



Panchip Microelectronics Co., Ltd.

Pan108x DFU Tool user's guide

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PAN108x DFU tool updated version download address

Single exe version: <https://wiki.panchip.com/download/1969/>

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Contents

1	Summarize	1
2	The main interface	2
2.1	The menu bar	2
2.1.1	File	2
2.1.2	View	3
2.1.3	Help	3
2.2	The status bar	3
2.3	Function Screen	4
2.3.1	USB Setting	4
2.3.2	Program Setting	5
2.3.3	Function	5
2.3.4	Performing the Firmware Upgrade	9
3	DFU Firmware upgrade instance	11
3.1	Upgrade the Mouse Firmware using the DFU tool	11
3.1.1	Connect the mouse device to the computer via USB	11
3.1.2	Starting the DFU Tool	11
3.1.3	Loading the Firmware Program File	12
3.1.4	Selecting a USB Device	12
3.1.5	Upgrading the DFU	12
3.1.6	Generating the direct DFU Firmware upgrade exe program	13
3.2	Upgrade the DFU using the generated DFU firmware upgrade program	13
3.2.1	Connect the mouse device to the computer through USB	13
3.2.2	Run the generated DFU Firmware upgrade program	13
3.2.3	Upgrading the DFU	14

1 Summarize

PAN108xDFUTool is a DFU upgrade tool designed for the PAN108x chip.

The version format is pan108xDFutool_Vx.x.xx

Vx. x.xxx: indicates the version number.

Confidential

2 The main interface

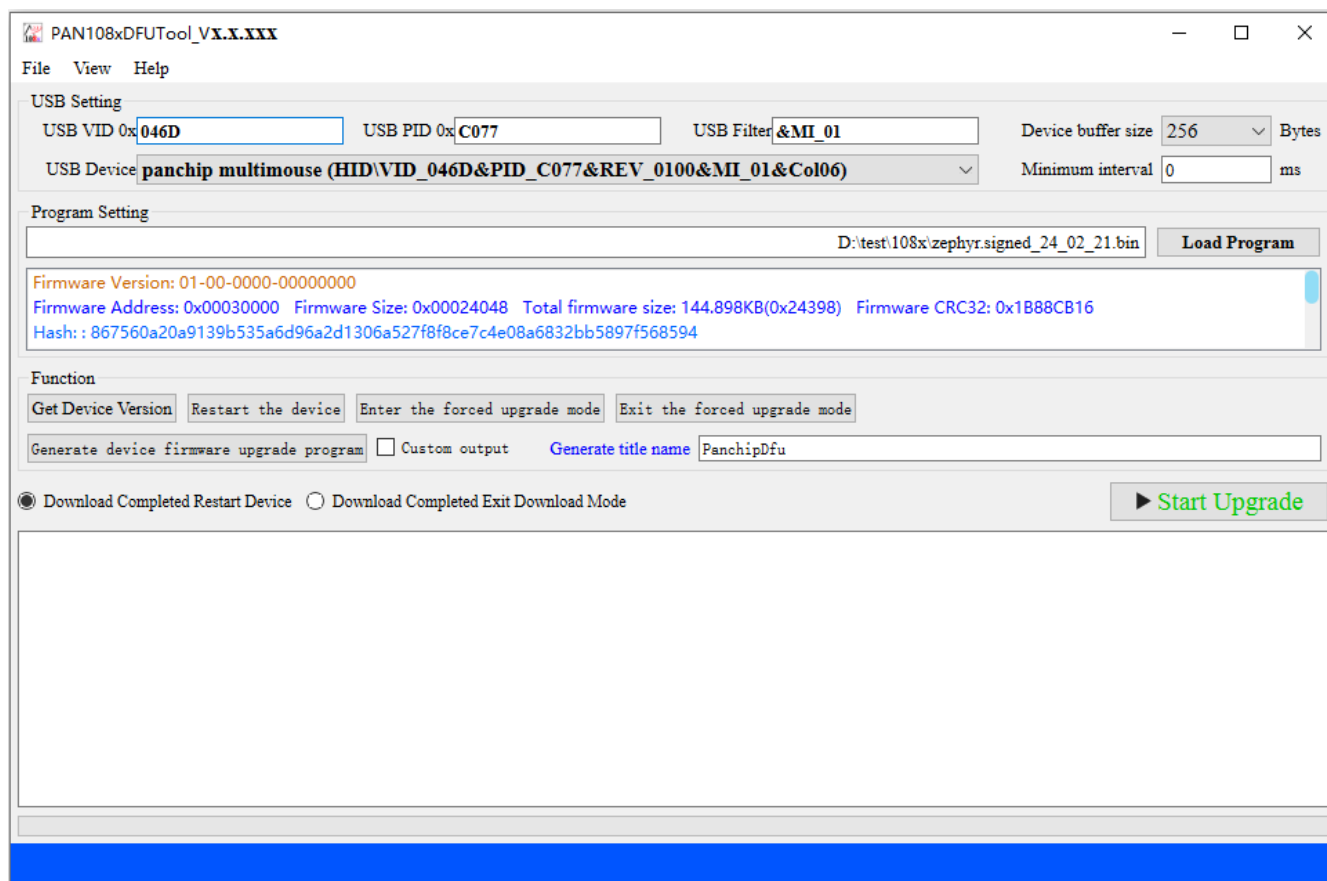


Figure 2-1

As shown in Figure 2-1, the main screen consists of the **menu bar**, **function screen**, and **status bar**.

2.1 The menu bar

2.1.1 File

Figure 2-1-1- shows the file menu.

