BYOSOFT®

BYOSOFT Flash Update User Guide

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Change History

Version	Description	Date
V 1.0	Byosoft Flash Update User Guide created	2018.8.16
V 1.1	Add attention	2019.1.10

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Overview

BYOFLASH (Byosoft Flash Update) is a package of utilities used to update BIOS Firmware under various operating systems.

Functions

Byosoft Flash Update Tool supports below features:

- Flash Rom Image
- Flash Rom Image reserved OEM area
- Flash Rom Image reserved variable area
- Flash OA3 area in Rom Image
- Change Logo
- Back up BIOS in specified Bin file
- Modify DMI string

Operating System Support

- BYOFLASH.EXE is the DOS version of Flash Update Tool.
- ByoShellFlash.efi is the Shell version of Flash Update Tool.
- flash is the Linux version of Flash Update Tool.
  - ✧ CentOS-7.6.1810
  - ✧ uos20-4.19.0-6
- ByoWinFlash.exe is the Windows version of Flash Update Tool.
  It supports the following version of Windows OS:
  - ✧ Microsoft® Window® Server 2019
  - ✧ Microsoft® Window® 10 (64 bit)
  - ✧ Microsoft® Window® 10 (32 bit)
  - ✧ Microsoft® Window® 8.1 (64 bit)
  - ✧ Microsoft® Window® 8.1 (32 bit)
  - ✧ Microsoft® Window® 8 (64 bit)
  - ✧ Microsoft® Window® 8 (32 bit)
  - ✧ Microsoft® Window® 7 (64 bit)
  - ✧ Microsoft® Window® 7 (32 bit)

BIOS Requirements to support Flash Update

Some of platform, BIOS has some item which is used to lock bios flash, such as BIOS Lock, Flash Protection Range Registers (FPRR) or Relax security config. If you want to flash image smoothly, you have to enable or disable some switch related in Setup when you power on.

Operation in DOS

Run the BYOFLASH.exe under Dos. Parameter –h is used to display the help information.
The help information is typically as follows:

```
Build : Mar 17 2020 13:52:52
Calling convention:
    BYOFLASH <bfu> [-all | -oa3 | -logo | <image file> -bu] <image file>
    BYOFLASH <dmi> <-t> <type number> <-o> <offest> <-s> <string>
    BYOFLASH includes these command options:
bfu        update flash map area
 -all      update full flash area
 -slp      Update SLP20Marker block.
 -pub      Update SLP20Pubkey block.
 -oa3      only update OA block
 -logo     only update Logo block
 -rmlogo   only erase Logo block
 -bu       backup the bios on flash
 -unlock   unlock bios dmi interface
 -lock     lock bios dmi interface
 -locksts  get current lock status
 -rstpwd   reset system password
 -ucode    update cpu microcode
dmi        update smbios type string
 -t:HEX    specifies a smbios type
 -o:HEX    specifies a type structure offset value
 -s:STRING input a specific string
 -msl      use max string length(for type 11)
Press any key to continue...
-help -h or -? Show help message, <File Path> will be ignored.

Example:
BYOFLASH bfu bios.bin -bu backup.bin
  Means backup BIOS to file backup.bin, then update with file bios.bin
BYOFLASH dmi -t:1 -o:5 -s:oem
  Means update the type 1 offest 5(Product Name) to "oem"
BYOFLASH dmi -t:b -o:1 -s:oemsting
  Means update the type 11 string 1 with "oemsting"

C:\>
```

BYOFLASH bfu –all Update the whole image in flash rom
For example

```
C:\>BYOFLASH bfu -all newbios.bin
*******************************************************************************
*                          Byosoft Flash Update                               *
*                 Copyright(C) 2006-2020, Byosoft Co.,Ltd.                    *
*                          All rights reserved                                *
*******************************************************************************
```

BYOFLASH bfu –bu Back up all of the image in flash rom

For example

BYOFLASH bfu –logo Update BIOS Logo

For example

Update DMI Information, the operation as follows for example.

After modify the data, you can use Byosoft Dos DMI tool to find if it works.

