) > Install PFUT by unzipping the CrayXD\_PFUT-master.zip package into the Management Workstation, from which the user chooses to deploy the firmware.
- **Note:** IP refers to IP addresses or it can be Host Names of the systems.
- 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 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 exactly the DNS configured host names. They can be found in GUI as here.



## 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, prompt**

Requests IP Username and Password

**-t promptall**

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

**-t IP/HostName,UNAM,PWD**

To specify a single target.

**-t prompt**

Prompts for one target's IP address, 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 and hostnames in the input file need to be extracted from the database, this option should be set.

**-f --file**

Name of file with IP/Hostnames 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, and Server Model.

**-i --inventory**

The IP Address, Host Name, 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.

**-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.

## Update the database with the IP/HostName 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** 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 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
```

```
vp2-amd-1-1-node1;username;passsword
```

```
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,User,Password (case-sensitive) and the delimiter of should be “,”

```
#This is a comment line
IP,User,Password
10.14.56.52,username,passsword
10.15.2.1,username,passsword
vp2-amd-1-1-node1,username,passsword
```

Updating the database to add IP/HostName entries with an imported file(txt/csv) using add operation:

```
cat demo_database_text.txt
#This is a comment line
vp2-amd-1-1-node1,username,passsword
10.14.56.52,username,passsword
10.14.56.123,username,passsword
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 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
vp2-amd-1-1-node1;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 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 IPs/HostNames were updated successfully in the database: 10.14.56.52, 10.14.56.123

INFO: Final IP/Hostname 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 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 entries in database are 10.14.56.52, 10.14.56.123, 10.14.56.72

Enter IP Address or Hostname 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 Address or Hostname to be added/updated to the database or Enter 'q' to quit  
q

INFO: Final IP/Hostname 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 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 entries in database are 10.14.56.52, 10.14.56.123, 10.14.56.72, 10.5.1.41

```
Enter IP Address or Hostname 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 Address or Hostname 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 Address or Hostname to be added/updated to the database or Enter 'q' to quit
q
```

NOTE: The credentials of the following IPs/HostNames were updated successfully in the database: 10.14.56.123, 10.14.56.52

INFO: Final IP/Hostname 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 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 entries in database are 10.14.56.52, 10.14.56.72, 10.5.1.41

```
Enter the IP/Hostname to be deleted or Enter 'q' to quit: 10.14.56.72
Enter the IP/Hostname 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 to be deleted or Enter 'q' to quit: q
INFO: The following IPs/HostNames are deleted successfully from the database: 10.14.56.72

INFO: Final IP/Hostname entries in database are 10.14.56.52, 10.5.1.41

Updating the database by deleting IP/HostName entries with an imported file(.txt/.csv) using delete operation:
NOTE: It is not mandatory to provide the credentials of IP/HostNames while deleting list of IP/HostNames using .txt/.csv files.
cat demo_database.csv
IP,User,Password
10.14.56.52
10.3.2.1,username
10.34.1.35,username,password
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 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 IPs/HostNames are deleted successfully from the database: 10.14.56.52,
10.34.1.35, 10.42.13.3
WARNING: The following IPs/HostNames cannot be deleted from the database as there are no
entries of these IPs/HostNames in the database: 10.3.2.1

INFO: Final IP/Hostname entries in database are 10.55.2.1, 10.14.56.123, 10.33.2.1

Checking IP/HostName 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 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, User, 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/HostName (Necessary); username (Optional); password (Optional)
#-----;-----;-----

```

```
10.12.23.123;username;password
Hostname1;myuser;mypass
```

There can be no blank lines in this file. A comment line starts with “#”.

- A single IP address or hostname 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
```

- 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 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 DNS 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
```

To select credentials from the database, choose DB mode. The tool scans the IP 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/HostName
#-----
10.12.23.123
Hostname1
```

## 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 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, 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	Model
1	10.14.56.123	AMIB47AF1B4D11D	HPE Cray XD295v
2	10.14.56.52	AMIB47AF1B4A1D5	HPE Cray XD220v