Open Configuration: To load the configuration file generated by saving the configuration and follow the interface configuration set when saving.

Note: This operation is not allowed during the upgrade, otherwise it will fail.

Save Configuration: To save all the current configurations of the interface to the configuration file.

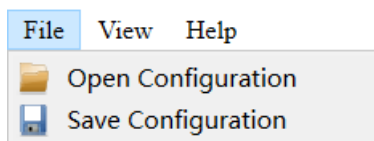


Figure 2-1-1-1

2.1.2 View

The display menu in the **menu bar** is clicked, as shown in Figure 2-1-2-1.

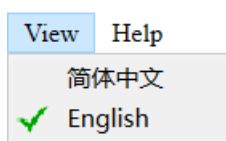


Figure 2-1-2-1

Select the current display mode. The interface can be displayed in **Simplified Chinese** or **English**.

2.1.3 Help

Click the help menu in the menu bar, as shown in Figure 2-1-3-1.

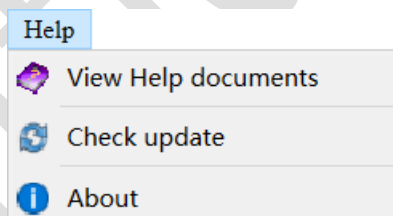


Figure 2-1-3-1

View Help documents: Export and open the help document.

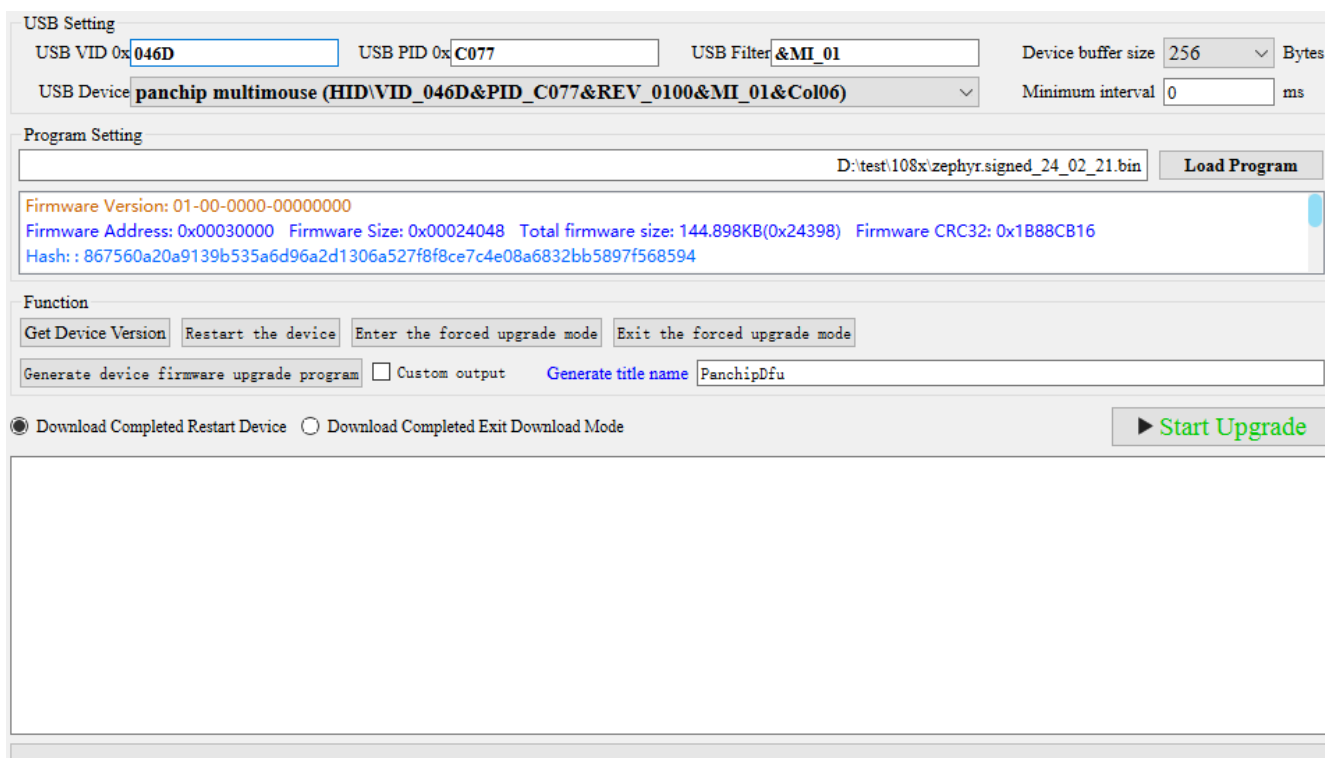
Check update: Access the latest version on the server and the current version of the comparison, and support for downloading server versions.

About: The information box for the current version is displayed.

2.2 The status bar

The interface displays some status information.

2.3 Function Screen



The screenshot shows the 'Function' tab of the Pan108x DFU Tool. The 'USB Setting' section includes fields for USB VID (046D), USB PID (C077), USB Filter (&MI_01), Device buffer size (256 Bytes), and USB Device (panchip multimouse (HID\VID_046D&PID_C077&REV_0100&MI_01&Col06)). The 'Program Setting' section shows a file path (D:\test\108x\zephyr.signed_24_02_21.bin) and a 'Load Program' button. The 'Firmware' section displays version (01-00-0000-00000000), address (0x00030000), size (0x00024048), total size (144.898KB), CRC32 (0x1B88CB16), and a hash. The 'Function' section has buttons for 'Get Device Version', 'Restart the device', 'Enter the forced upgrade mode', and 'Exit the forced upgrade mode'. Below these are checkboxes for 'Generate device firmware upgrade program' and 'Custom output', and a 'Generate title name' field with 'PanchipDfu'. At the bottom, there are radio buttons for 'Download Completed Restart Device' (selected) and 'Download Completed Exit Download Mode', and a 'Start Upgrade' button.

