

PROCEDURE FOR UPDATING ROBOT SOFTWARE FOR CRX SERIES

This document describes the procedure to update the Robot controller R-30iB Mini Plus software. Follow the procedure to update the robot software.

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1. Note

- This document should be used to update software for the Robot Controller R-30iB Mini Plus/CRX series.
- Only use this document to update the CRX series robot with an R-30iB Mini Plus controller.
- Use a USB memory device recommended by FANUC or one with a proven record of accomplishment.
- The following USB memory devices are confirmed for operation.

I-O DATA DEVICE INC. (Recommended)	U3-STD 8GB,16GB,32GB
Transcend INC.	TSGJF350 8GB,16GB,32GB

- Select an USB memory device with enough capacity when updating software on multiple CRXs using a single USB memory device.
- When updating the software using USB on controller, multiple CRXs software can be updated using a single USB memory device (select an USB memory device with enough capacity).

Number of software updates	Up to 2 CRXs	Up to 6 CRXs	Up to 14 CRXs	Up to 25 CRXs
Recommended USB memory capacity	2GB	4GB	8GB	16GB

Note: The above descriptions are an approximation. The capacity of backup files vary by the option software configuration and the number of TP Programs etc.

- Unable to update the software to a different major version.
- Cannot install a version of software lower than the one currently installed.



CAUTION

The USB memory devices above are confirmed for operation, but FANUC does not guarantee operation of USB memory devices on the market. Please confirm a USB memory device at your site before usage.

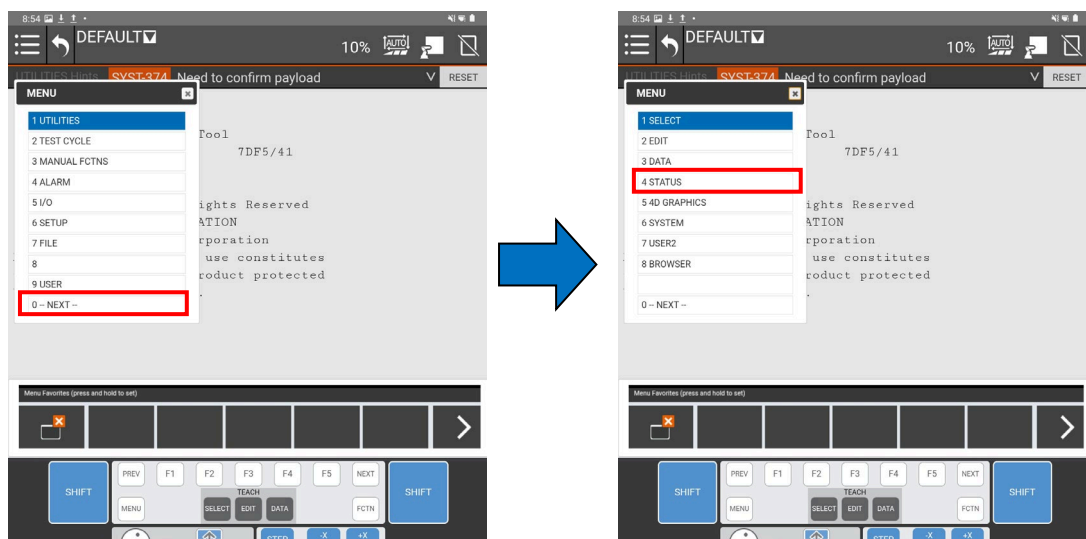
2. Software Update using the Tablet TP

The USB memory port of the Tablet TP (UT1:) or the USB memory port of the robot controller (UD1:) can be used for the software update using the Tablet TP. However, the software needs to be updated according to the procedure for USB on controller from the compatible menu, in the case using the USB memory device inserted to UD1. Refer to **“3. Software Update using USB on the controller (Preparation)”** for details.

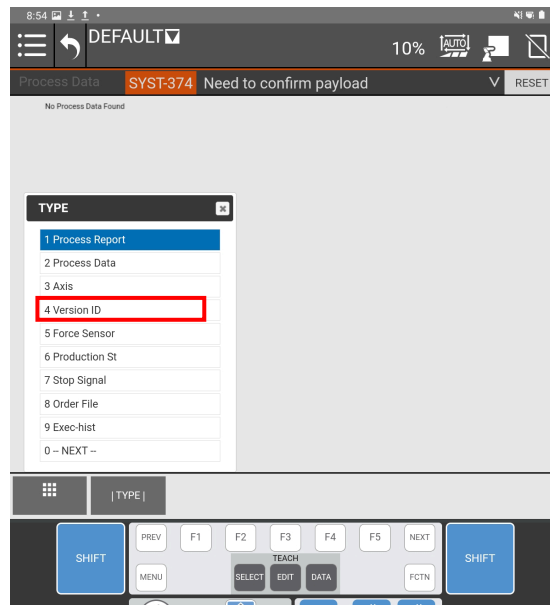
Note 1: If the current controller version is less than “V9.40P/23”, software update using the Tablet TP is not available. Do software update using USB on the controller (UD1:).

Note 2: If the current Boot MONITOR version of controller is less than “V9.40P/23”, software update using the Tablet TP is not available. Do software update using USB on the controller. The way to confirm the Boot MONITOR version is as below.

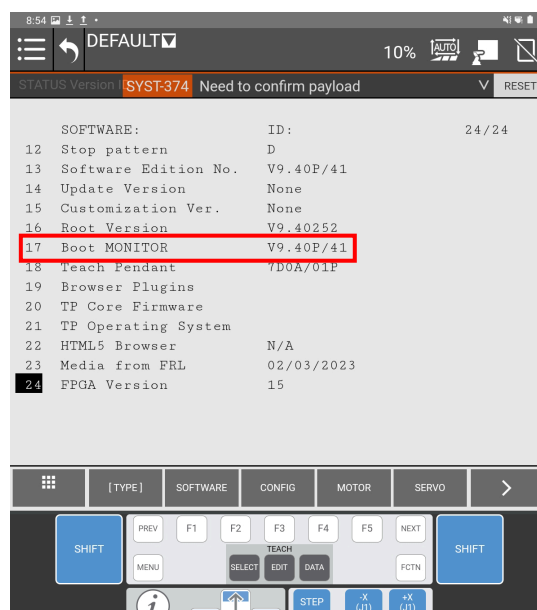
1. Press the [MENU] key and then select “-NEXT-” and “STATUS” to open the status screen.



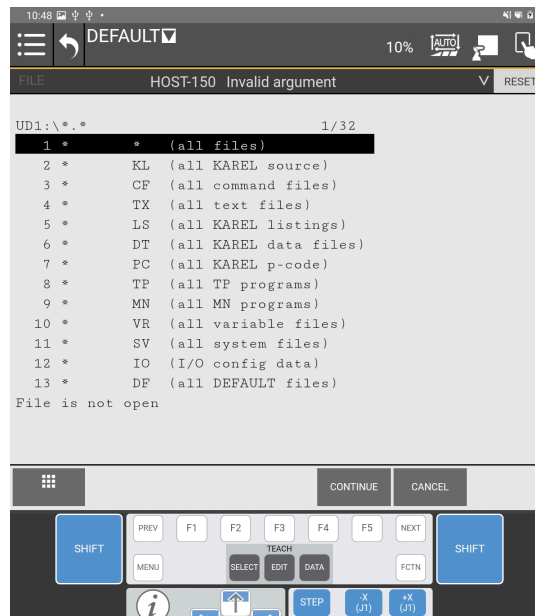
2. Press the F1[TYPE] key and then select “Version ID”.



3. Confirm the “Boot MONITOR” in the line 17.



Note 3: If the current controller version is less than “V9.40P/34”, and TP programs or backup files with half-width katakana in the filename exist, software update using the Tablet TP is not available because “HOST-150 Invalid argument” occurs. Please do software update using USB on the controller (UD1:).

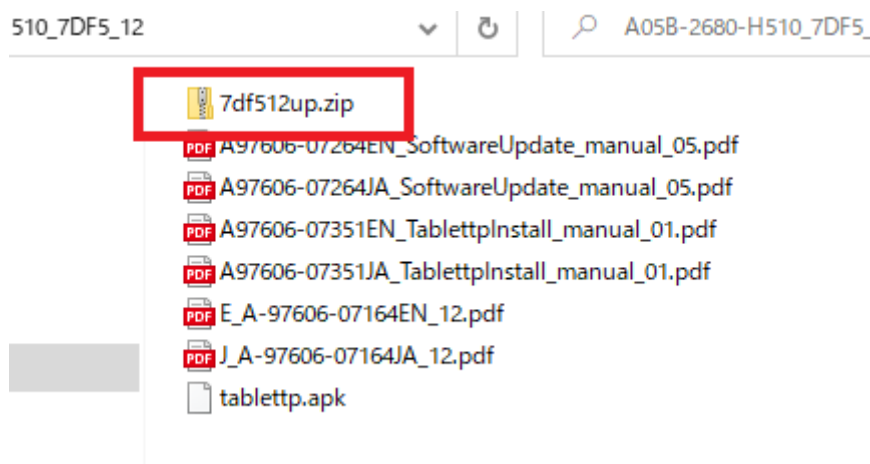


2.1. Preparation (when Using the Tablet TP)

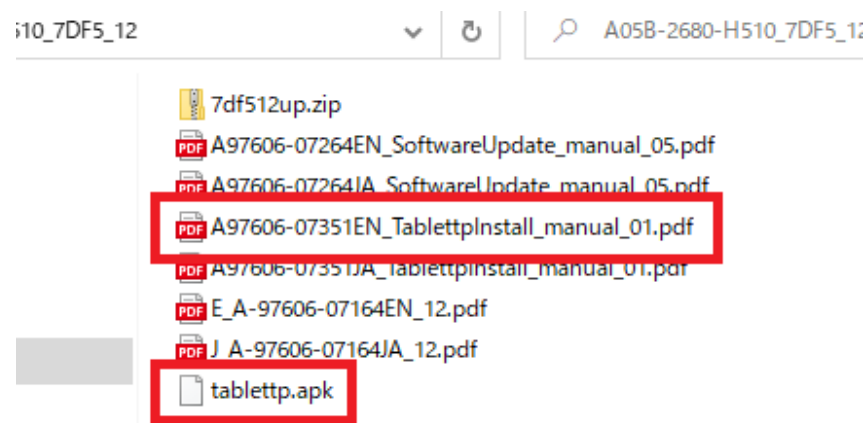
1. Download the software for the CRX series robot (A05B-2680-H510_7DF5_XX.zip) from your regional FANUC customer service website that provides software download. For example, in Japan, the website is (<https://member.fanuc.co.jp/portal>).

Note: The above XX depends on the software version.

2. Extract files from the zip file downloaded in step 1. "7df5XXup.zip" should be extracted and it is the compressed file for updating the software for CRX series robot.



3. Software update of the controller can be done when the Tablet TP app version is V1.13 or later; if its version is less than V1.13, follow the instructions in "PROCEDURE FOR INSTALLING THE TABLET TP APP" (A97606-07351EN) to install the newest version of the Tablet TP app. Please use the app installer, "tablettp.apk" in the extracted folder.



4. Prepare the USB memory device.
5. Save "7df5XXup.zip" in USB memory device.

Note: When using the Tablet TP, the downloaded file can be saved in any folder on USB memory device.

2.1.1. Procedure for Downloading Update Software via Wi-Fi

Tablet TP app can be updated by connecting Tablet TP directly to Wi-Fi.

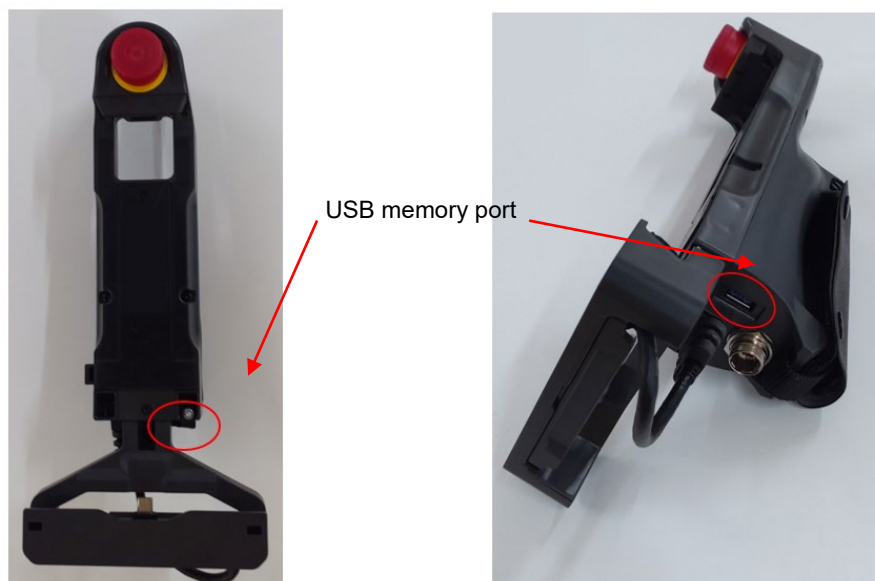
1. Turn OFF the power of the controller and disconnect Tablet TP and the controller. Wi-Fi is not available when Tablet TP and the controller is connected.
2. Access to your regional FANUC customer service website (<https://member.fanuc.co.jp/portal>) from Web browser of Tablet TP, and download the software for the CRX series robot (A05B-2680-H510_7DF5_XX.zip).

