

Firmware Update Procedure using a USB Flash Drive

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This manual describes the procedures for updating firmware and the font file of the printer using a USB Flash Drive. Be sure to read this manual to update correctly.

Notes

We will not be liable for any loss or damage of data. It is strongly recommended that you back up all data stored in the USB Flash Drive before performing this update.

Applicable models and firmware versions

Applicable models	Firmware versions
mC-Label3	mC-Label3 firmware Ver. 1.1 or later
mC-Label2	mC-Label2 firmware Ver. 1.0 or later
mC-Print3	mC-Print3 firmware Ver. 3.1 or later
mC-Print2	mC-Print2 firmware Ver. 3.1 or later
mPOP	mPOP firmware Ver. 3.0 or later
TSP100IV	TSP100IV firmware Ver. 1.0 or later
TSP100IIIU	TSP100IIIU firmware Ver. 1.9 or later

- The firmware version is printed in the title section of the printer information on the 1st page of self-printing.

Note

- Please note that if you update the firmware earlier than the listed firmware version using a USB Flash Drive, you will not be able to rewrite with USB.
- Not supported for MCP20/MCP20B, MCP30 because it does not have USB-A port.

Supported USB Flash Drive

USB Flash Drive device (USB-A) formatted with FAT16/32 file system

- exFAT file system is not supported.
- A USB extension cable can be used, however a USB hub cannot be used because it is not supported by the printer.
- Depending on the printer model and the external dimensions of the USB Flash Drive, it may not be possible to insert it directly into the USB port of the printer. For the external dimensions of the USB Flash Drive, refer to the table below.

Models	External dimensions of USB Flash Drive that can be directly inserted (excluding the metal part of the connector)
mC-Label3	Width 30 mm x Thickness 11.8 mm x Length 80 mm or less
mC-Label2	Width 20 mm x Thickness 10 mm x Length 65 mm or less
mC-Print3	Width 20 mm x Thickness 10 mm x Length 47 mm or less
mC-Print2	No limit
mPOP	Width 22 mm x Length 40 mm or less (Thickness is not limited)
TSP100IV	Width 20 mm x Thickness 10 mm x Length 60 mm or less
TSP100IIIU	Length 40 mm or less (Width and thickness are not limited)

QuickTip

Check the file system of the USB Flash Drive.

For Windows	Connect the USB Flash Drive to PC and select [Explorer]-[PC]-[Devices and Drives]. Right-click on the icon of the USB Flash Drive you want to check and select [Properties]. When the properties are displayed, check the file system.
For Mac	Connect the USB Flash Drive to Mac and select [Application]-[Utilities]-[Disk Utility]. Select the USB Flash Drive you want to check and check the file system displayed next to [Type].

What is Star Configuration Format?

The Star Configuration Format is a file format that defines operations when updating the printer firmware, the font file and various settings. For details, refer to "[Star Configuration Format Specifications Manual](#)".

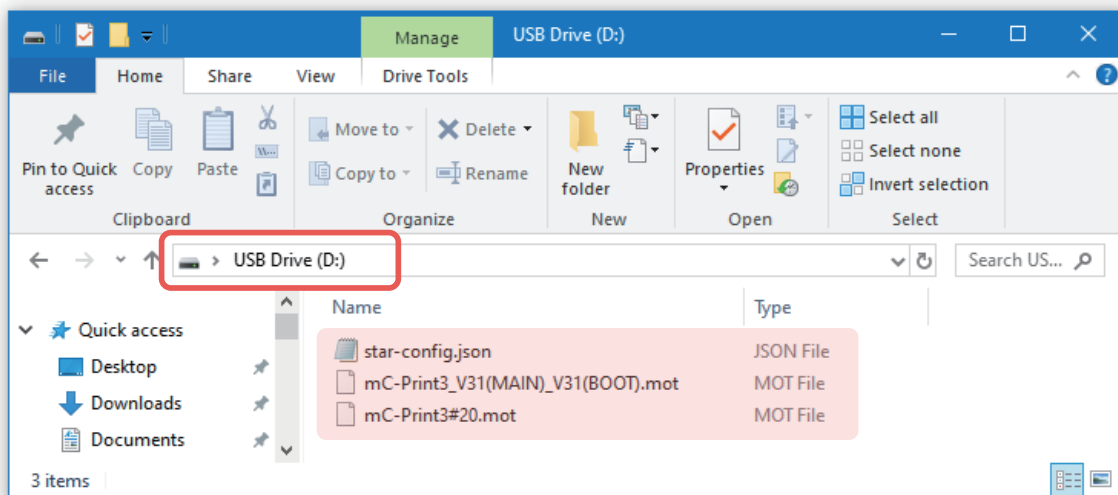
Procedures

1 Copy files to the USB Flash Drive

Copy the Star Configuration Format (JSON format) to the root directory (top-level folder) of your USB Flash Drive. Make sure that the file name of the Star Configuration Format (JSON format) starts with "star-config". Copy the firmware file and the font file to the path specified in the Star Configuration Format. For details, refer to [Key Description on page 10](#).