Figure 2-3-1

Figure 2-3-1 shows the firmware upgrade interface.

The firmware of the PAN108x mouse device can be upgraded through USB.

2.3.1 USB Setting

To set the USB device communication interface for the device, and USB device selection.

USB VID: To set the VID of a specified USB device, the system queries the device based on the specified VID.

When the VID value is changed, the system automatically queries the USB device based on the changed value.

USB PID: To set the PID value of a specified USB device, the system queries the device based on the set PID value.

When the PID value is changed, the system automatically queries the USB device based on the changed PID value.

USB filter: To filter the USB devices queried according to the specified string VID\PID, only the devices with the same string can be added to the USB device list.

When the USB filter value is changed, the system automatically queries the USB device based on the changed value.

USB Devices: Add USB devices to the list based on VID, PID and USB filtering.

When you click USB Device List Box, the USB device is automatically displayed in the list.

Device buffer size: specifies the cache size of the USB device during firmware upgrade. Specifies the cache size of the USB device after the specified data is continuously transmitted during firmware update download. The default is 256Bytes.

Minimum interval: is set to the interval between consecutive transmission packets when downloading updates. The default is 0ms.

2.3.2 Program Setting

Download the updated firmware program for the setup.

Load Program: Loads the firmware program file. The file format is .bin. The firmware program file is verified according to the firmware format information.

Note: After successful loading, the program file data has been loaded. If the firmware program file is changed later, it will be automatically reloaded according to the source file path.

If the firmware is successfully loaded, information about the firmware program is displayed in the list. Figure 2-3-2-1 shows this.

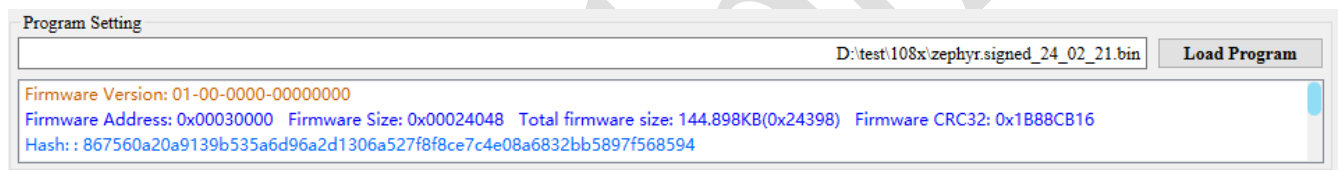


Figure 2-3-2-1

Hash: The actual firmware program generates a hash value at compile time before packaging it into DFU firmware. This value can be used to distinguish whether the actual firmware program has changed.

2.3.3 Function

Figure 2-3-3-1 shows functional areas.

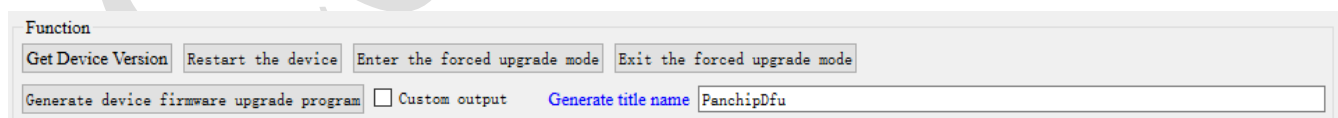


Figure 2-3-3-1

Get Device Version: To read the version information of the selected USB device. If the read is successful, the read version information is displayed in the log display box. As shown in Figure 2-3-3-2, click the message indicating that the device version information has been read successfully.