Operation in Shell

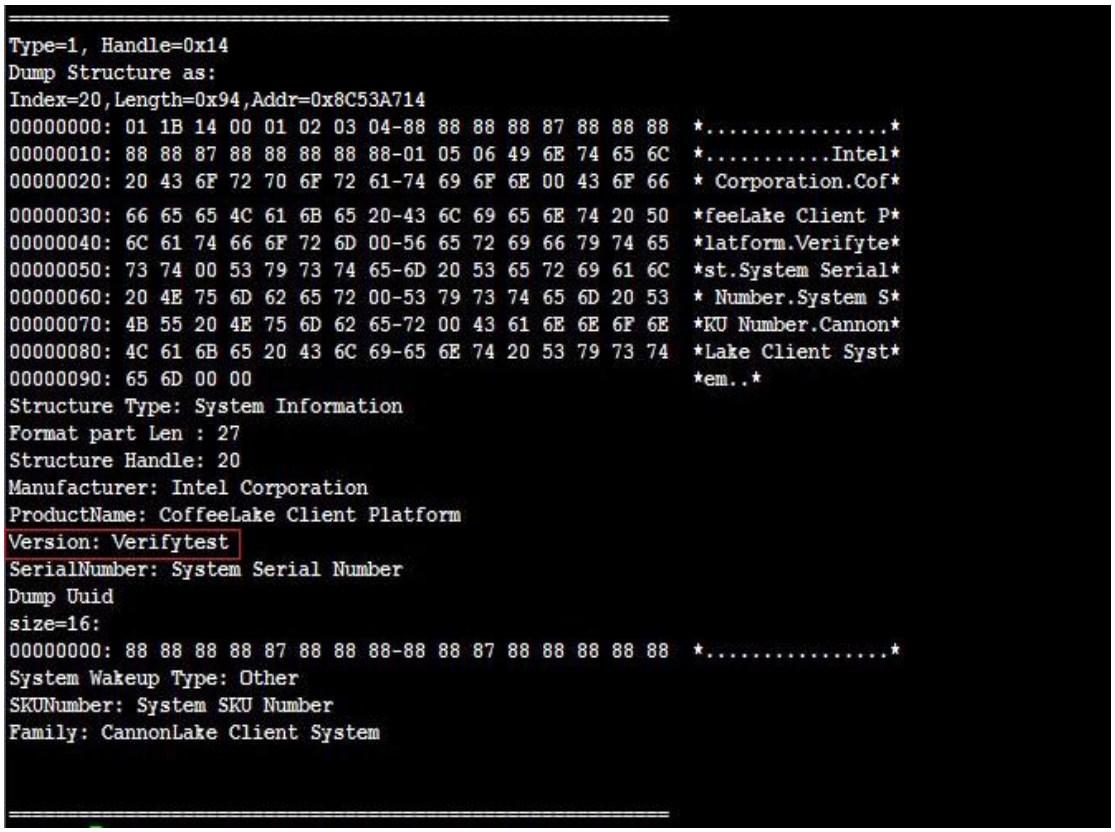
The operation under the Shell is similar to that under DOS.

Following is the command line by using ByoShellFlash.efi to Flash BIOS:

The example for Update logo is as below. The best picture format is JPG and PNG.

ByoShellFlash.efi can also update some DMI data.

After updating, you can run instrument Smbiosview to see if successful.



Operation in Linux

Linux Flash Update Tool supports kernel CentOS-7.6.1810 and uos20-4.19.0-6. It contains two files : ufudev.ko and flash. You have to load the driver ufudev.ko to kernel, and run the flash app. Please follow these steps:

1. Open the Terminal
2. Switch to the directory where the file is located
3. Change to root access to install the flash driver module in the running kernel : sudo insmod ufudev.ko

```
byosoft@byosoft-PC:~/Documents/FlashUpdate3.0/uos$ ls -l
总用量 504
-rw-r--r-- 1 byosoft byosoft 131968 3月  24  2020 flash
-rw-r--r-- 1 byosoft byosoft 377368 3月  24  2020 ufudev.ko
byosoft@byosoft-PC:~/Documents/FlashUpdate3.0/uos$ sudo insmod ufudev.ko
[sudo] byosoft 的密码：
```