Note: The downloaded file can be saved in any folder on USB memory device.

3. Extract files from the zip file saved in the Tablet TP in step 1. “7df5XXup.zip” should be extracted and it is the compressed file for updating the software for CRX series robot.


2.2. Procedure (when Using the Tablet TP)

1. Activate the Tablet TP app.
 2. Insert the USB memory device into the USB memory port on the Tablet TP Base.
- Proceed to step 3 when downloaded the update software via Wi-Fi.

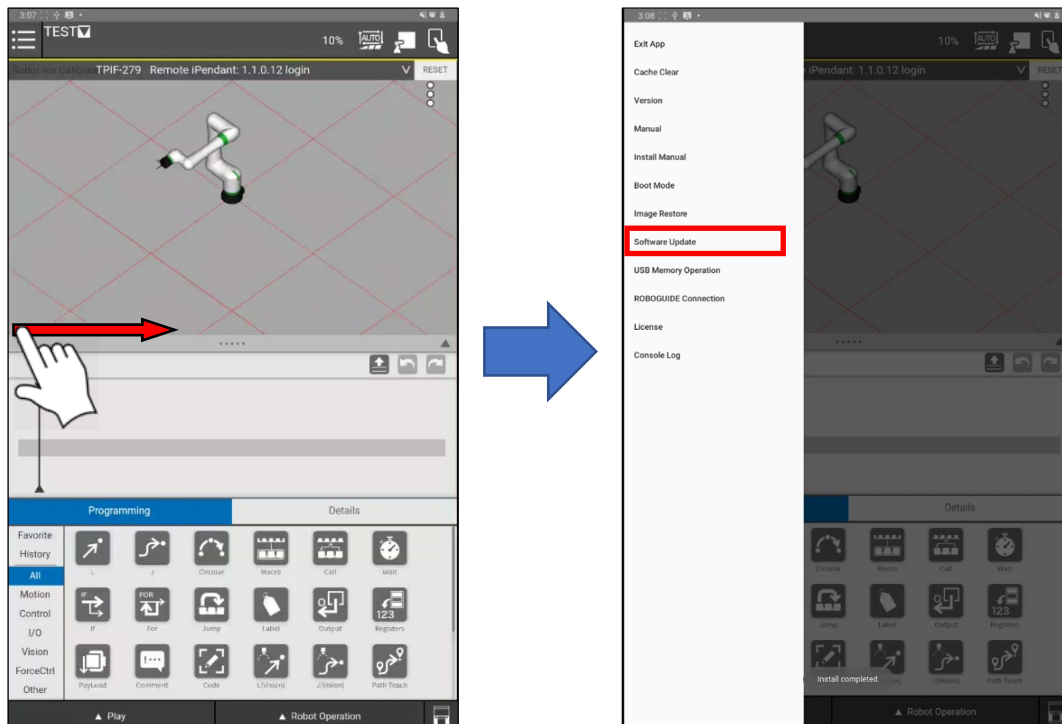


3. Slide the left end of the screen towards the right to display the menu and select “Software update”.

If the message appears, refer to **“2.4. Troubleshooting (when Using the Tablet TP)”**.

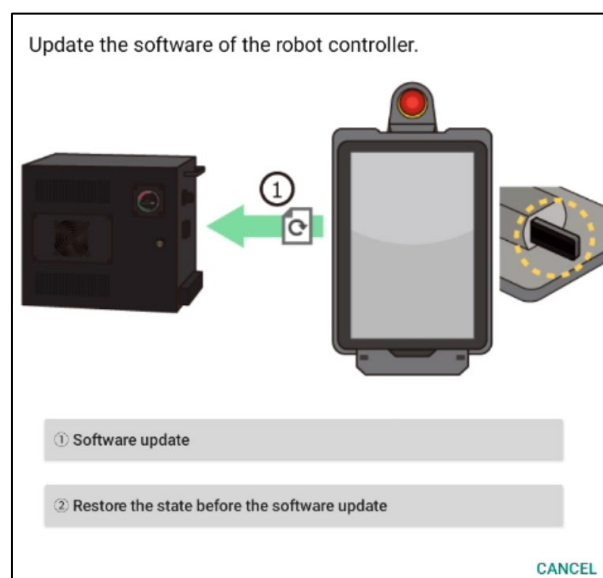
Note 1: The TP enable key should be ON  before updating the software.

Note 2: Close all running program when software update.

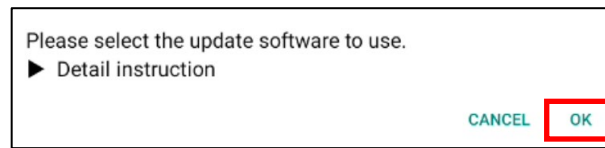


4. On the displayed pop up related to software update, tap “(1) Software update”.

Note: Message will be displayed if the controller is disconnected, or the controller version is old. Refer to **“2.4. Troubleshooting (when Using the Tablet TP)”** and deal with error.



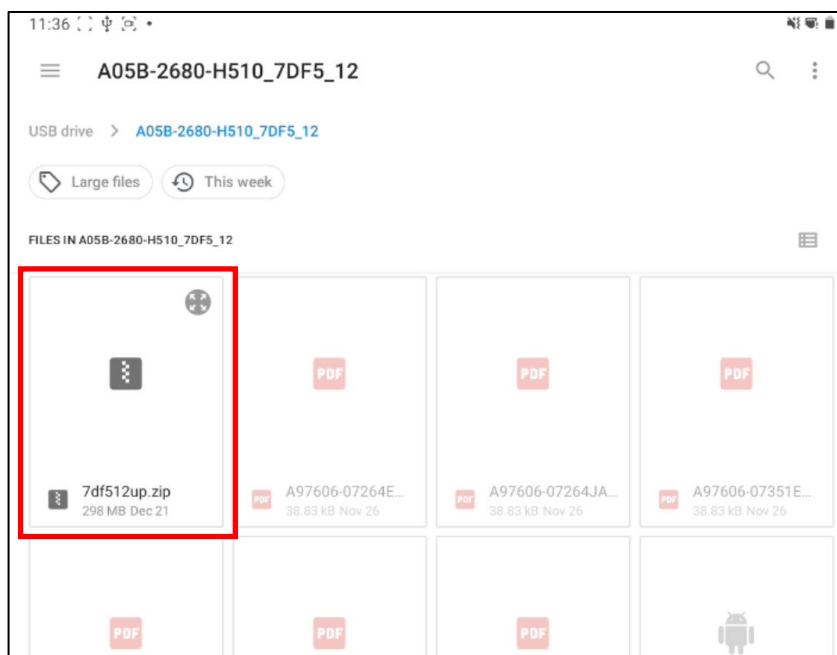
5. The following pop-up will be displayed. Tap “OK”.



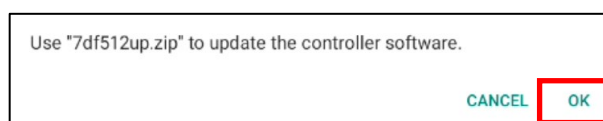
6. On the displayed directory selection screen, tap the hamburger button (≡) at the top left of the screen, and select the folder where the update software is saved.
If the update software is saved in the USB memory device, select “USB drive”, and select the tablet name if it is saved in the Tablet TP via Wi-Fi.



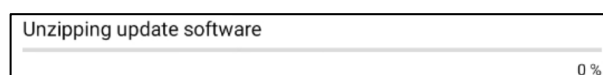
7. On the directly selection screen, move to the folder where the update software is saved, and tap the update software “7df5XXup.zip”.



8. The following pop-up will be displayed. Tap “OK”.



- The zip file will be unzipped.

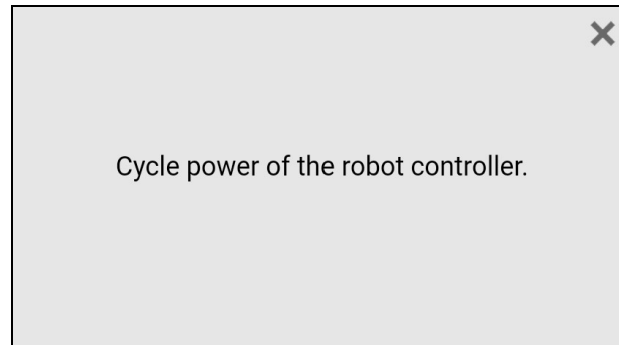


- If the message appears, refer to **“2.4. Troubleshooting (when Using the Tablet TP)”**.

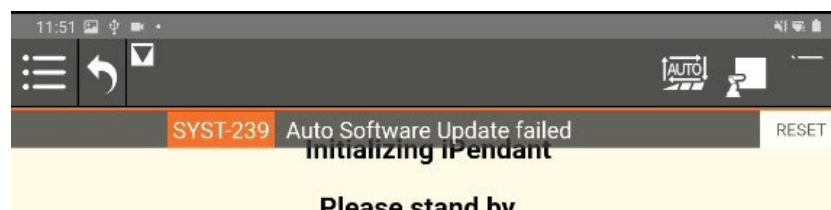
9. The backup process will start if the unzip operation completed successfully. Wait for a few minutes. It can take 10 minutes or more depending on the number of backup files. Backup progress can be checked on the screen like following.



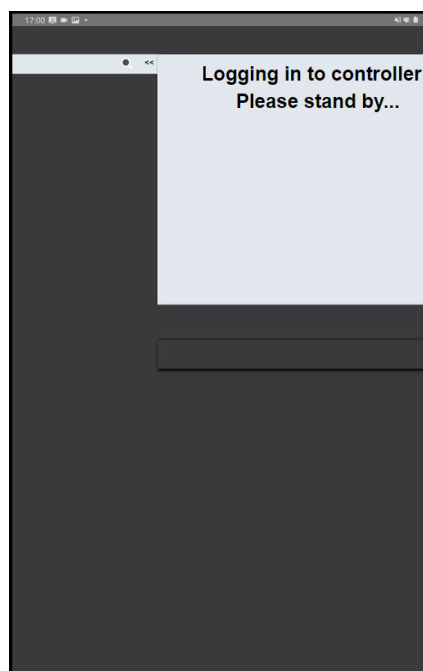
10. The pop-up “Cycle power of the robot controller.” is displayed after the alarm “System-213 Power has been reconnected”, “System-266 Please reconnect the power” or “System-361 Rebooted” is displayed. If the pop-up is displayed, cycle power of the controller.



Note 1: The connection between the Tablet TP and the controller may disconnect without the alarm “System-213 Power has been reconnected”, “System-266 Please reconnect the power” or “System-361 Rebooted” being displayed. The connection is automatically reconnected. If the alarm “SYST-239 Auto Software Update failed” is displayed after the reconnection, please try again from the step 3 “select “Software update””.



Note 2: After the reconnection in Note 1, the following screen may be displayed. If the screen is not changed, please cycle power of the controller in 5 minutes. Do not turn off the power of the controller while waiting 5 minutes. If the screen in step 11 is displayed, the software will be updated. Please proceed to step 11.



Note 3: If the current controller version is “V9.40P/23” or more and the current Boot MONITOR version of controller is less than “V9.40P/23”, software update is not started and the usual screen is displayed. Do software update using USB on the controller.