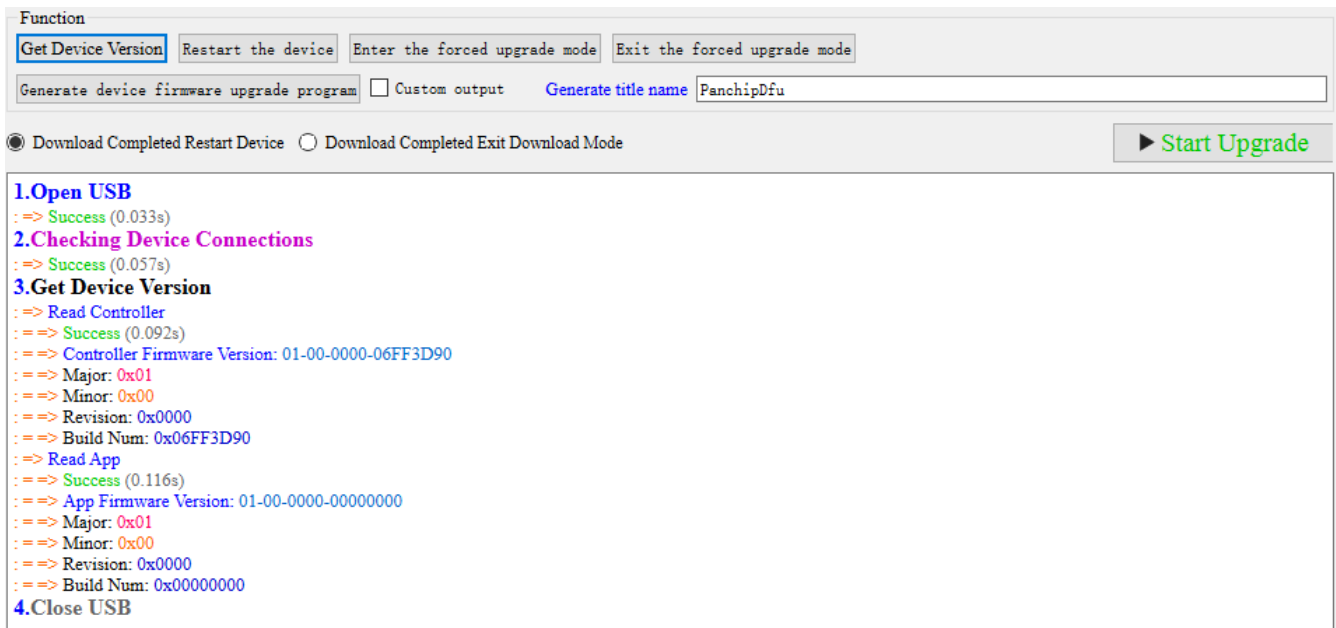


Figure 2-3-3-2

Restart the device: Send the selected USB device command through USB to restart the device.

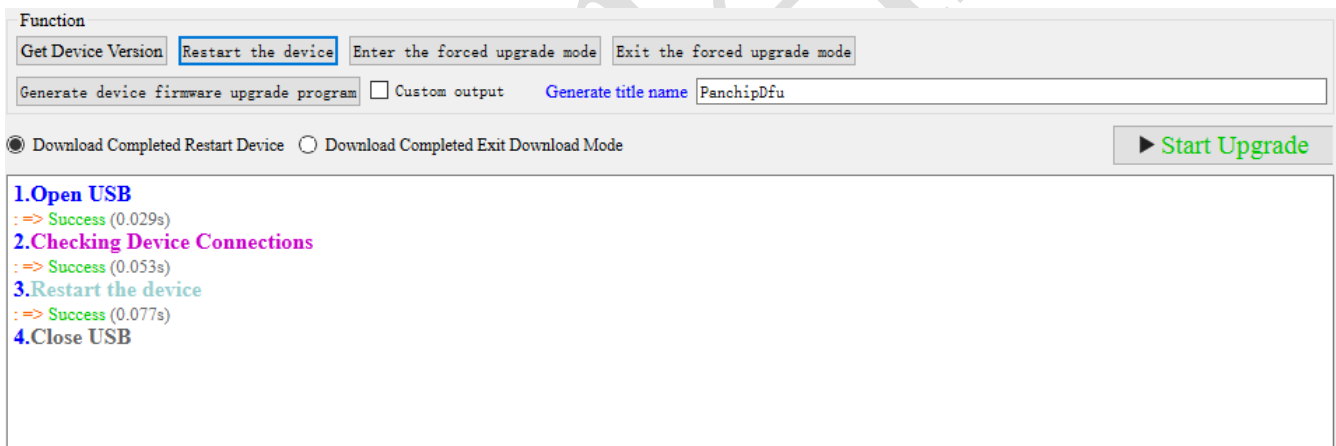


Figure 2-3-3-3

As shown in Figure 2-3-3-3:

1. Make sure that USB device connection is selected.
2. Click Restart Device.
3. The device is successfully restarted.

Note: After the device is successfully restarted, communication cannot be conducted for a period of time.

Enter the forced upgrade mode: In order to send the forced upgrade mode command through USB, only the current program running in the APP program can enter. After entering the forced upgrade mode, you need to exit the light upgrade mode to complete the upgrade.

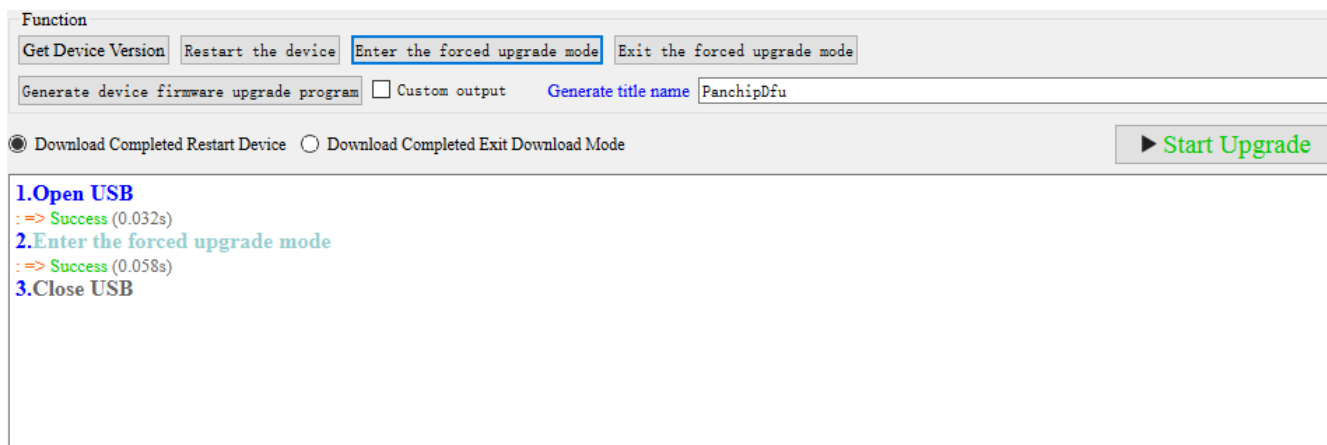


Figure 2-3-3-4

Entering the forced upgrade mode was successful, as shown in Figure 2-3-3-4.

Exit the forced upgrade mode: To send the exit forced Upgrade mode command via USB, you must exit Forced upgrade mode after entering forced upgrade mode and after the upgrade completion program.