4. Then you can use app flash to call the driver , if cannot access flash, you can change the file permissions level.
   chmod 777 ./flash

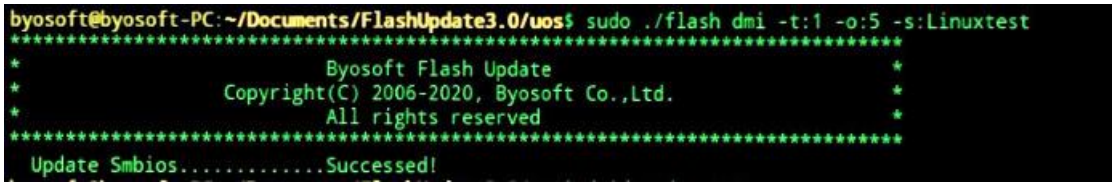
```
byosoft@byosoft-PC:~/Documents/FlashUpdate3.0/uos$ sudo ./flash
sudo: ./flash: 找不到命令
byosoft@byosoft-PC:~/Documents/FlashUpdate3.0/uos$ sudo chmod 777 ./flash
byosoft@byosoft-PC:~/Documents/FlashUpdate3.0/uos$ ls -l
总用量 504
-rwxrwxrwx 1 byosoft byosoft 131968 3月  24  2020 flash
```

5. Then you can see help information as follows:

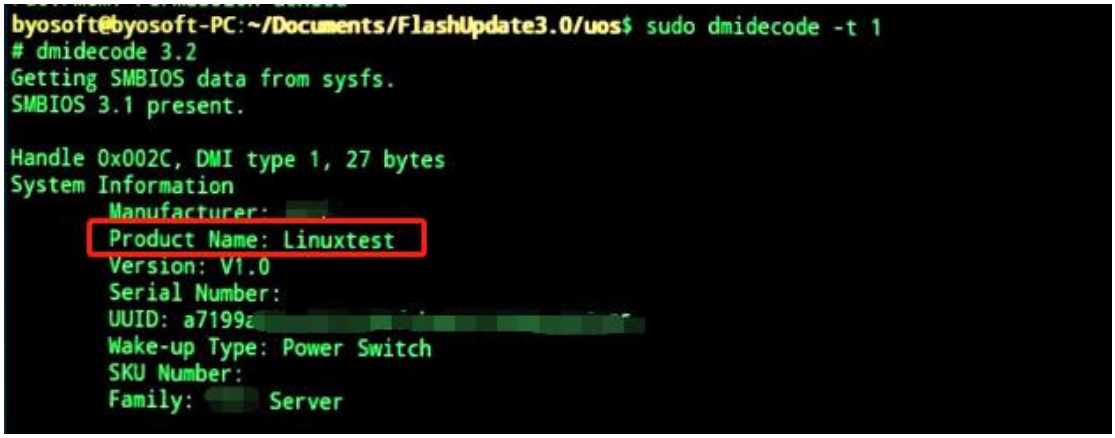
```
byosoft@byosoft-PC:~/Documents/FlashUpdate3.0/uos$ sudo ./flash
Byosoft Flash Update Utility Version 3.10.13
Build : Mar 23 2020 15:39:33
Calling convention:
    ./flash <bfu> [-all | -oa3 | -logo | <image file> -bu] <image file>
    ./flash <dmi> <-t> <type number> <-o> <offest> <-s> <string>
    ./flash includes these command options:
bfu         update flash map area
 -all       update full flash area
 -slp       Update SLP20Marker block.
 -pub       Update SLP20Pubkey block.
 -oa3       only update OA block
 -logo      only update Logo block
 -rmlogo    only erase Logo block
 -bu        backup the bios on flash
 -unlock    unlock bios dmi interface
 -lock      lock bios dmi interface
 -locksts   get current lock status
 -rstpwd    reset system password
 -ucode     update cpu microcode
dmi         update smbios type string
 -t:HEX     specifies a smbios type
 -o:HEX     specifies a type structure offset value
 -s:STRING input a specific string
 -msl       use max string length(for type 11)
-help -h or -? Show help message, <File Path> will be ignored.

Example:
./flash bfu bios.bin -bu backup.bin
  Means backup BIOS to file backup.bin, then update with file bios.bin
./flash dmi -t:1 -o:5 -s:oem
  Means update the type 1 offest 5(Product Name) to "oem"
./flash dmi -t:b -o:1 -s:oemsting
  Means update the type 11 string 1 with "oemsting"
```