INFO: Saved the 30\_11\_2022\_193541NodeDiscoveryReport.csv in report

```
python3 Platform_Firmware_Update_Tool.py -d -t vp2-amd-1-1-nodel,username1,password1
INFO: Splitting IP Address/HostName,Username,Password to extract credentials
HPE Node Discovery Report
```

12/18/22 18:35:41 PM

1 items found

Sl No	HostName	IP Address	Model
1	vp2-amd-1-1-nodel	10.93.17.124	HPE Cray XD225v

INFO: Saved the 12\_18\_2022\_183541NodeDiscoveryReport.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 user name: admin
Enter the Password:
HPE Node Inventory Report
```

11/30/22 19:37:32 PM

2 items found

Sl No	IP Address	HostName	BIOS Ver	BMC Ver	Model
1	10.14.56.123	AMIB47AF1B4D11D	01.04.0000	1.03.0	HPE Cray XD295v
2	10.14.56.52	AMIB47AF1B4A1D5	00.86.0000	1.03.0	HPE Cray XD220v

INFO: Saved the 30\_11\_2022\_193732NodeInventoryReport.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:

```
python3 Platform_Firmware_Update_Tool.py -a -db
INFO: Extracting Credentials from database for IP Address/HostName's in input text file
Enter the Database Password:
HPE All Firmware Inventory Report

11/30/22 19:38:41 PM
2 items found

Sl No    IP Address      HostName      BIOS Ver BMC Ver HDDBPPIC Ver MainCPLD Ver PDBPIC Ver
PFRCPLD Ver      Model
1 10.14.56.123 AMIB47AF1B4D11D 01.04.0000 1.03.0 00.52.0000 13.13.0000 00.70.0000
15.15.0000 HPE Cray XD295v
2 10.14.56.52 AMIB47AF1B4A1D5 00.86.0000 1.03.0 00.52.0000 27.27.0000 01.00.0000
16.16.0000 HPE Cray XD220v
INFO: Saved the 30_11_2022_193841NodeAllFirmwareInventoryReport.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, 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
- 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 XD295v;BMC;1.04.0;BMC_13.2_Signed_v1.04.hpm
HPE Cray XD220v;BIOS;00.87.0000;CU2K_5.28_v0.87_10052022_signed.bin.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 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:

```
python3 Platform_Firmware_Update_Tool.py -z -c BMC -db
```

```
Enter the Database Password:
```

```
HPE Firmware Update
```

```
INFO: BMC Update Selected
```

```
INFO: Update Proceeding for: 10.14.56.123
```

```
INFO: Update Proceeding for: 10.14.56.52
```

```
INFO: 10.14.56.52 BMC Update v1.1
```

```
INFO: 10.14.56.123 BMC Update v1.1
```

```
INFO: 10.14.56.52 **** Firmware is preparing now, Do not cancel process ****
```

```
INFO: 10.14.56.52 Preparing
```

```
INFO: 10.14.56.123 **** Firmware is preparing now, Do not cancel process ****
```

```
INFO: 10.14.56.123 Preparing
```

```
INFO: 10.14.56.52 Downloading
```

```
INFO: 10.14.56.52 VerifyingFirmware
```

```
INFO: 10.14.56.123 Downloading
```

```
INFO: 10.14.56.123 VerifyingFirmware
```

```
INFO: 10.14.56.52 Firmware is flashing now
```

```
INFO: 10.14.56.123 Firmware is flashing now
```

```
INFO: 2 In Progress      INFO: 0 Done
```

```
INFO: 2 In Progress      INFO: 0 Done
```

```
INFO: 2 In Progress      INFO: 0 Done
```

```
INFO: 2 In Progress      INFO: 0 Done
```

```
INFO: 2 In Progress      INFO: 0 Done
```

```
INFO: 2 In Progress      INFO: 0 Done
```

```
**** INFO: 1 Done      INFO: 10.14.56.52 "FlashPercentage":"100% done."
```

```
**** INFO: 2 Done      INFO: 10.14.56.123 "FlashPercentage":"100% done."
```

```
**** INFO: 10.14.56.52 BMC update completed. ****
```

```
**** INFO: 10.14.56.123 BMC update completed. ****
```

```
INFO: Sleeping for 5 minutes, To let BMC reset to happen in the background
```

```
HPE Firmware Update Status Report
```

```
10/19/22 16:44:26 PM
```

```
2 items found, 2 success, 0 failure
```