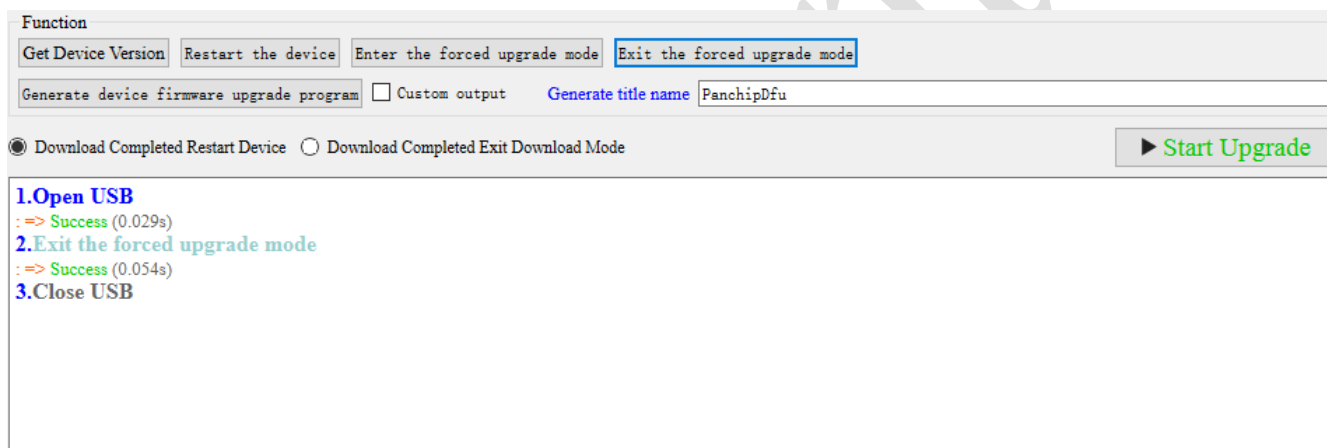


Figure 2-3-3-5

Exiting the forced upgrade mode was successful, as shown in Figure 2-3-3-5.

Generate device firmware upgrade program: You can run an upgraded exe program to synthesize the output of loaded firmware programs, USB Settings, and other information.

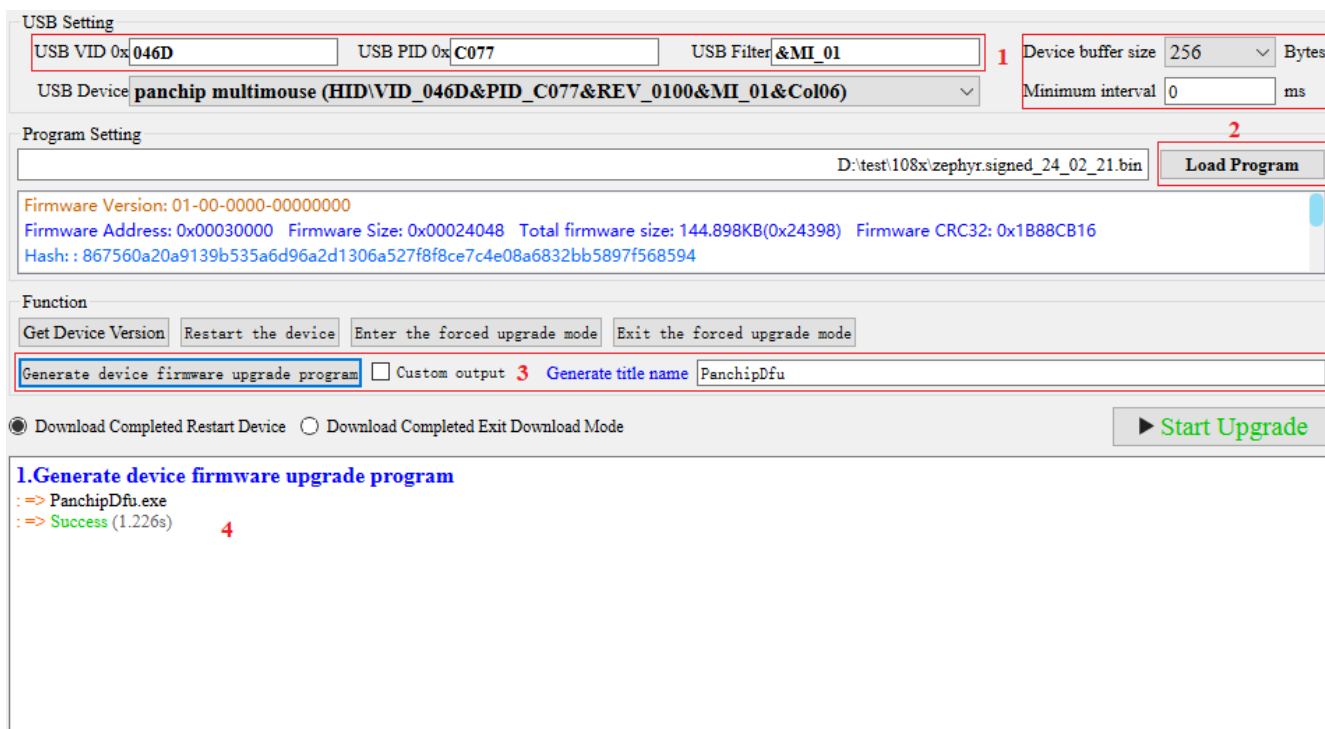
Custom output:

If this parameter is selected, you can specify the generated file name of the output program file path when clicking Generate device firmware upgrade program.