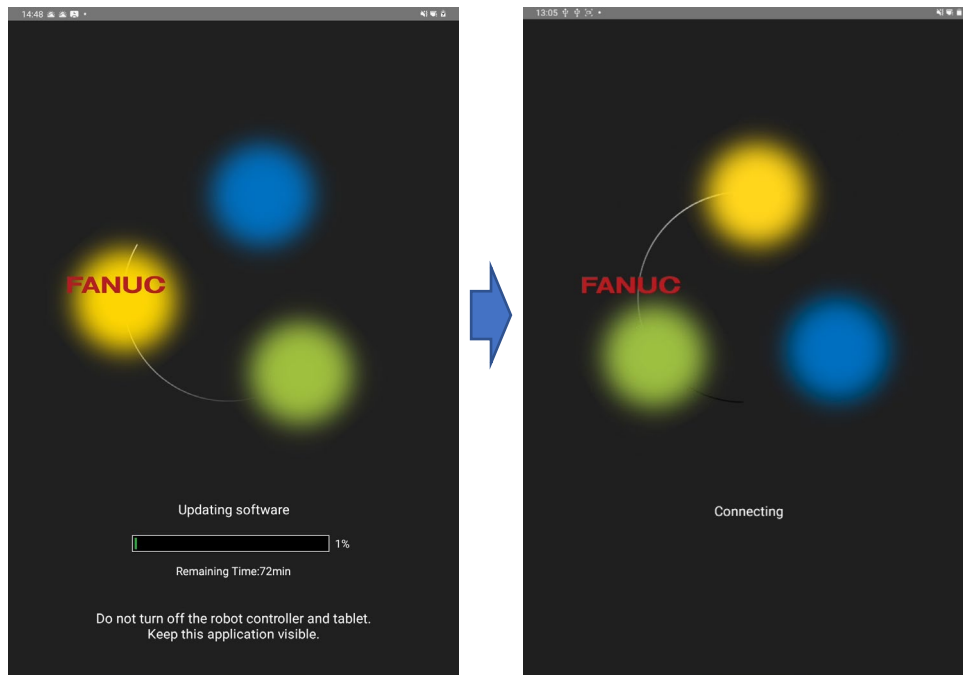
11. The software will be updated. Wait 50 minutes to 2 hours for the software update to complete.

Note 1: The time it takes for the software update to complete depends on the software configuration, the number of programs, and the performance of the USB memory device.

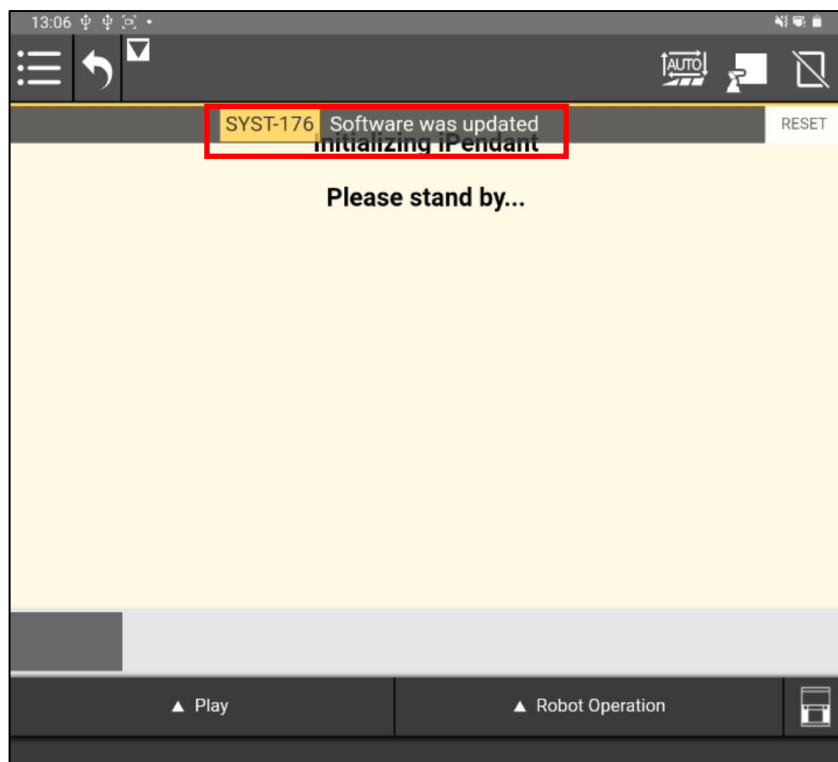
Note 2: Do not turn off the power of the controller while updating the software.

Note 3: If the screen does not come up after 2 hours from step 10, the software update may have failed. If the message appears, please refer to “**2.3. The Way to Retry Software Update if Update Failed (when Using the Tablet TP)**” and “**2.4. Troubleshooting (when Using the Tablet TP)**”.

The following screen is displayed while updating software. Users can check the status of the software update with this screen.



Software update is successfully completed if the message “SYST-176 Software was updated” is displayed.



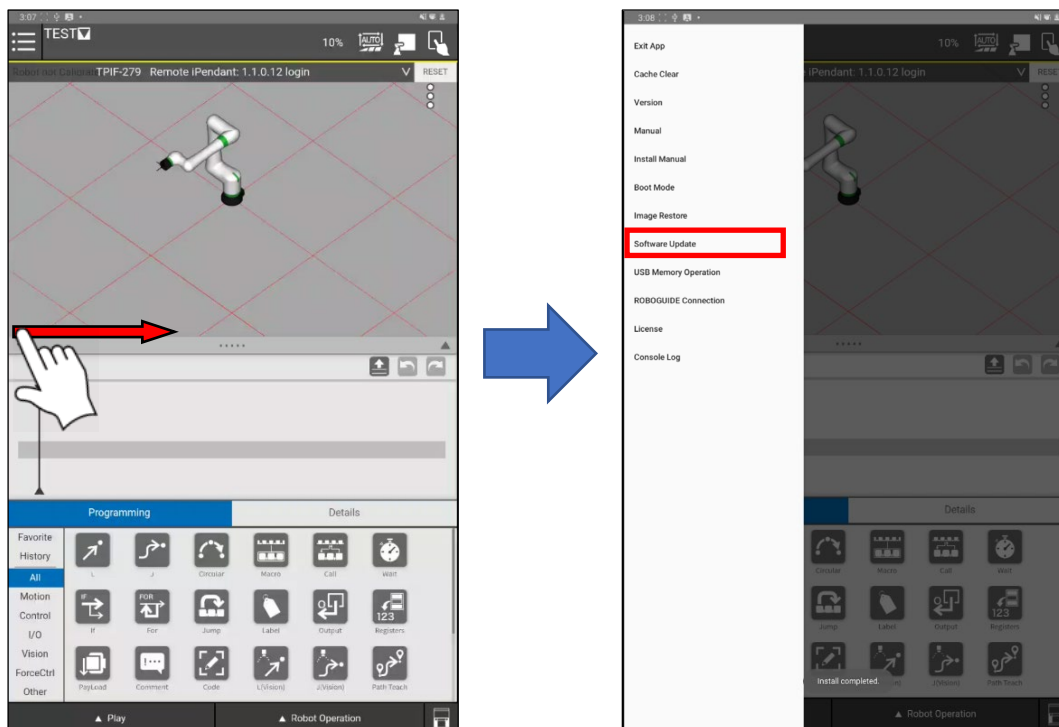
2.3. The Way to Export Backed-up Data before Software Update (when Using the Tablet TP)

The backed-up data before software update is saved in tablet internal memory. Then, follow the steps below to export the backed-up data as necessary.

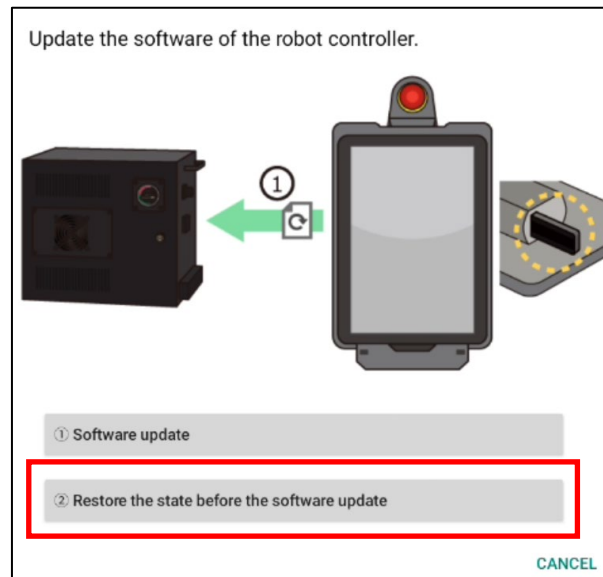
Note 1: The backed-up data in tablet internal memory is overwritten and deleted when the software is updated. Therefore, export the backed-up before software update if the backed-up is needed.

Note 2: Export the backed-up may take an hour.

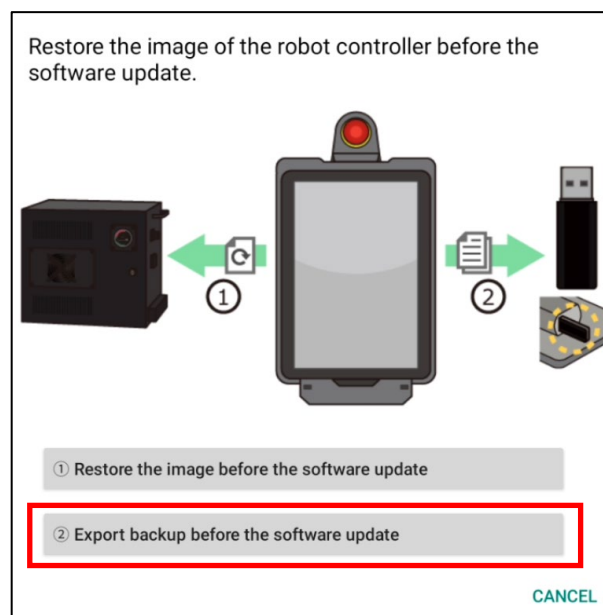
1. Select “Software Update” from drawer menu.



2. On the displayed pop-up related to the software update, tap “(2) Restore the state before the software update”.

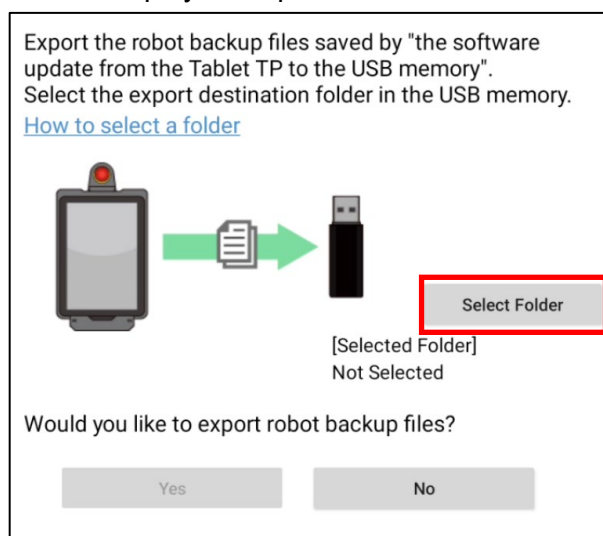


3. The following pop-up will be displayed. Tap “(2) Export backup before the software update”.

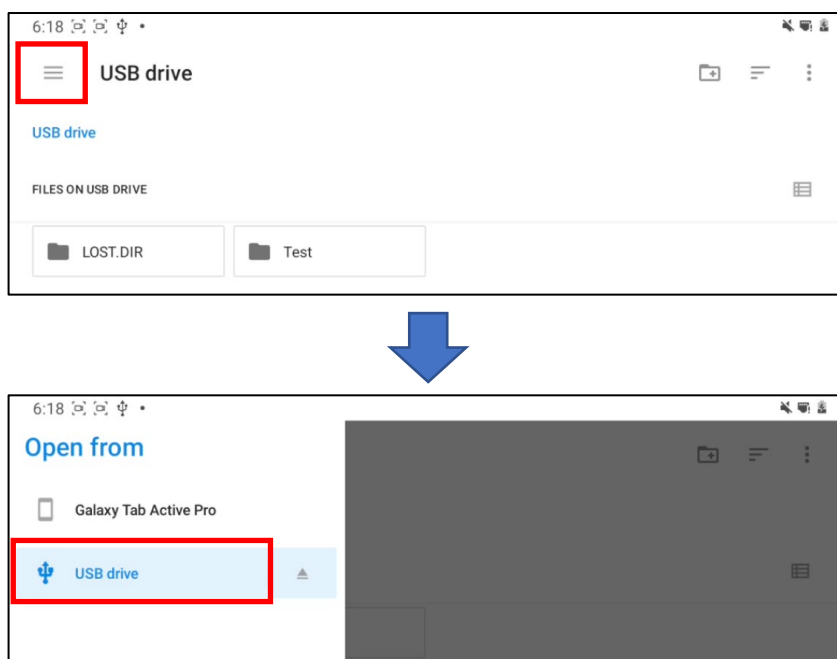


If the message appears, refer to **“2.4. Troubleshooting (when Using the Tablet TP)”**.