6. Complete the above steps, you can do flash normally as under DOS or Shell.
   Following is the command line to Flash BIOS. Logo also can be changed.

7. Update DMI data:



8. The function of dmidecode is to decode information in a DMI database:



Operation in Windows

1. Update BIOS in Windows

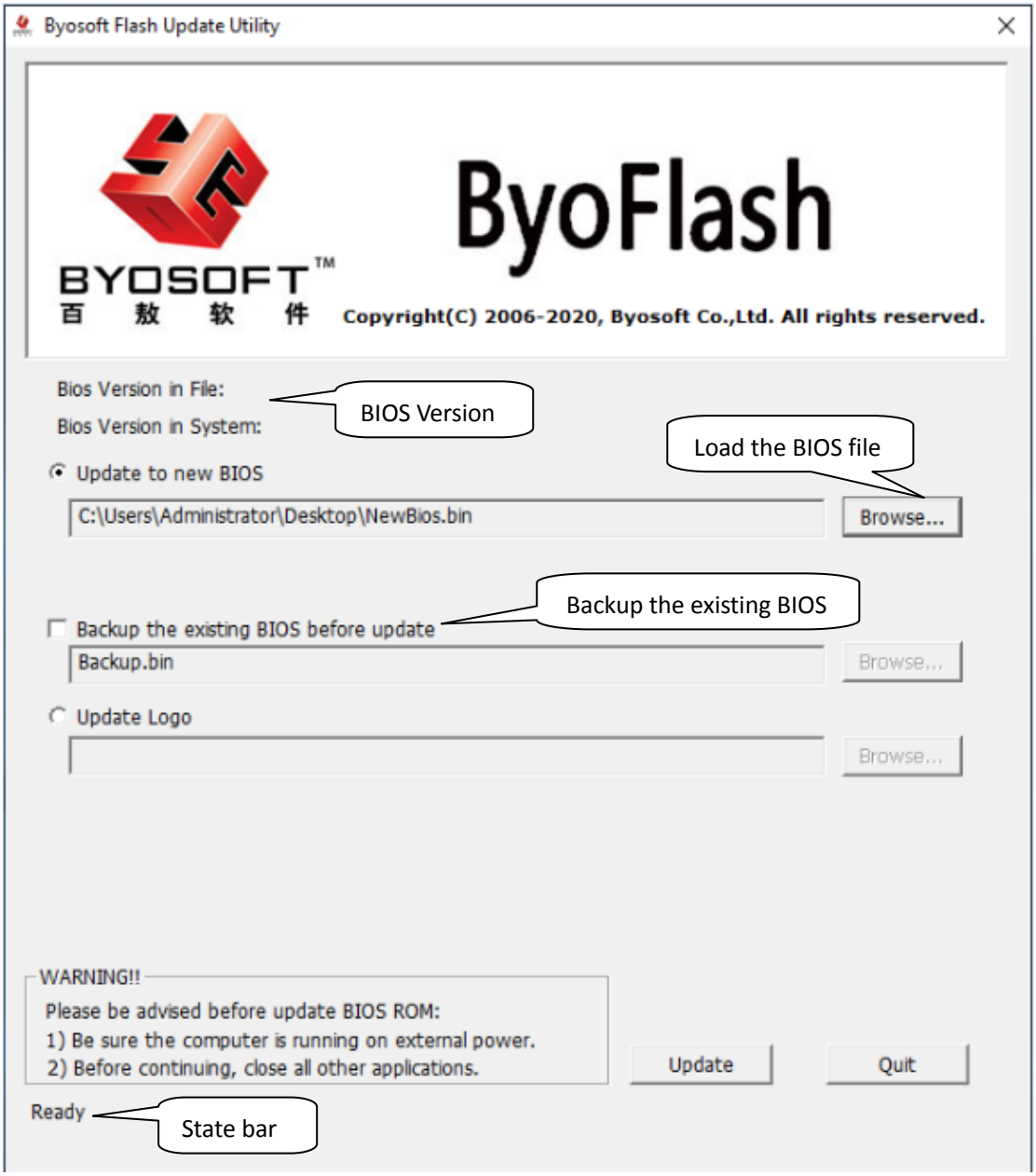
   Copy ByoWinFlash tool to Windows and run the exe file as administrator.