If you do not select this option, click Generate device firmware upgrade program to output the default name file in the current directory of the tool.

Generate title name:

Specifies the generated program title name string for the setting. This string is also used to output the program file name by default.



The screenshot shows the Pan108x DFU Tool interface with the following sections:

- USB Setting:** Includes fields for USB VID (046D), USB PID (C077), USB Filter (&MI_01), Device buffer size (256 Bytes), and Minimum interval (0 ms). A red box labeled '1' highlights the USB Filter field.
- Program Setting:** Includes a file path (D:\test\108x\zephyr.signed_24_02_21.bin) and a 'Load Program' button. A red box labeled '2' highlights the 'Load Program' button.
- Function:** Includes buttons for 'Get Device Version', 'Restart the device', 'Enter the forced upgrade mode', and 'Exit the forced upgrade mode'. A red box labeled '3' highlights the 'Generate device firmware upgrade program' button.
- Generate device firmware upgrade program:** Includes a 'Custom output' checkbox and a 'Generate title name' field (PanchipDfu). A red box labeled '4' highlights the 'Generate title name' field.
- Download Completed:** Includes radio buttons for 'Download Completed Restart Device' and 'Download Completed Exit Download Mode'. A green 'Start Upgrade' button is also present.
- Output Log:** Shows the command ':=> PanchipDfu.exe' and the result ':=> Success (1.226s)'.

Figure 2-3-3-6

As shown in Figure 2-3-3-6:

1. Confirm the USB Settings. By default, no change is required.
2. Load the firmware program to be upgraded.
3. Set the name of the generated title. Click Generate Device Firmware Upgrade Program.
4. The upgrade is successful. Get the generated *.exe program file.

As shown in Figure 2-3-3-7, after loading the program file successfully, click "Generate Device Firmware upgrade program", and the DFU upgrade exe format program is generated successfully. It also opens the folder where the generated program files reside.



Figure 2-3-3-7

2.3.4 Performing the Firmware Upgrade

As shown in Figure 2-3-4-1, after selecting the USB device and loading the program file successfully, click the "Start Upgrade" button. The download and upgrade process is displayed.

If you select **Download Completed Restart Device**, restart the device after downloading. As shown in Figure 2-3-4-1.

If you select **Download Completed Exit Download Mode**, exit the download mode after the download is complete. As shown in Figure 2-3-4-2.



Figure 2-3-4-1

USB Setting

USB VID 0x046D

USB PID 0xC077

USB Filter &MI_01

Device buffer size 256 Bytes

USB Device panchip multimouse (HID\VID_046D&PID_C077&REV_0100&MI_01&Col06)

Minimum interval 0 ms

Program Setting

D:\test\108x\zephyr.signed_24_02_21.bin

Load Program

Firmware Version: 01-00-0000-00000000

Firmware Address: 0x00030000 Firmware Size: 0x00024048 Total firmware size: 144.898KB(0x24398) Firmware CRC32: 0x1B88CB16

Hash: : 867560a20a9139b535a6d96a2d1306a527f8f8ce7c4e08a6832bb5897f568594

Function

Get Device Version

Restart the device

Enter the forced upgrade mode

Exit the forced upgrade mode

Generate device firmware upgrade program

Custom output

Generate title name PanchipDfu

☐ Download Completed Restart Device
 ☒ Download Completed Exit Download Mode

Upgrade Success

Start Upgrade

```

=> Send successfully (0.134s)
=> Executed successfully (0.208s)
6.Download Firmware program
=> Success (3.785s)
7.Download completed, verify the result
=> Send successfully (3.809s)
=> Executed successfully (3.835s)
8.Exit DFU mode
=> Success (3.859s)
9.Upgrade Success
10.Close USB
          
```

Figure 2-3-4-2

3 DFU Firmware upgrade instance

3.1 Upgrade the Mouse Firmware using the DFU tool

3.1.1 Connect the mouse device to the computer via USB

First, connect the mouse device to the computer via USB.