4. The following pop-up will be displayed. Tap “Select Folder”.



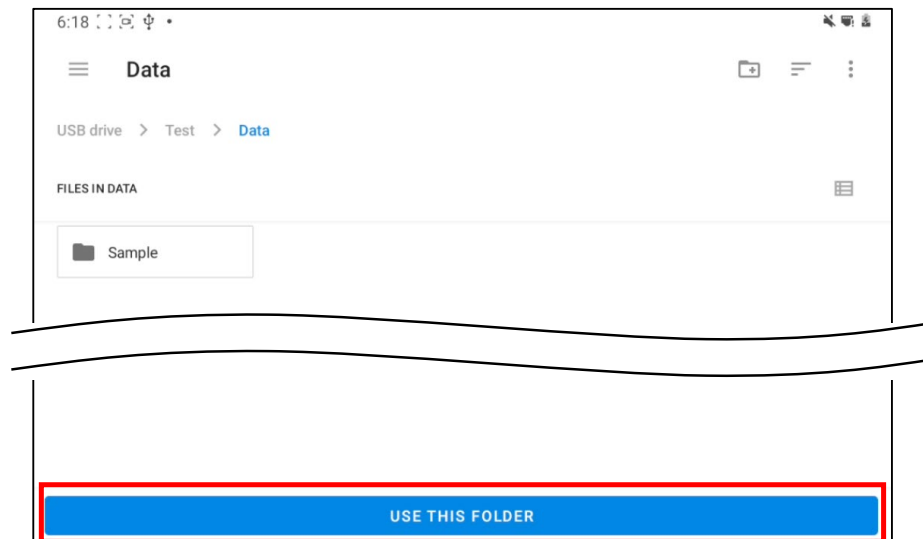
5. On the displayed directory selection screen, tap the hamburger button (≡) at the top left of the screen, and tap the USB memory device inserted into the USB memory port.



6. On the folder selection screen, select the export destination folder, and tap “USE THIS FOLDER” at the bottom of the screen.

Note 1: The folder other than USB memory device cannot be specified.

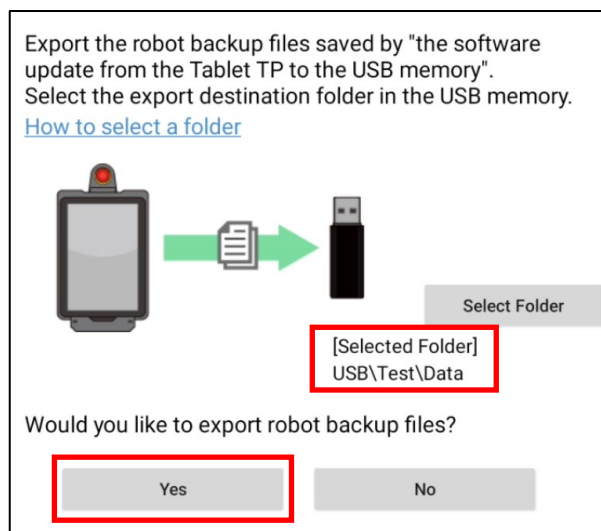
Note 2: Please specify the empty folder.



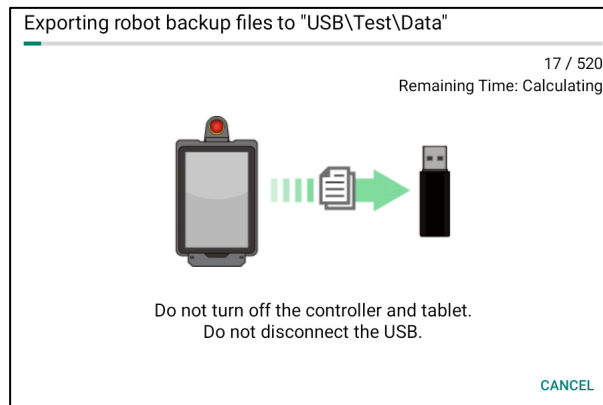
7. The following pop-up will be displayed. Tap “ALLOW”.



8. Confirm that the specified folder has been changed from “Not selected” to the folder specified in step 18, and tap “Yes”.



- Backup files are copied to the specified folder in the USB memory device.



- If the message appears, refer to **“2.4. Troubleshooting (when Using the Tablet TP)”**.
 - If the same file exists in the USB memory device, it will be overwritten with the source file.
 - When the “Cancel” button is tapped during copy operation, the files that has already been copied will be remain as is in the USB memory device. The file that has overwritten before “Cancel” is tapped will not be restored.
9. When the copy is completed, the following screen will be displayed. Tap “OK” to close the pop-up.



10. Save the downloaded backup to another device such as PC.

2.4. The Way to Retry Software Update if Update Failed (when Using the Tablet TP)

1. Check

- If the update fails on or before step 9, go to “3. Update software again”.
- When all image backup files : FROM00.IMG~FROM234.IMG, SRAM00.IMG~SRAM02.IMG(238 files in total) are in the internal storage of the Tablet TP app, go to “2. Restore software before software update process”.
- If not all the image backup files are present, the software update has failed before the update process is complete. Go to “3. Update software again”.

2. Restore software before software update process


- Restore the image backup files (.IMG file) saved in the internal storage of the Tablet TP app. Follow the procedure of “**B.1.2. Restore from the menu of the Tablet TP app)**” in “**Appendix B Restoring image backup files**” to restore the image backup files.

3. Update software again

- If the software update fails when using the software that you prepared, use “**2.1. Preparation (when Using the Tablet TP)**” procedure described before to create another software for updating software and try again.

2.5. Troubleshooting (when Using the Tablet TP)

2.5.1. Message List

Messages	Solutions
Software update using the Tablet TP fails because the robot controller version is old. Please update the controller version using the USB on the controller.	Software update using the Tablet TP is not supported if the controller version is less than "V9.40P/23". Please update the controller version using the USB on the controller (UD1:).
File export failed. Check the free storage space on the USB memory. * USB memory requires at least 256 MB of free space. <u>Check Free Storage</u>	Tap "Check Free Storage" to move to the storage screen. Make more than 256 MB of free storage, and then export backup files.
Software update failed. Please check that selected file is the update software.	After unzip file, this message will be displayed if the required file for software update does not exist. Re-download the update software from your regional FANUC customer service website and try again.
Tablet TP requires at least 256 MB of free space. <u>Check Free Storage</u>	Tap "Check Free Storage" to move to the storage screen. Make more than 256 MB of free storage and try again from the beginning.
Failed to start software update. Please try again from the beginning.	Abnormally terminated. Try again from the beginning.
Connection to the controller is lost.	Check that if there are any loose cable or poor contact. Inserting/removing the cable. Check if the controller is on.
Please enable the TP enable key.	Turn ON the TP enable key  with Tablet TP. For more details, refer to Tablet TP manual.
Please close all running programs.	Try again after closing all running programs.
Robot backup file does not exist.	When restoring image, this message will be displayed if the image file does not exist in the internal storage of Tablet TP. Perform image backup or software update, and then create backup data.
Cannot detect USB memory device.	Displays when the USB memory device cannot be detected. Reinsert the USB memory device.
"HOST-150 Invalid argument" (Alarm message)	TP programs or backup files with half-width katakana in the filename exist. If the files with half-width katakana in the filename exist, please do software update using USB on the controller (UD1:).

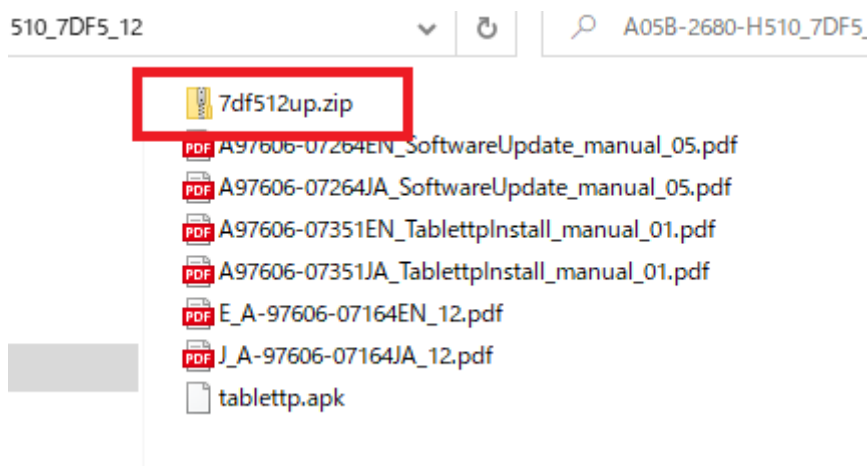
3. Software Update using USB on the controller (Preparation)

3.1. Preparation (when Using USB on the controller)

1. Download the software for the CRX series robot (A05B-2680-H510_7DF5_XX.zip) from your regional FANUC customer service website that provides software download. For example, in Japan, the website is (<https://member.fanuc.co.jp/portal>).

Note: The above XX depends on the software version.

2. Extract files from the zip file downloaded in step 1. "7df5XXup.zip" should be extracted and it is the compressed file for updating the software for CRX series robot.



3. Prepare your USB memory device formatted in FAT32 format. Format according to the procedure described in "**Appendix A Format USB from the File screen**".

Note 1: All data in the USB memory device will be lost after the format.

Please check the USB memory device before you format.

Note 2: Do not use a USB memory device with a protection function.

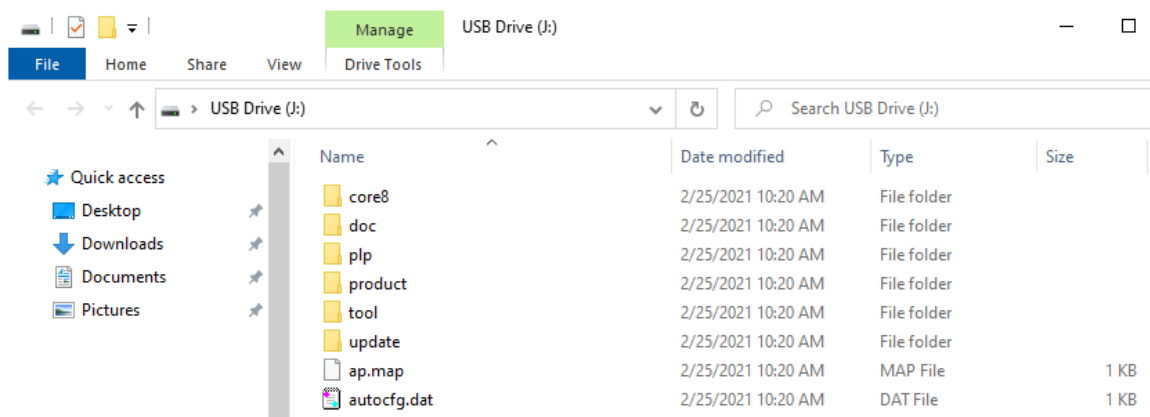
4. Extract files from "7df5XXup.zip" directly to the root directory of the USB memory device prepared in step 3.

Note 1: There are many files in "7df5XXup.zip" and it may take an hour or more to extract all files.

Note 2: Do not extract files to a directory other than the root directory of the USB memory device. The software cannot be updated if extracted to a sub directory.

Note 3: After extracting files, make sure the USB memory device has at least 500MB of free storage.

The files should be extracted to the USB memory device as shown below.



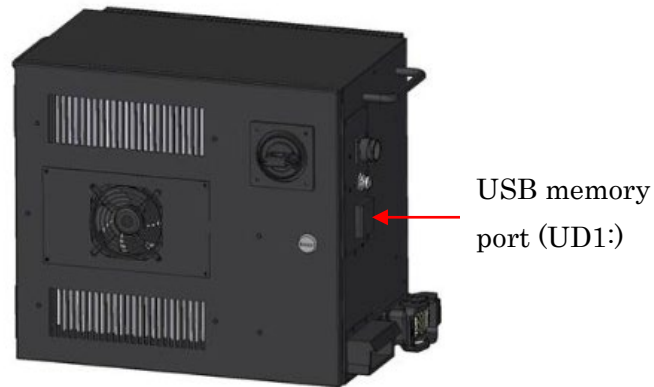
Note 4: If “Symantec Endpoint Protection” as security software suite is used, the warning screen that security risk "WS.Reputation.1" was detected may be displayed. The notification is a false detection that can safely be ignored, but the detected file is deleted. Therefore, please restore misdetected files by the following ways.

1. Open the Symantec Endpoint Protection interface.
2. From the left-hand side menu, select “View Quarantine”.
3. The list of quarantined files and registry entries is displayed. Highlight the item in the quarantine list, and choose “Restore”.
4. When the prompt message “Are you sure you want to restore the selected files?” is displayed, choose “Yes”.
5. When the prompt message that create exceptions item is displayed, choose “Yes”. (By setting the misdetected files in Exceptions, the delete of the files are prevented. The set files are confirmed in “Change Settings - Exception”.)
6. Confirm restored files.