Sl No	IP Address	HostName	Status	Pre-Ver	Post-Ver	Model
1	10.14.56.123	AMIB47AF1B4D11D	Success	1.03.0	1.04.0	HPE Cray XD295v
2	10.14.56.52	AMIB47AF1B4A1D5	Success	1.03.0	1.04.0	HPE Cray XD220v

```
INFO: Saved the 19_10_2022_164426UpdateStatusReport_BMC.csv in update
```

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

```
python3 Platform_Firmware_Update_Tool.py -z -c BMC -db
```

Enter the Database Password:  
HPE Firmware Update

INFO: BMC Update Selected  
INFO: Update is halted because Force argument is not enabled as the version is same as suggested for: 10.14.56.123  
INFO: Update is halted because Force argument is not enabled as the version is same as suggested for: 10.14.56.52  
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 -db -F  
Enter the Database Password:  
HPE Firmware Update

INFO: BMC Update Selected  
INFO: Update Proceeding for: 10.14.56.123  
INFO: Update Proceeding for: 10.14.56.52  
INFO: 10.14.56.52 BMC Update v1.1  
INFO: 10.14.56.123 BMC Update v1.1  
INFO: 10.14.56.52 \*\*\*\* Firmware is preparing now, Do not cancel process \*\*\*\*  
  
INFO: 10.14.56.52 Preparing  
INFO: 10.14.56.123 \*\*\*\* Firmware is preparing now, Do not cancel process \*\*\*\*

INFO: 10.14.56.123 Preparing  
INFO: 10.14.56.52 Downloading  
INFO: 10.14.56.52 VerifyingFirmware  
INFO: 10.14.56.123 Downloading  
INFO: 10.14.56.123 VerifyingFirmware  
INFO: 10.14.56.52 Firmware is flashing now  
INFO: 10.14.56.123 Firmware is flashing now

\*\*\*\* INFO: 1 Done      INFO: 10.14.56.52 "FlashPercentage":"100% done."  
  
\*\*\*\* INFO: 2 Done      INFO: 10.14.56.123 "FlashPercentage":"100% done."  
\*\*\*\* INFO: 10.14.56.52 BMC update completed. \*\*\*\*  
\*\*\*\* INFO: 10.14.56.123 BMC update completed. \*\*\*\*  
INFO: Sleeping for 5 minutes, To let BMC reset to happen in the background  
HPE Firmware Update Status Report  
10/19/22 16:51:48 PM  
2 items found, 2 success, 0 failure

Sl No	IP Address	HostName	Status	Pre-Ver	Post-Ver	Model
1	10.14.56.123	AMIB47AF1B4D11D	Success	1.03.0	1.03.0	HPE Cray XD295v
2	10.14.56.52	AMIB47AF1B4A1D5	Success	1.03.0	1.03.0	HPE Cray XD220v

INFO: Saved the 19\_10\_2022\_165148UpdateStatusReport\_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 -db  
Enter the Database Password:  
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  
INFO: Update Proceeding for: 10.14.56.52  
INFO: 10.14.56.52 BIOS Update v1.1  
INFO: 10.14.56.52 \*\*\*\* Firmware is preparing now, Do not cancel process \*\*\*\*  
  
INFO: 10.14.56.52 Preparing  
INFO: 10.14.56.52 Firmware is flashing now

INFO: 1 In Progress      INFO: 0 Done  
INFO: 1 In Progress      INFO: 0 Done

```

**** INFO: 1 Done      INFO: 10.14.56.52 "FlashPercentage":"100% done."
**** INFO: 10.14.56.52 BIOS update completed. ****
INFO: Sleeping 5 minutes, Working on BIOS Update in the Background
INFO: Performing System Reset
INFO: System Reset successful for 10.14.56.52
INFO: Performing Chassis Reset
INFO: Chassis Reset successful for 10.14.56.52
INFO: Sleeping 5 minutes allow Power-Cycle to complete and Update to Reflect
HPE Firmware Update Status Report
10/14/22 11:09:38 AM
2 items found, 2 success, 0 failure