3.1.2 Starting the DFU Tool

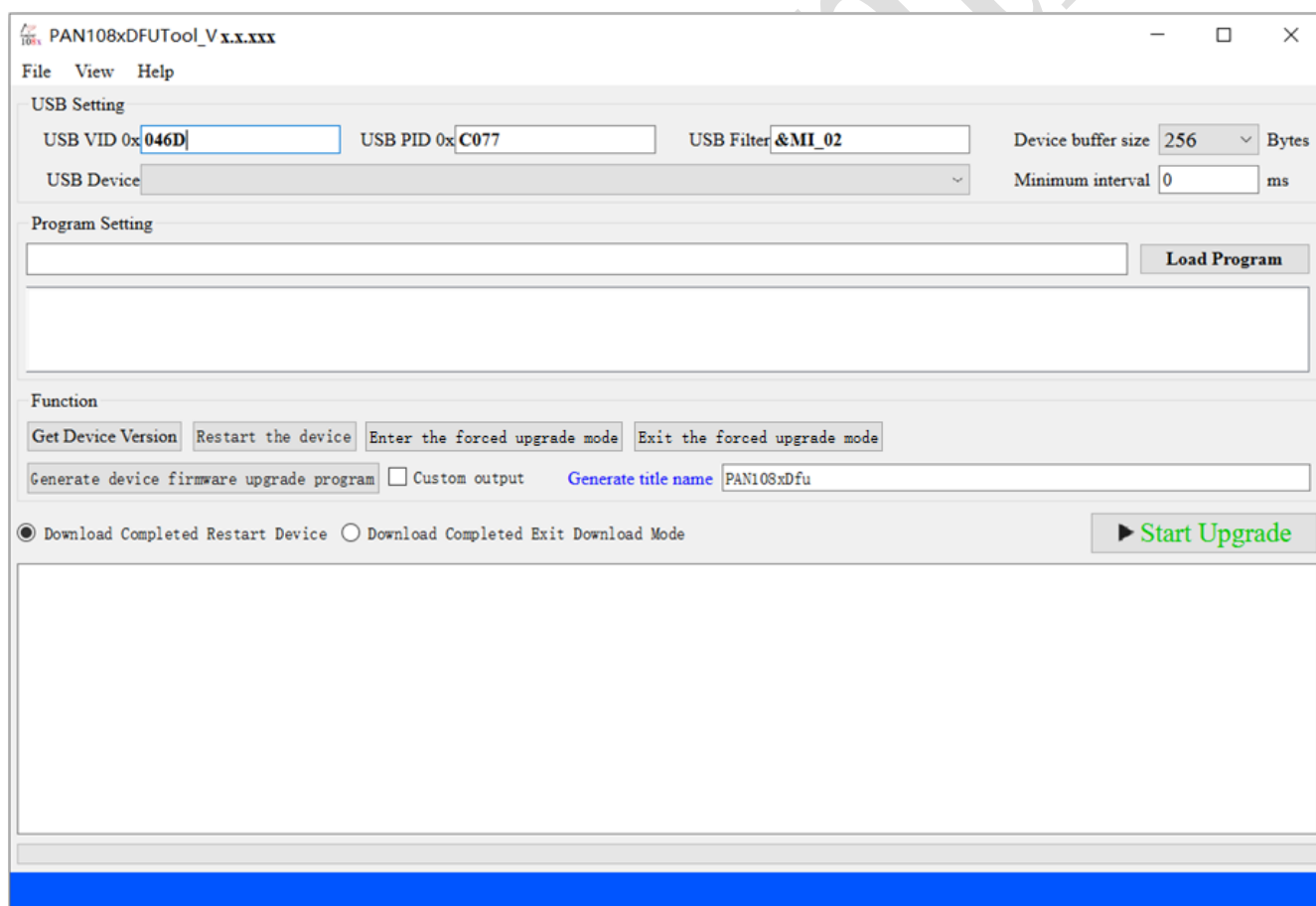


Figure 3-1-2-1

Run PAN108xDFU_V0.0.003.exe to open the page shown in Figure 3-1-2-1.

3.1.3 Loading the Firmware Program File

Obtain the firmware program file to be downloaded. The file format is *.bin.

As shown in Figure 3-1-3-1, click "Loader" to load the firmware program file, and the successful loading will be displayed.

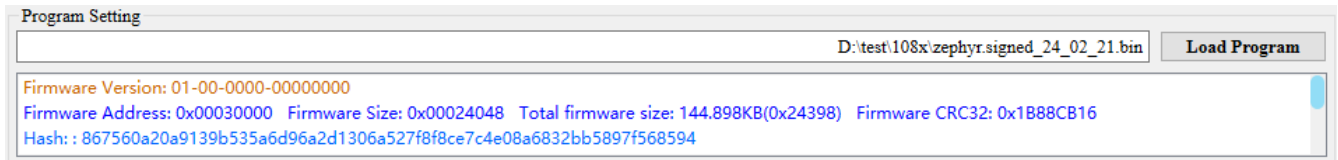


Figure 3-1-3-1

3.1.4 Selecting a USB Device

By default, you do not need to select a mouse USB device. After you start the DFU tool, the system automatically queries and selects the connected mouse USB device.

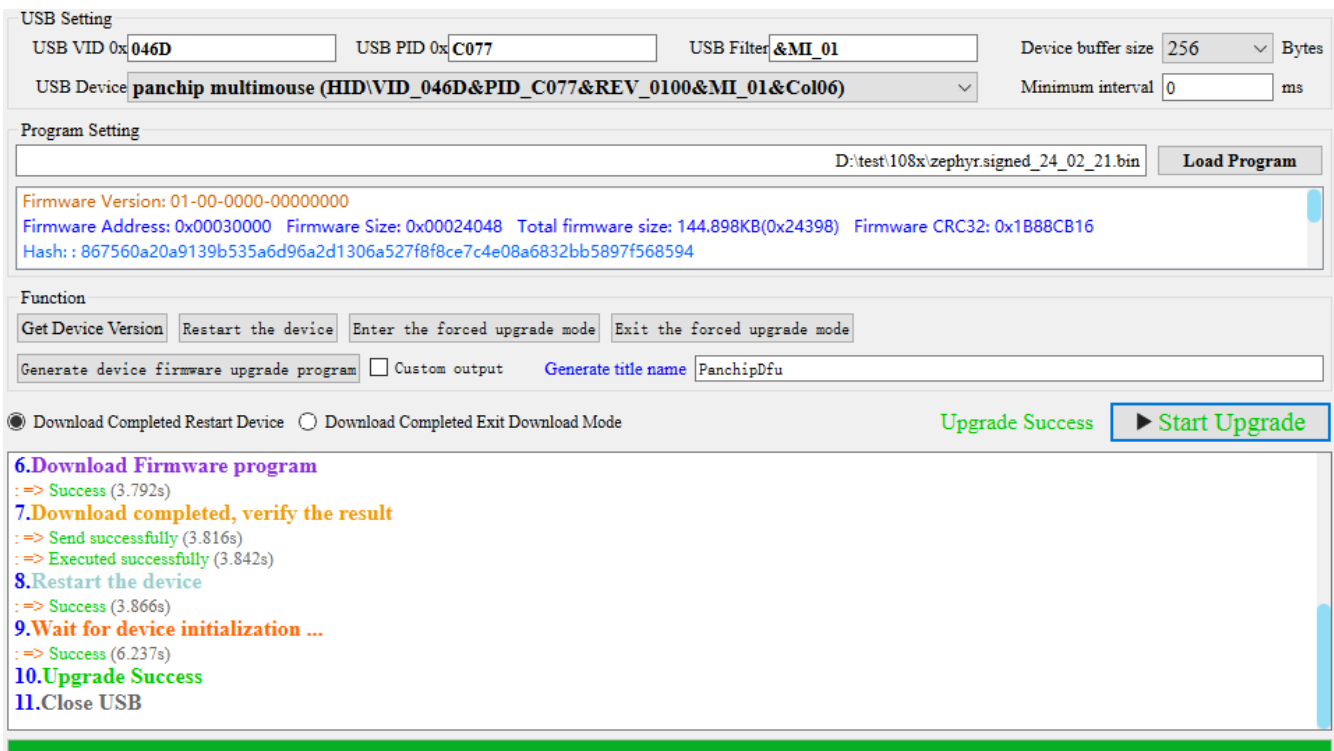
If multiple mouse USB devices are connected at the same time, you can select different USB devices to update different mouse devices.