3.2. Procedure (when Using USB on the controller)

1. Directly insert the USB memory device prepared in “3.1. Preparation (when Using USB on the controller)” step 4 into the USB memory port (UD1:).

Note: Do not use extension cables, etc.



2. Open the file screen. Press the [MENU] key (Step 1) and then select “7 FILE” (Step 2) to open the file screen.



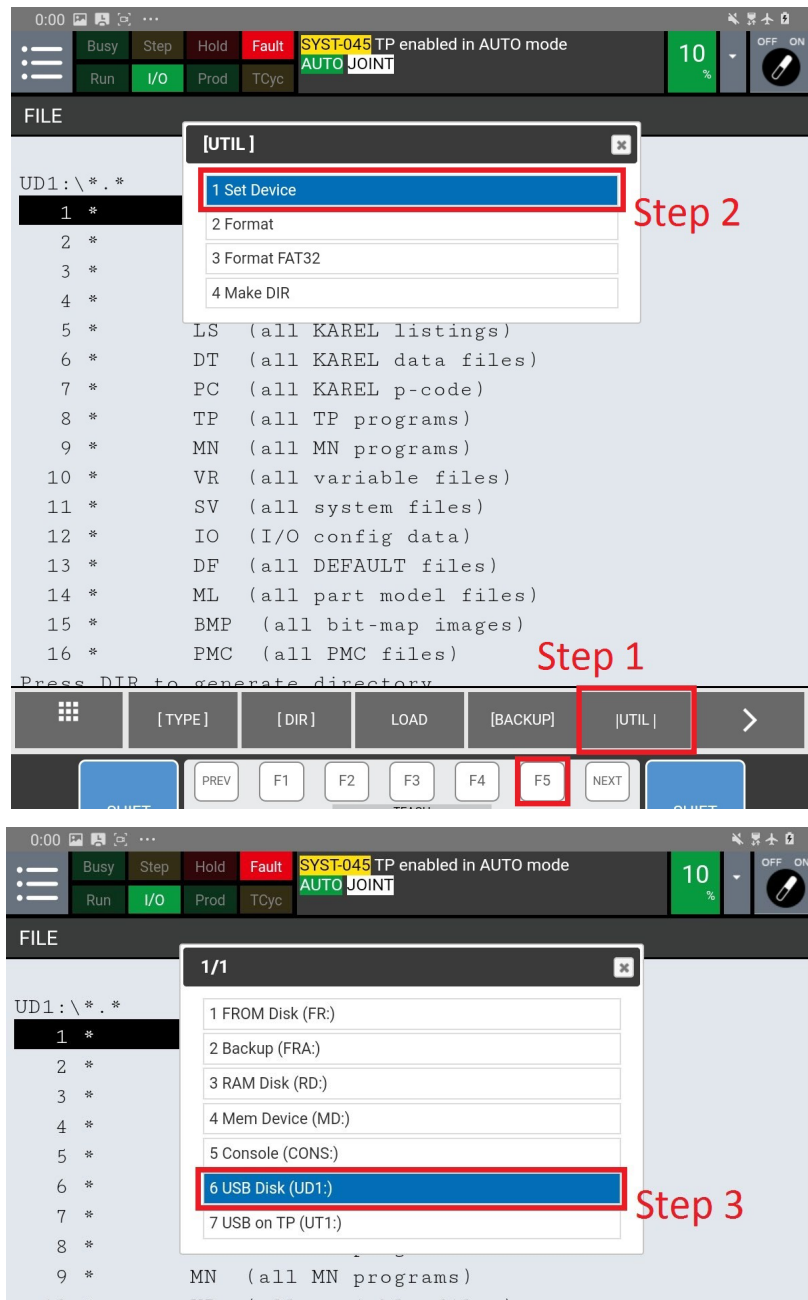
Note: If the file screen is not displayed, press the F1[TYPE] key (Step 3) and then select “1 File” (Step 4).



3. Confirm that “USB disk (UD1:)” is selected.



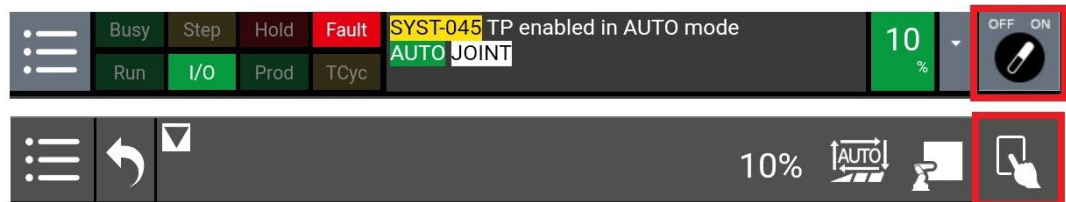
If the selected device is not “UD1:”, press the F5[UTIL] key (Step 1), and then select “1 Set Device” (Step 2) and “6 USB Disk (UD1:)” (Step 3).



Note: If the F5 key displayed is not “UTIL”, press the “NEXT” key or the “>” key to switch the keys displayed.



4. Turn the Teach Pendant Enable (Teach Pendant ON/OFF switch) ON. The Teach Pendant Enable is ON when any of the following conditions are met.

iPendantTablet TP

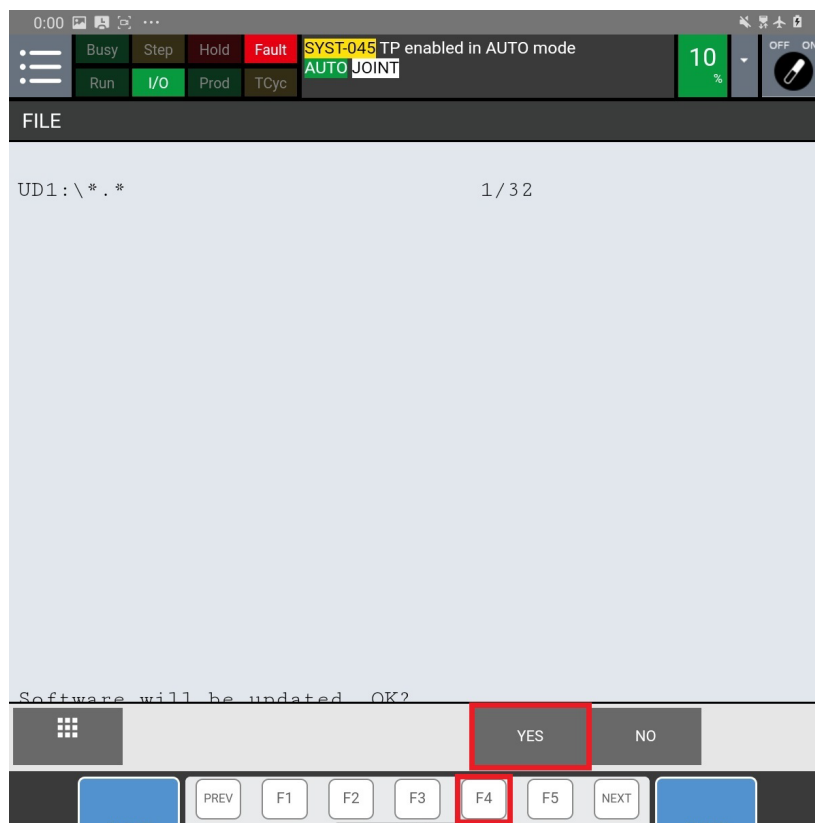
5. Press the F4[INSTAL] key (Step 1) and then select “1 Auto Update” (Step 2).



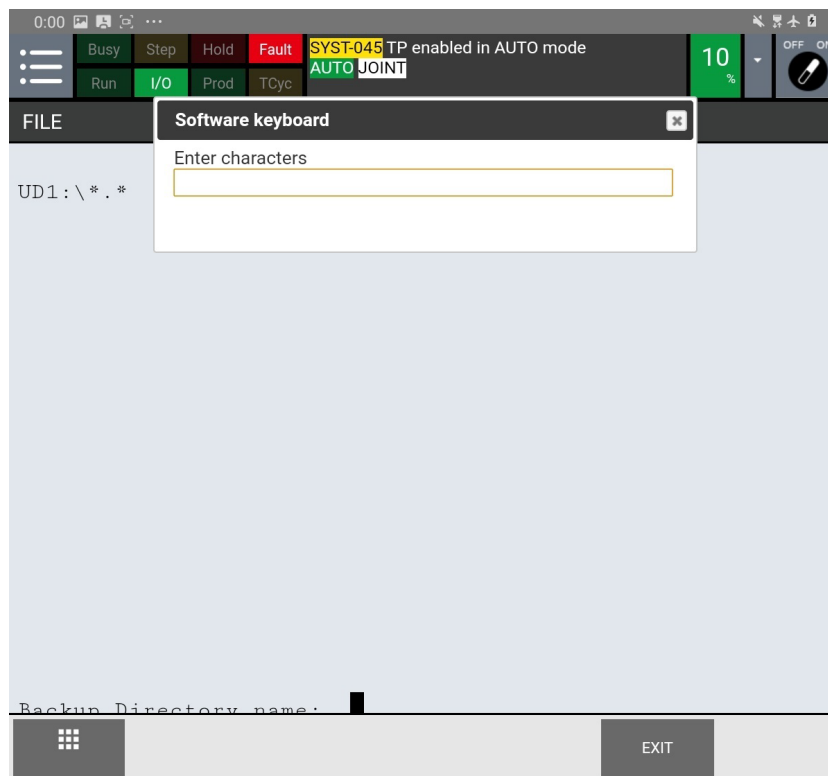
Note: If the F4 key displayed is not “INSTAL”, press the “NEXT” key or the “>” key to switch the keys displayed.



6. The following screen will appear. Press the F4[YES] key.



7. The following screen will appear. Enter the backup directory name.
The production number of the robot should be entered in advance.

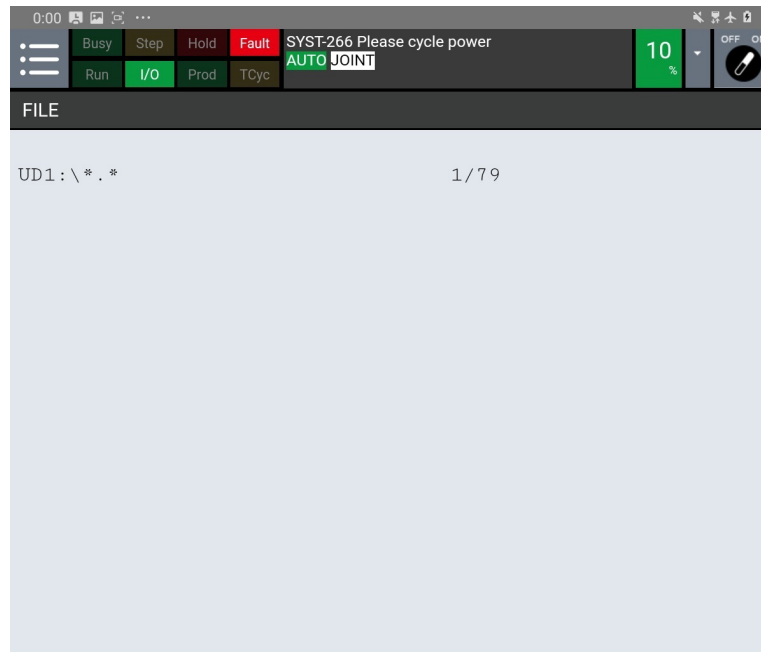


8. Wait for a few minutes while the backup process is automatically performed.

Note 1: If there are many backup files, it can take 10 minutes or more.

Note 2: Do not remove the USB memory device until the software update is complete.

9. Power cycle when the alarm “SYST-213 User power cycle”,
“SYST-266 Please cycle power” or “SYST-361 Controller is cycling power” appears.