Supplement

Contact the seller to obtain firmware and font files.



* Example of screen display on Windows.

The drive letter (such as D :) assigned to the USB Flash Drive varies depending on the usage environment.

2 Turn off the printer

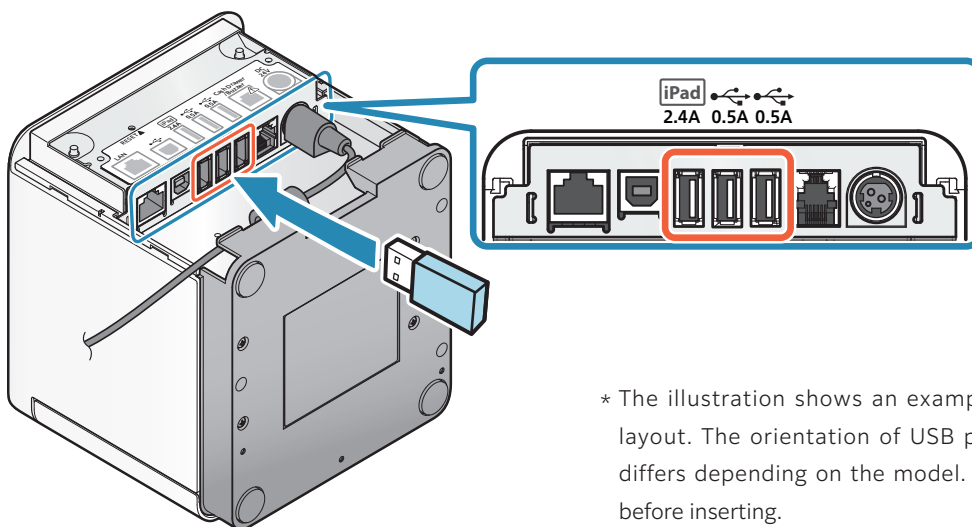
To update the printer firmware and the font file correctly, turn off the printer before inserting the USB Flash Drive.

Supplement

If the panel switch is disabled with mC-Label3, mC-Label2, mC-Print3, or mC-Print2, the printer cannot be operated with the power button. Remove a power cable from the printer to turn off and plug it again to turn on.

3 Insert the USB Flash Drive to the printer

Confirm that the printer is turned off, then insert the USB Flash Drive to the USB port (Type-A) on the back of the printer.



* The illustration shows an example of USB port layout. The orientation of USB port connectors differs depending on the model. Check carefully before inserting.

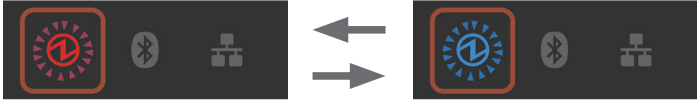
Note

- Do not connect multiple USB Flash Drive sticks to a printer.
If multiple USB sticks are connected at the same time, the update may not be performed properly.

4 Turn on the printer

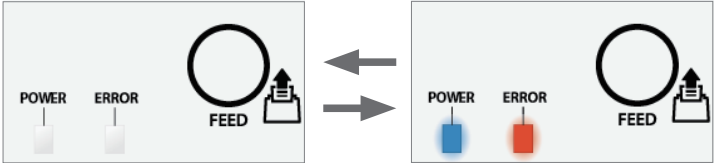
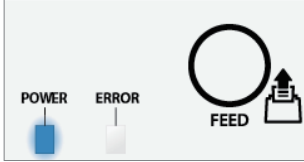
When you turn on the printer, the printer will start to analyze and update the firmware automatically. Please refer to the figure below regarding the status and LED indications.

mC-Label3, mC-Label2, mC-Print3, mC-Print2, TSP143IV-UEWB

Status	LED Indication
1 2 3 4 1 Start to analyze and update. 3 Start to analyze after the printer initialized.	 The Power LED flash red and blue alternately. (Irregular cycle)
2 Complete to analyze and update. 4 Complete to analyze and update, then the printer will become online.	 The Power LED flash blue.