3.1.5 Upgrading the DFU

By default, the device is restarted after the upgrade is complete. If you do not want to restart the device after the upgrade is complete, you can exit the download mode after the download is complete.

After the preceding steps are complete, click Start Upgrade to enter the DFU upgrade process.

Figure 3-1-5-1 shows the DFU firmware upgrade process.



The screenshot shows the Pan108x DFU Tool interface. The USB Setting section includes fields for USB VID (0x046D), USB PID (0xC077), USB Filter (&MI_01), Device buffer size (256 Bytes), and USB Device (panchip multimouse (HID\VID_046D&PID_C077&REV_0100&MI_01&Col06)). The Program Setting section shows a file path (D:\test\108x\zephyr.signed_24_02_21.bin) and a Load Program button. The Function section includes buttons for Get Device Version, Restart the device, Enter the forced upgrade mode, and Exit the forced upgrade mode. A checkbox for Generate device firmware upgrade program is checked, and a text field for Generate title name contains 'PanchipDfu'. The bottom section shows a log of operations: 6.Download Firmware program (Success), 7.Download completed, verify the result (Send successfully, Executed successfully), 8.Restart the device (Success), 9.Wait for device initialization ... (Success), 10.Upgrade Success, and 11.Close USB. A green bar at the bottom indicates 'Upgrade Success' and a 'Start Upgrade' button.

Figure 3-1-5-1

3.1.6 Generating the direct DFU Firmware upgrade exe program

After ensuring that the DFU can upgrade the mouse firmware program successfully.

Click "Generate device Firmware upgrade program" to open the output directly to run the DFU upgrade program.

3.2 Upgrade the DFU using the generated DFU firmware upgrade program

3.2.1 Connect the mouse device to the computer through USB

First, connect the mouse device to the computer via USB.

3.2.2 Run the generated DFU Firmware upgrade program

Run the generated DFU firmware upgrade program, as shown in Figure 3-2-2-1.



Figure 3-2-2-1

3.2.3 Upgrading the DFU

As shown in Figure 3-2-3-1, directly click "Start Upgrade" to successfully upgrade the process.

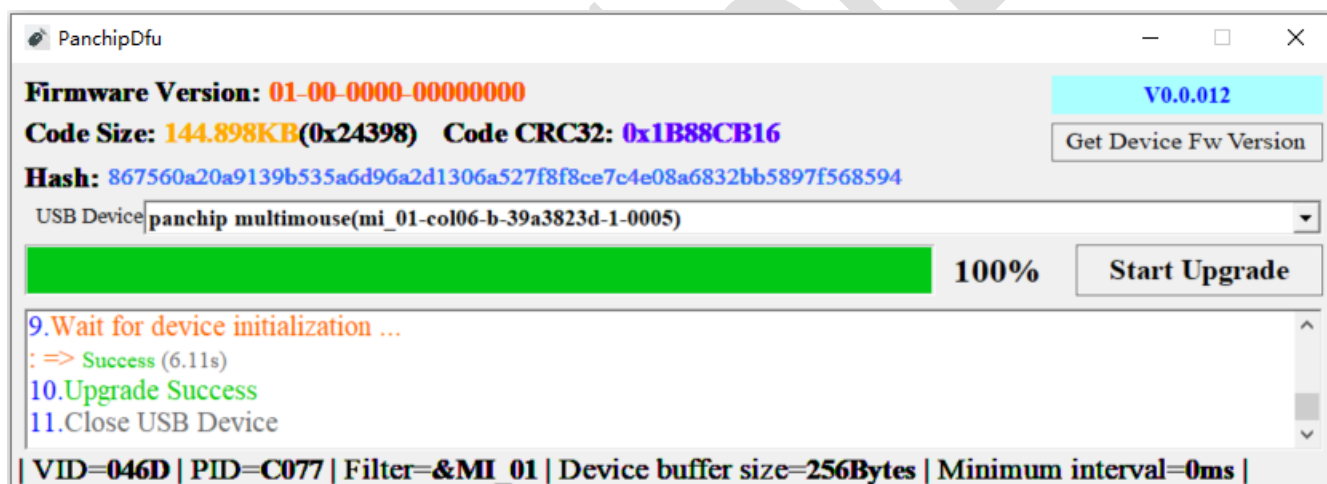


Figure 3-2-3-1