   Update to new BIOS Item can load the new image from file by the button Browse.

   If want to reserve oem data or reserve variable during flash the BIOS, you can choose the box on the left of the option.

   If want to back up the original Bios image before flash it, you can choose the box on the left of the option.

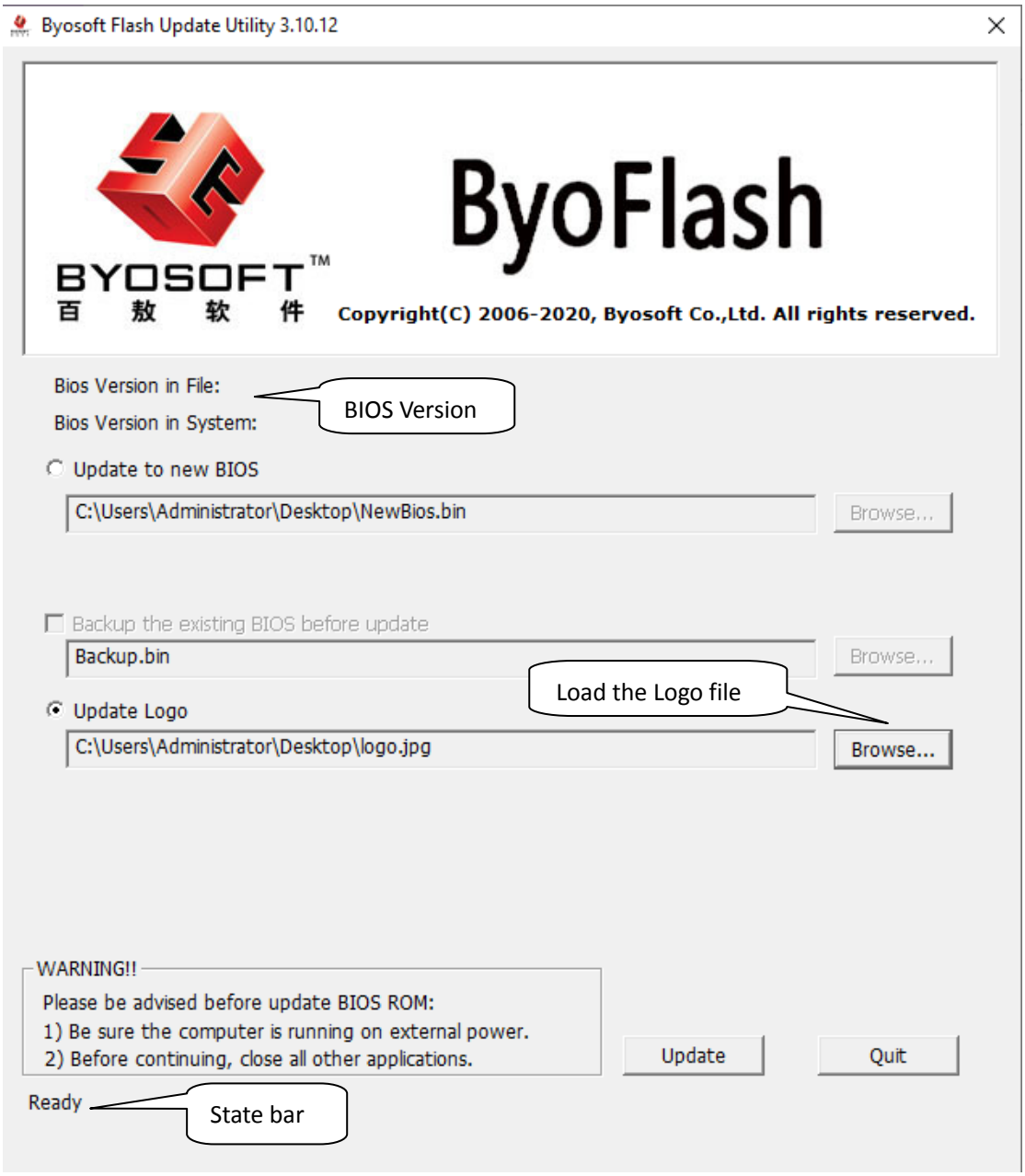
   After flash the BIOS, you can read the information from the state bar as follows.