```

Sl No	IP Address	HostName	Status	Pre-Ver	Post-Ver	Model
1	10.14.56.123	AMIB47AF1B4D11D	Success	01.03.0000	01.04.0000	HPE Cray XD295v
2	10.14.56.52	AMIB47AF1B4A1D5	Success	00.87.0000	00.86.0000	HPE Cray XD220v

INFO: Saved the 13\_10\_2022\_052007UpdateStatusReport\_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: AC Power Cycling is not chosen for BIOS Update
INFO: Update Proceeding for: 10.14.56.52
INFO: 10.14.56.52 BIOS Update v1.1
INFO: 10.14.56.52 **** Firmware is preparing now, Do not cancel process ****

INFO: 10.14.56.52 Preparing
INFO: 10.14.56.52 Firmware is flashing now

INFO: 1 In Progress      INFO: 0 Done
**** INFO: 1 Done      INFO: 10.14.56.52 "FlashPercentage":"100% done."
**** INFO: 10.14.56.52 BIOS update completed. ****
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](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 XD295v;BMC;1.04.0;BMC_13.2_Signed_v1.04.hpm
HPE Cray XD220v;BMC;1.04.0;BMC_13.2_Signed_v1.04.hpm
HPE Cray XD220v;BIOS;00.86.0000;CU2K_5.28_v0.86_09222022_signed.bin.hpm
HPE Cray XD295v;BIOS;01.03.0000;CA2K_5.27_v1.03_09222022_signed.bin.hpm

python3 Platform_Firmware_Update_Tool.py -db -z -c Bios -P
Enter the Database Password:
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
INFO: Update is halted because Force argument is not enabled as the version is same as
suggested for: 10.14.56.52
INFO: Update is halted because Force argument is not enabled as the version is same as
suggested for: 10.14.56.123
INFO: No update was done

```

```

python3 Platform_Firmware_Update_Tool.py -db -z -c Bios -P -F
Enter the Database Password:
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
INFO: Update Proceeding for: 10.14.56.52
INFO: Update Proceeding for: 10.14.56.123
INFO: 10.14.56.52 BIOS Update v1.1
INFO: 10.14.56.123 BIOS Update v1.1
INFO: 10.14.56.52 **** Firmware is preparing now, Do not cancel process ****

```

```

INFO: 10.14.56.52 Preparing
INFO: 10.14.56.123 **** Firmware is preparing now, Do not cancel process ****

```

```

INFO: 10.14.56.123 Preparing
INFO: 10.14.56.52 Firmware is flashing now
INFO: 10.14.56.123 Firmware is flashing now

```

```

**** INFO: 1 Done INFO: 10.14.56.52 "FlashPercentage":"100% done."

```

```

**** INFO: 2 Done INFO: 10.14.56.123 "FlashPercentage":"100% done."

```

```

**** INFO: 10.14.56.52 BIOS update completed. ****

```

```

**** INFO: 10.14.56.123 BIOS update completed. ****

```

```

INFO: Sleeping 5 minutes, Working on BIOS Update in the Background

```

```

INFO: Performing System Reset

```

```

INFO: System Reset successful for 10.14.56.52

```

```

INFO: System Reset successful for 10.14.56.123

```

```

INFO: Performing Chassis Reset

```

```

INFO: Chassis Reset successful for 10.14.56.52

```

```

INFO: Chassis Reset successful for 10.14.56.123

```

```

INFO: Sleeping 5 minutes allow Power-Cycle to complete and Update to Reflect

```

```

HPE Firmware Update Status Report

```

```

10/20/22 05:47:07 AM

```

```

2 items found, 2 success, 0 failure

```

Sl No	IP Address	HostName	Status	Pre-Ver	Post-Ver	Model
1	10.14.56.123	AMIB47AF1B4D11D	Success	01.03.0000	01.04.0000	HPE Cray XD295v
2	10.14.56.52	AMIB47AF1B4A1D5	Success	00.87.0000	00.86.0000	HPE Cray XD220v

```

INFO: Saved the 20_10_2022_054707UpdateStatusReport_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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