10. The software update will start. Please wait about 50 minutes to 2 hours for the software update to complete.

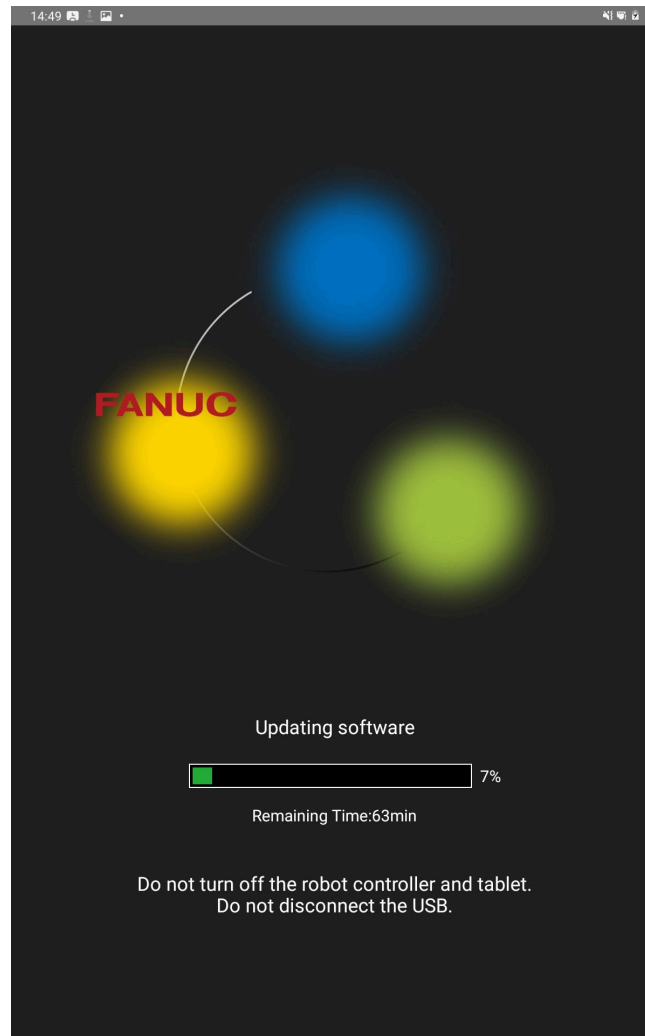
Note 1: The time it takes for the software update to complete depends on the software configuration, the number of programs, and the performance of the USB memory device.

Note 2: Do not turn off the controller while updating the software.

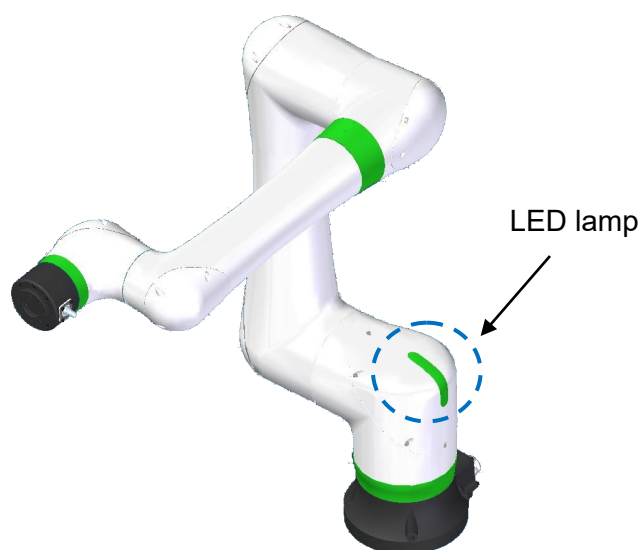
The following screen is displayed on the Tablet TP while updating software. Users can check the status of the software update with this screen.

Please wait and do not turn off the controller.

Note: The following screen will not be displayed when using iOS

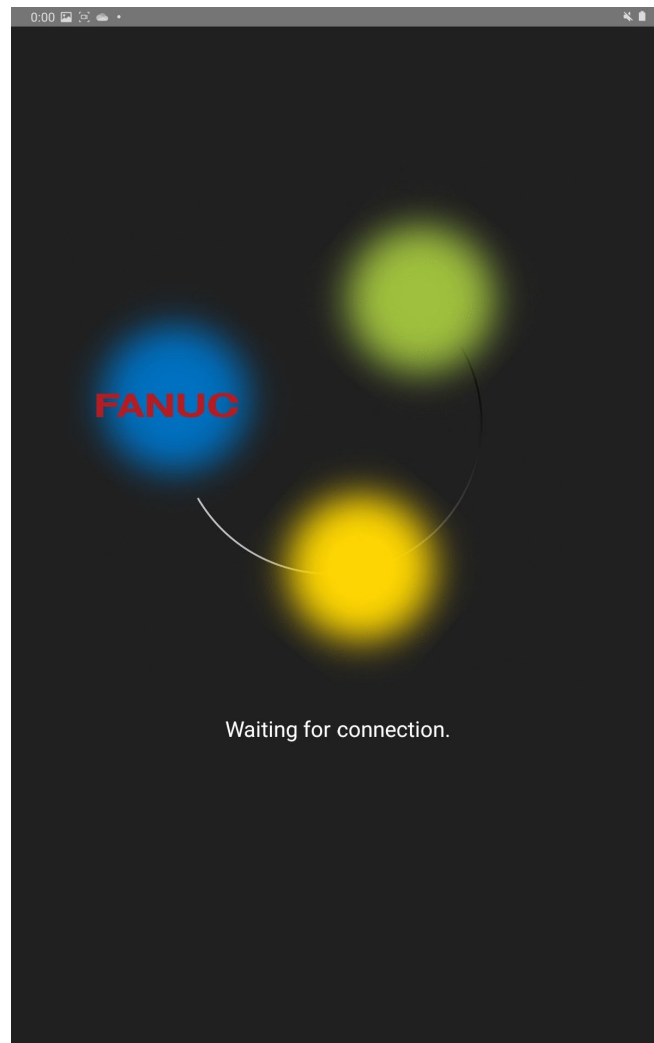


- 11.**After 50 minutes to 2 hours have passed since step 10, check that the LED lamp in the CRX mechanism is ON. If the LED is ON, the software update is about to complete.



When the software update progress reaches 100%, the screen will change to the following.

Please wait until the Tablet TP app is connected.



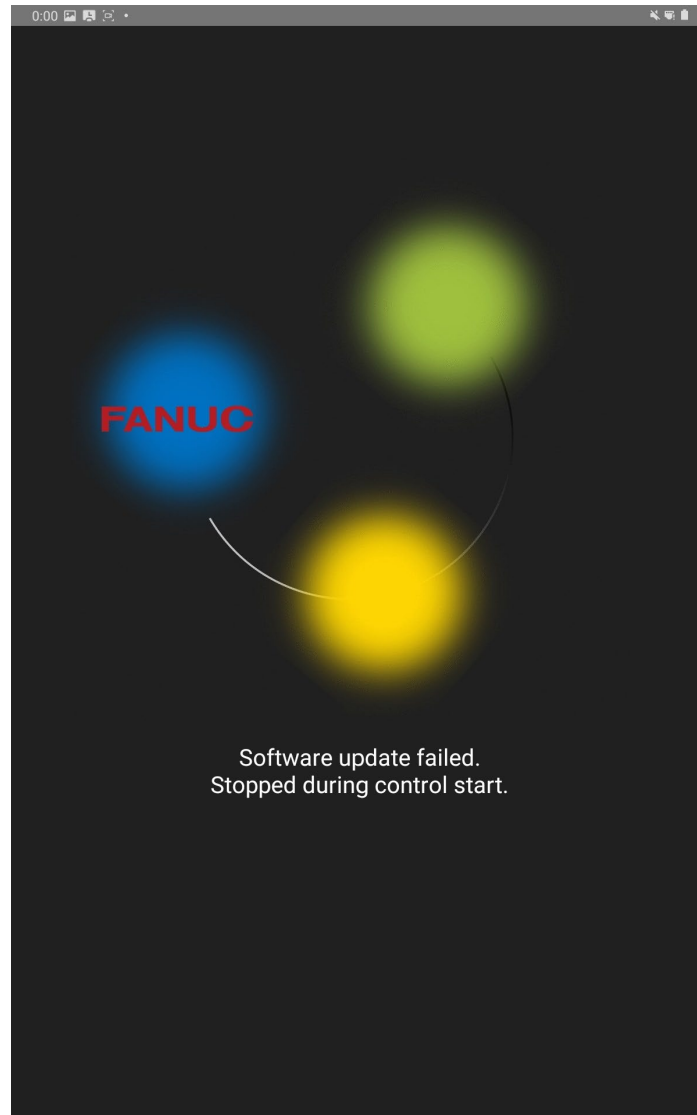
Note 1: This screen will not be displayed when using iOS

Note 2: If the screen does not come up after 2 hours from step 10, the software update may have failed. Refer to “**3.3. The Way to Retry Software Update if Update Failed**” and “**3.4. Troubleshooting (when Using USB on the controller)**”.

When using the Tablet TP, “Software update failed.” may appear on the screen.

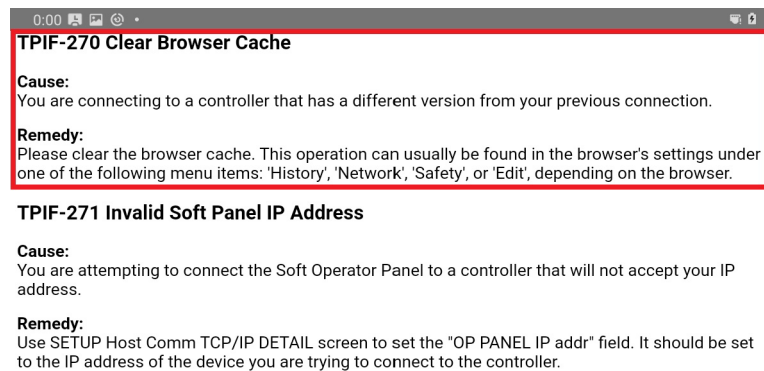
Refer to **“3.3. The Way to Retry Software Update if Update Failed (when Using USB on the controller)”** and **“3.4. Troubleshooting (when Using USB on the controller)”**.

Note: The following screen will not be displayed when using iOS



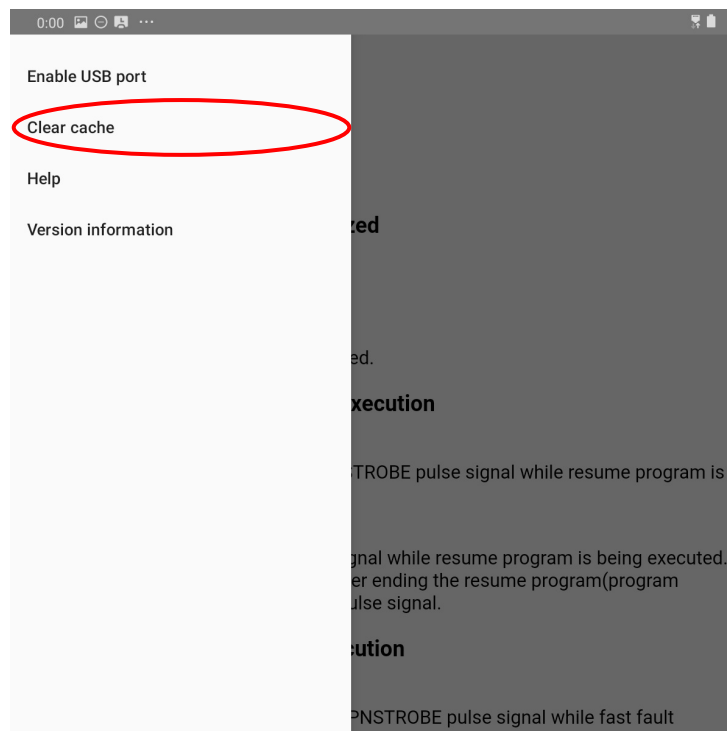
12. If the following screen with “TPIF-270 Clear Browser Cache” appears when using the Tablet TP, the cache must be cleared. Please go to step 13.

If this screen is not displayed or if using the *i*Pendant skip to step 15.

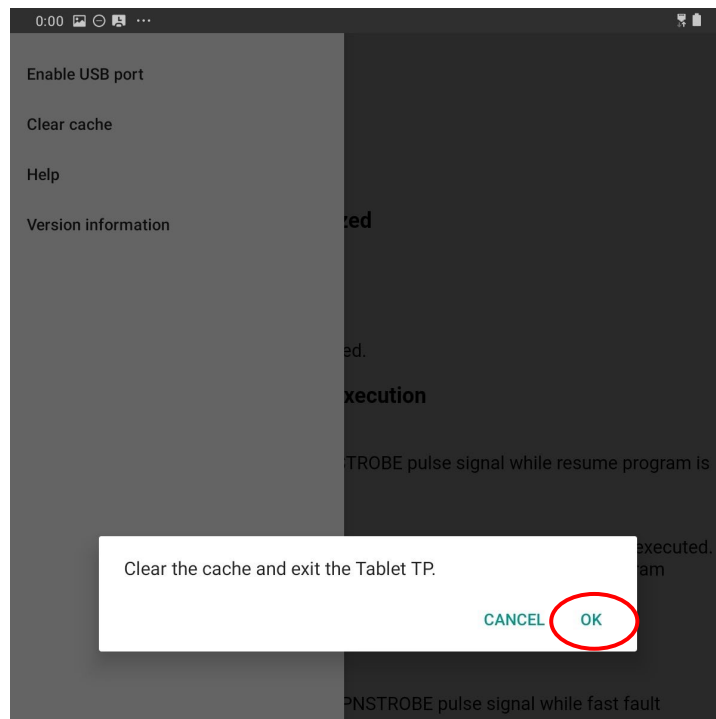


13. Slide right from the left side of the Tablet TP app screen to open drawer menu.

Select “Clear cache”.