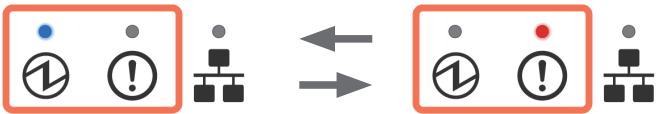
* The illustration shows an example of LED indication.

mPOP, TSP100IIIU

Status	LED Indication
1 2 3 4 1 Start to analyze and update. 3 Start to analyze after the printer initialized.	 The blue Power LED and the red Error LED flash simultaneously. (Irregular cycle)
2 Complete to analyze and update. 4 Complete to analyze and update, then the printer will become online.	 The Power LED flash blue.

* The illustration shows an example of LED indication.

TSP143IV-UE

Status	LED Indication
1 Start to analyze and update. 3 Start to analyze after the printer initialized.	 The blue Power LED and the red Error LED flash alternately. (Irregular cycle)
2 Complete to analyze and update. 4 Complete to analyze and update, then the printer will become online.	 The Power LED flash blue.

QuickTip

- If the printer does not start to analyze or update within 10 seconds after turning on the power, check the following.
 - The file system of the USB Flash Drive is FAT12/16/32.
 - There is no error in the description in the Star Configuration Format.
- Depending on the description of the Star Configuration Format, the printer will print any character before and after the analysis and update. For details, refer to [Key Description on page 10](#).
- If the printer already has the version of the firmware and font files saved in the USB Flash Drive, it will just analyze the files.

Note

- Do not turn off the printer or remove the USB Flash Drive from the printer during the firmware update. The USB Flash Drive may be damaged, data may be lost, or the printer firmware may be damaged. If the firmware is damaged, use the following utility to update and restore the firmware.

For iOS, Android	Star Quick Setup Utility
For Windows	Printer Utility (Star Windows Software)



Utility
download site

* Not compatible with Mac.

- Do not execute printing during the firmware update.
- Do not execute the following modes while the USB Flash Drive is connected to the printer.
 - Self-printing mode
 - Hex Dump print mode
 - Special function setting mode

5 Remove the USB Flash Drive from the printer

After confirming that the Power LED is lit in blue, remove the USB Flash Drive immediately from the printer.

All procedures to update are finished.

Note

- After the update is completed, do not leave the USB Flash Drive connected.
If the printer is turned off and on again, or reset while the USB Flash Drive is connected, it will start updating firmware and the font file, and print jobs during that time may be discarded.

Troubleshoot

When an error occurs during the update of firmware and the font file, it will be notified by LED Indication. Please refer to the following Cause and Solution to solve your problem.

LED Indication	mC-Label3 mC-Label2 mC-Print3 mC-Print2 TSP143IV-UEWB	Power LED flashes purple. (Turns on and off at 1-second intervals.)
	mPOP TSP100III U	Error LED flashes red continuously 9 times.
	TSP143IV-UE	Error LED flashes red continuously 7 times.
Cause	A problem occurred when updating firmware and font files or the USB Flash Drive was removed from the printer during the update.	
Solution	Remove the USB Flash Drive and turn off the printer. Check that there is no problem with the Star Configuration Format, the firmware file and the font file saved in the USB Flash Drive. Then follow this procedure and restart the update process from the beginning.	

Edit the Star Configuration Format (JSON format)

The Star Configuration Format (JSON format) is written as follows. Edit the content depending on your settings. Delete any unnecessary elements.

Sample Code (for mC-Print3)

```
{
  "title": "star_configuration",
  "version": "1.3.0",
  "notification": "all",
  "print_when_completed_type": "ascii",
  "print_when_completed": "Completed",
  "firmwares":
  [
    {
      "action": "force",
      "device_name": "mC-Print3",
      "path_type": "path",
      "path": "/mC-Print3_V31(MAIN)_V31(BOOT).mot",
      "file_type": "firmware",
      "print_type": "ascii",
      "print_before_writing": "Start Firmware Update",
      "selftest_after_writing": "msw"
    },
    {
      "action": "force",
      "device_name": "mC-Print3",
      "path_type": "path",
      "path": "/mC-Print3#20.mot",
      "file_type": "font",
      "print_type": "ascii",
      "print_before_writing": "Start Font Update"
    }
  ]
}
```

Supplement

For details, refer to "2. Support status table by model" in the Star Configuration Format Specifications Manual.
mC-Label3 and mC-Label2 also support configuring settings.