2. Update Logo file in Windows

   Brown and load the file from the disk then press button “Update” can only update logo in BIOS.

   Update successed information will appear in State bar.


Byosoft Flash Update Utility 3.10.12
ByoFlash
BYOSOFT™
百 敖 软 件
Copyright(C) 2006-2020, Byosoft Co.,Ltd. All rights reserved.
Bios Version in File:
Bios Version in System:
BIOS Version
Update to new BIOS
C:\Users\Administrator\Desktop\NewBios.bin
Browse...
Backup the existing BIOS before update
Backup.bin
Browse...
Load the Logo file
Update Logo
C:\Users\Administrator\Desktop\logo.jpg
Browse...
WARNING!!
Please be advised before update BIOS ROM:
1) Be sure the computer is running on external power.
2) Before continuing, close all other applications.
Update
Quit
Ready
State bar

Smbios update lock and unlock (optional)

Starting from 3.10.0(ZX), add new interface for smbios update lock and unlock.
UNLOCK : [ToolName] bfu -unlock xxxx.bin
LOCK : [ToolName] bfu –lock
GET STATUS : [ToolName] bfu –locksts (start from 3.10.7)
xxxx.bin is a data structure with signature, its implementation depends on bios behavior, for example, unlock.bin may contain a time range, user signs it with private key and bios contains its public key. BIOS may verify the signature and check the time range, if it is OK, set a internal flag for it.
When lock it, it does not need any more parameter, just give it a “-lock”.

Support long string for smbios type 11.

Some customers may request to set a long string to smbios type 11 in one command, the string size may be bigger than 64 bytes. So we add a new parameter “-msl”. When our tool detects this, we will not treat the big string as a overlong string, and split it in 64 byte unit.
Ex: [ToolName] dmi -msl -t:b -o:1 -s:11111111112222222222333333333344444444445555555
5556666666666777777777778888888888899999999990000000000
Please keep “-msl” be in front of “-s”.
Now the max string length we support is 256 for it. (not include the tail 0).
Note: under shell script, “#” is treated as a comment area start, so if there is a “#” in your string, please give a “^” before “#” to let shell know it is just a normal character.

Support clear bios setup password

[ToolName] bfu -rstpwd

Support clear oem logo

[ToolName] bfu -rmlogo

Error Code Definition

Error code	Error information
0x80000001	No enough memory!
0x80000002	Not supported!
0x80000003	Access denied!
0x80000004	Invalid file!
0x80000005	File is too large!
0x80000006	Invalid data version!
0x80000007	Data is not compatible with this computer!
0x80000008	BIOS image only support whole update!
0x80000009	BIOSID is not matched!
0x8000000A	BIOS sign verify failed!
0x8000000B	Bios Info not found!
0x8000000C	BiosInfo mismatich! Cautiously use '-all' if you want force update
0x8000000D	BiosInfo mismatich, '-resv' Not supported!

Attention

Make sure Secure Boot is disable in Setup when using Flash Update Tool ByoShellFlash.efi under Shell. If users want to enable Secure Boot and use ByoShellFlash.efi under Shell at the same time, the tool must be signed. The document for how to sign the Tool as follows:

http://192.168.6.5/svn/UNC/Tools/ByoUnifiedToolPkg/工具签名说明书.docx