- 14.** The dialog, “Clear the cache and exit the Tablet TP.” will appear. Select “OK”. The cache is cleared and the Tablet TP app is closed. Please restart the Tablet TP app.



- 15.** Confirm that the screen can be operated with *i*Pendant or Tablet TP. When confirmed, open the alarm screen by pressing the [MENU] key (Step 1) and then selecting “4 ALARM” (Step 2).

Note: If the alarm screen cannot be displayed, press the F1[TYPE] key and then choose “1 Alarm Log” as described in the note for step 2.



16. Confirm that the alarm “SYST-176 Software was updated” is displayed in the alarm screen. The software update is complete.

Note: If the alarm “SYST-239 Auto Software Update failed” is displayed, the software update failed. In this case, refer to **“3.3. The Way to Retry Software Update if Update Failed (when Using USB on the controller)”** and **“3.4. Troubleshooting (when Using USB on the controller)”**.



17. A folder with the name you entered in step 7 is in the “00” folder on the USB memory device. A backup before updating the software is saved in this folder. Save the backup to another device such as a PC.

3.3. The Way to Retry Software Update if Update Failed (when Using USB on the controller)

1. Check

- If the update fails on or before step 8, go to “3. Update software again”.
- When all image backup files : FROM00.IMG~FROM234.IMG, SRAM00.IMG~SRAM02.IMG(238 files in total) are in directory “\00\TEMP\” in the USB memory device, go to “2. Restore software before software update process”.
- If not all the image backup files are present, the software update has failed before the update process is complete. Go to “3. Update software again”.

2. Restore software before software update process

- Backups are saved in “\00\TEMP\” on the USB memory device. Save the backups to another device such as a PC.
- Restore the image backup files (.IMG file) saved in “\00\TEMP\” in USB memory device to the controller. Follow the procedure in “**Appendix B Restoring image backup files**” to restore the image backup files.

3. Update software again

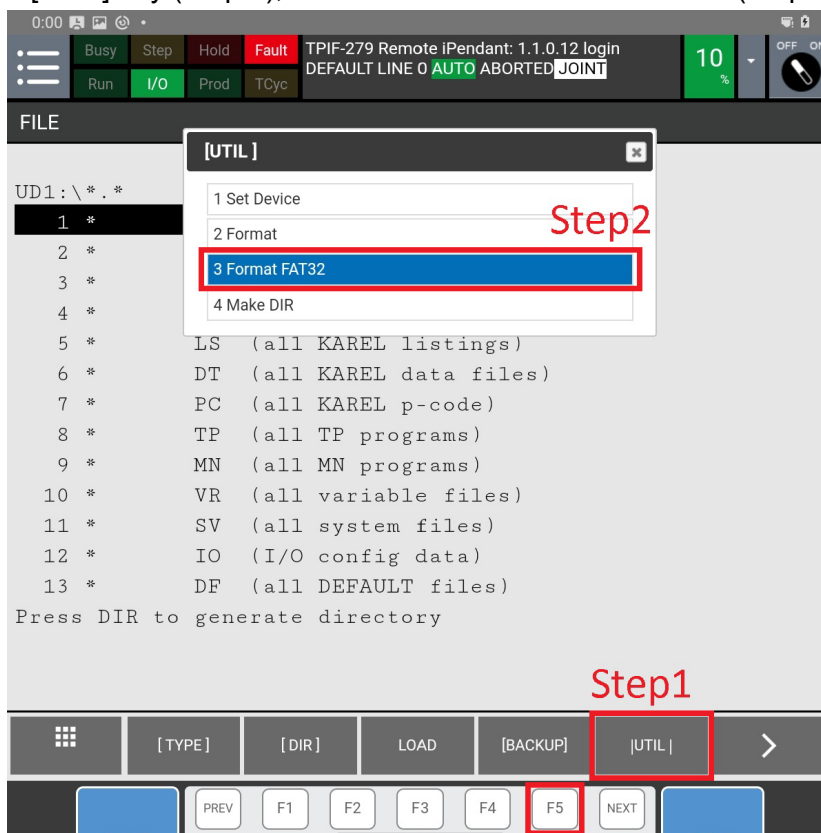
- If the software update fails when using the USB memory device that you prepared, use “**3.2. Procedure (when Using USB on the controller)**” procedure described before to create another USB memory device for updating software and try again.

3.4. Troubleshooting (when Using USB on the controller)

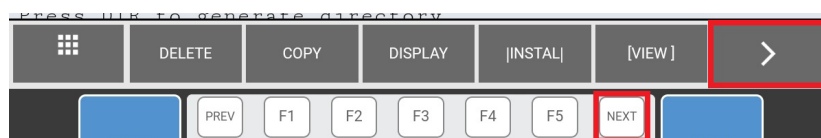
1. **In step 5 of the procedure, I selected F4 [INSTAL] > "1 Auto Update" but "Auto Update media or files not found" showed and I could not go to the next step.**
 - Check to make sure that the selected device is "UD1:".
 - Check if the USB memory device is directly inserted in the USB memory port in the robot controller (UD1:).
 - Check to make sure that the "autoupdt.cm" file is on the USB memory device.
 - Check to make sure that the USB memory device format is FAT32.
2. **After cycling power in step 10 of the procedure the software update did not complete. (When using the Tablet TP, the Tablet TP app could not connect.)**
 - The time it takes to update the software varies by option software, the USB memory device, and controller usage. It may take 2 or more hours, please wait.
 - When using the Tablet TP, clear cache and restart the Tablet TP app.
 - Software update will fail if you power OFF or remove the USB memory device during the update process. In this case, update the software again by "**3.3. The Way to Retry Software Update if Update Failed (when Using USB on the controller)**".
3. **Others**
 - Check to make sure the USB memory device has 500MB free storage or more.
 - Check to make sure the USB memory device format is FAT32.
 - Retry the software update using another USB memory device.

Appendix A Format USB from the File screen

1. Refer to procedures 1 through 3 of **“3.2. Procedure (when Using USB on the controller)”** and do the following:
 - Directly insert USB memory device into the USB memory port (UD1:) of the controller.
 - Press the [MENU] key and then select “7 FILE” to open the file screen.
 - Set selected device to “USB Disk (UD1:)”.
2. Press the F5[UTIL] key (Step 1), and then select “3 Format FAT32” (Step 2).



Note: If the F5 key displayed is not “UTIL”, press the “NEXT” key or the “>” key to switch the keys displayed.



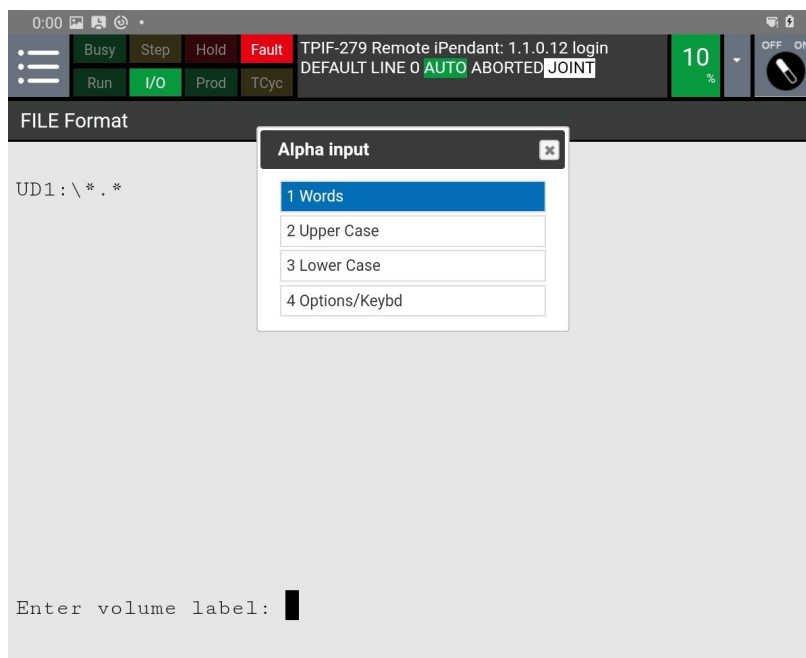
3. Format confirmation screen will appear. Make sure the USB memory device to be formatted is correct, and then press the F4[YES] key.

Note: All data in the USB memory device will be lost after the format.

Please check the USB memory device before you format.



4. Volume label entering screen will appear. If you do not need to enter a volume label, press the Enter key with no entries.



5. Returns to File screen. Press the Enter key to confirm that the USB memory device is formatted (no files in USB memory device).

Appendix B Restoring image backup files

If the software update fails and all the image backup files: FROM00.IMG~FROM234.IMG, SRAM00.IMG~SRAM02.IMG (238 files in total) are in directory “\00\TEMP\” of USB memory device, follow the steps below to restore the image backup files.

B.1. Procedure for Tablet TP

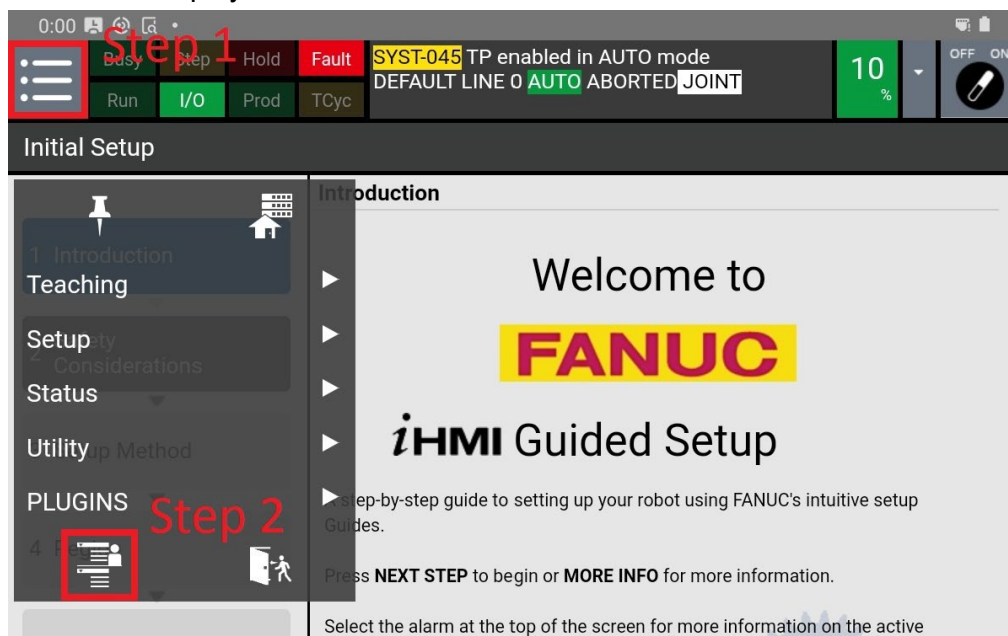
There are four ways to restore the image backup files when using the Tablet TP.

- 1. Restore by using the image restore screen of Tablet UI
- 2. Restore from the menu of the Tablet TP app (Software Update)
- 3. Restore from the menu of the Tablet TP app (Image Restore)
- 4. Restore by creating a dedicated XML file

B.1.1. Restoration procedure by using the image restore screen of Tablet UI

If the Tablet TP app is connected after turning on the power of the controller, the image backup restore can be executed from the image restore screen of Tablet UI.