Key Description

Key	Type	Mandatory	Valid Value
title	String	✓	Defines the identifier that identifies the format of this JSON file. star_configuration: fixed.
version	String	✓	Defines the supported version of the Star Configuration Format. This firmware version supports only Version 1.x.x.
notification	String		Defines the means to print the error content when a skip or error occurs during the operation of this function. none: Not print. all : Print the content of skip/error. For details, see Details of "notification" Key on page 12. * This key is not supported on mC-Label3, mC-Label2.
print_when_completed_type	String		Defines the printing method when this function is completed. none: Not print. ascii : Print in ASCII code.
print_when_completed	String		Defines the contents to be printed when this function is completed. This element is required only when "print_when_completed_type": "ascii" is specified. Only ASCII characters 0x20 to 0x7E can be printed used. A line feed is specified by 「\n」. Use 「\」 to print 「\」, and 「"」 to print 「"」. Maximum number of characters is 511 characters. If printing cannot be executed due to out of paper error or cover open error, this process is skipped.
firmwares	FirmwareObject		Array of FirmwareObject.
action	String	✓	Defines the firmware update method to be executed to the printer. upgrade: Executes update only when the firmware is upgraded. The custom firmware cannot be updated or changed. force : Changes the firmware specified by "path".
device_name	String	✓	Defines the printer model. mC-Label3 : mC-Label3 series printer. mC-Label2 : mC-Label2 series printer. mC-Print2 : mC-Print2 series printer. mC-Print3 : mC-Print3 series printer. mPOP : mPOP series printer. TSP100IIIU : TSP100IIIU printer. Use three uppercase letters of i for III. TSP100IV : TSP100IV printer. Use the uppercase letter i for I. For other values, the process is skipped.

Key	Type	Mandatory	Valid Value
path_type	String	✓	Defines how to get the firmware file. path: Specifies the path where the firmware file is saved.
path	String	✓	Defines the path where the firmware file is saved. Specify a relative path from the Star Configuration Format. 「/」 can be used as a folder separator. The maximum number of characters is 255 one-byte characters (including the extension). (If saved in the root directory, specify the firmware file name.)
file_type	String		Defines the file type specified in the "path". firmware : Firmware. font : Font file. * This key is not required for mC-Label3.
print_type	String		Defines the notification printing method before executing the firmware update. none: Not print. ascii : Print in ASCII code.
print_before_writing	String		Defines the content of the notification printing before executing the firmware update. This element is required only when "print_type": "ascii" is specified. Only ASCII characters 0x20 to 0x7E can be printed used. A line feed is specified by 「\n」. Use 「\\」 to print 「\」, and 「\"」 to print 「"」. Maximum number of characters is 511 characters. If printing cannot be executed due to out of paper error or cover open error, this process is skipped.
selftest_after_writing	String		Defines the means and range for self-printing after executing the firmware update. none : Not print. all : Print all information. msw : Print only printer information. bluetooth: Print only Bluetooth® information. network : Print only network information.

Details of “notification” Key

When “all” is specified for “notification”, the causal key and content is printed when a skip or error occurs. Please refer to the following Cause and Solution to solve your problem.

Content	Cause and Solution
KEY SKIPPED	Unsupported key or incorrect key specified in the Star Configuration Format. Check and correct the key name.
VALUE SKIPPED	Incorrect value specified in the Star Configuration Format. Check and correct the value.
KEY ERROR	The mandatory key is not specified in the Star Configuration Format. Check whether the key specification is complete and correct it.
VALUE ERROR	Incorrect value specified for a mandatory key in the Star Configuration Format. Check and correct the value.
KEY LENGTH ERROR	The key name is too long in the Star Configuration Format. It should be 63 characters or less.
VALUE LENGTH SKIPPED	The value is too long in the Star Configuration Format. Check the number of characters of the value.
VALUE LENGTH ERROR	The value for a mandatory key is too long in the Star Configuration Format. Check the number of characters of the value.
UNDEFINED ERROR	Incorrect description in the Star Configuration Format. Check the following for possible causes. - Is the file name specified in “path” correct? Is it in the specified path? - Is “upgrade” specified for “action” to upgrade the custom firmware? - Is “firmware” specified for “file_type” to save the font file in the path? - Is “font” specified for “file_type” to save the firmware in the path?
Print the number of skip/error	If it is not possible to print all the contents of skips and errors that occurred during the operation of this function, the number of each is printed. Check the Star Configuration Format for any errors, and correct it. Example) Message print aborted, 4 errors and 10 skips were found. (when 4 errors and 10 skips occurred)