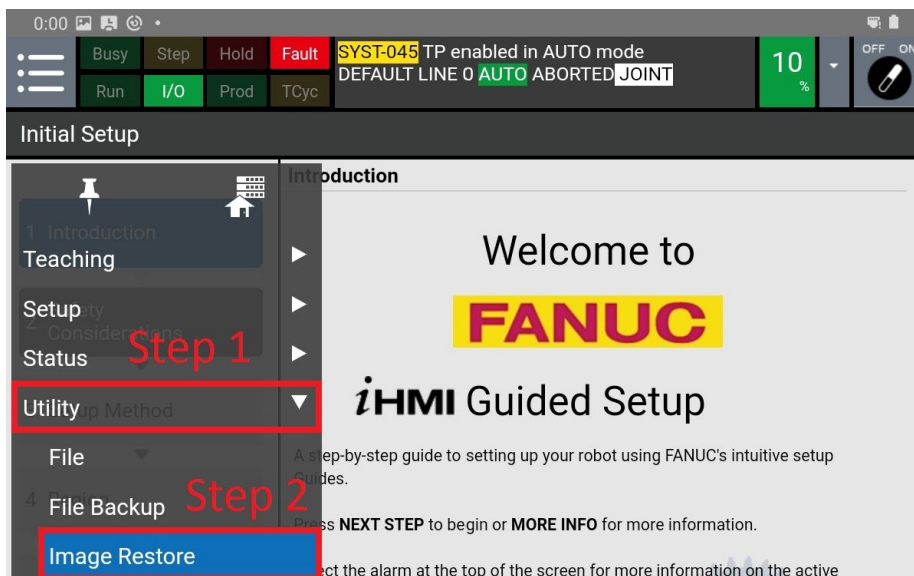
1. Touch the menu icon (Step 1) on the status bar of Tablet UI. Confirm that the tree menu for Tablet UI is displayed as shown below.



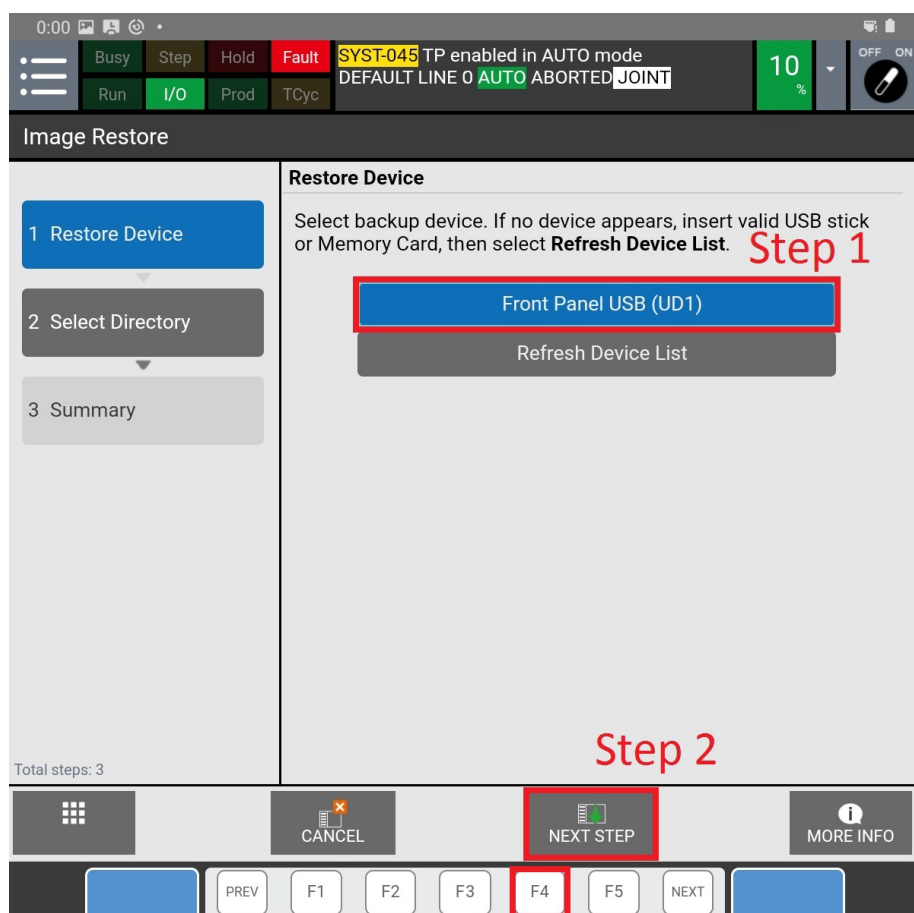
Note: The Tablet UI menu and compatible menu (equivalent to iPendant) can be switched by pressing the icon (Step 2) shown at the bottom of the figure. The one

with the fewer menu items displayed is the menu for Tablet UI.

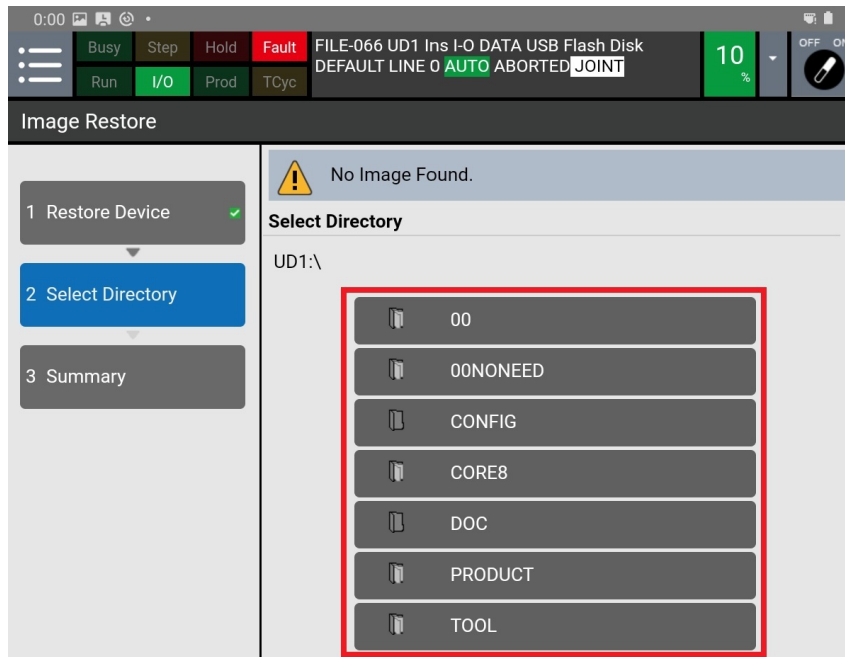
2. Press the Utility icon (Step 1) and press the Image Restore icon (Step 2).



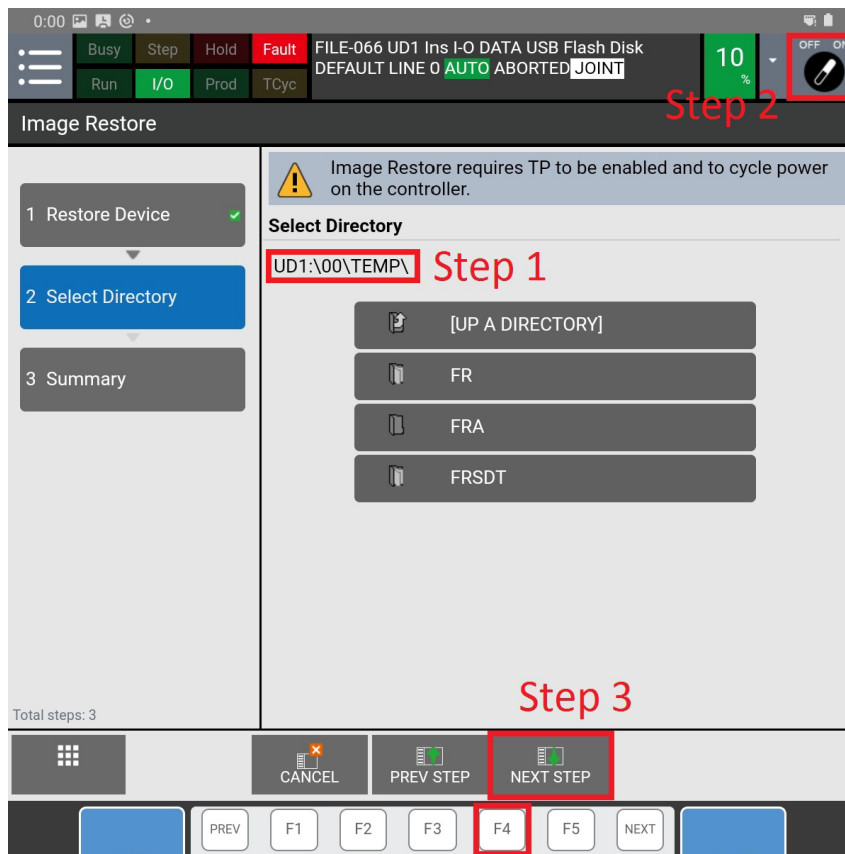
3. Select "Front Panel USB (UD1)" (Step 1) and then press the F4[NEXT STEP] key (Step 2).



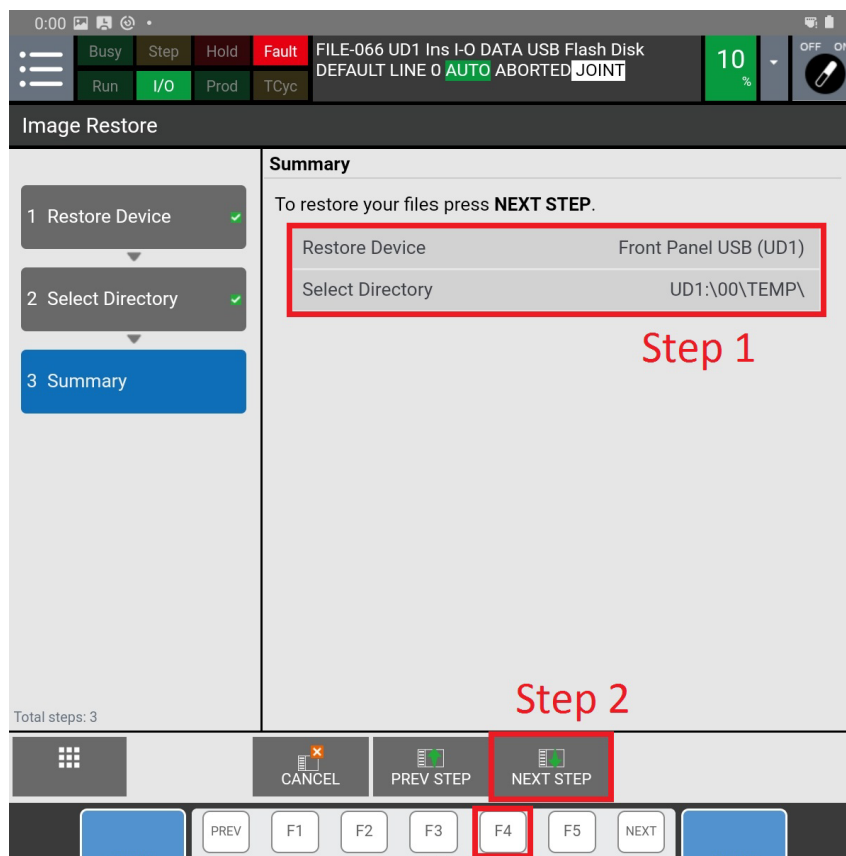
4. Directories inside the current directory will appear. Keep selecting the corresponding directory until you select the directory where the image backup files are stored.



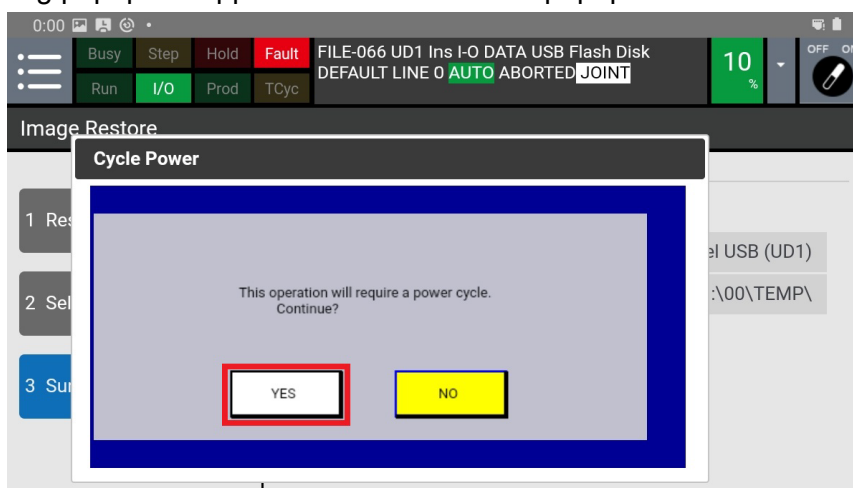
5. Confirm that the selected directory is correct (Step 1). Check that the Teach Pendant Enable is ON (Step 2) and then press the F4[NEXT STEP] key (Step 3).



6. The following summary screen will appear. Make sure that the contents of “Restore Device” and “Select Directory” are correct (Step 1), and then press the F4 [NEXT STEP] key (Step 2).

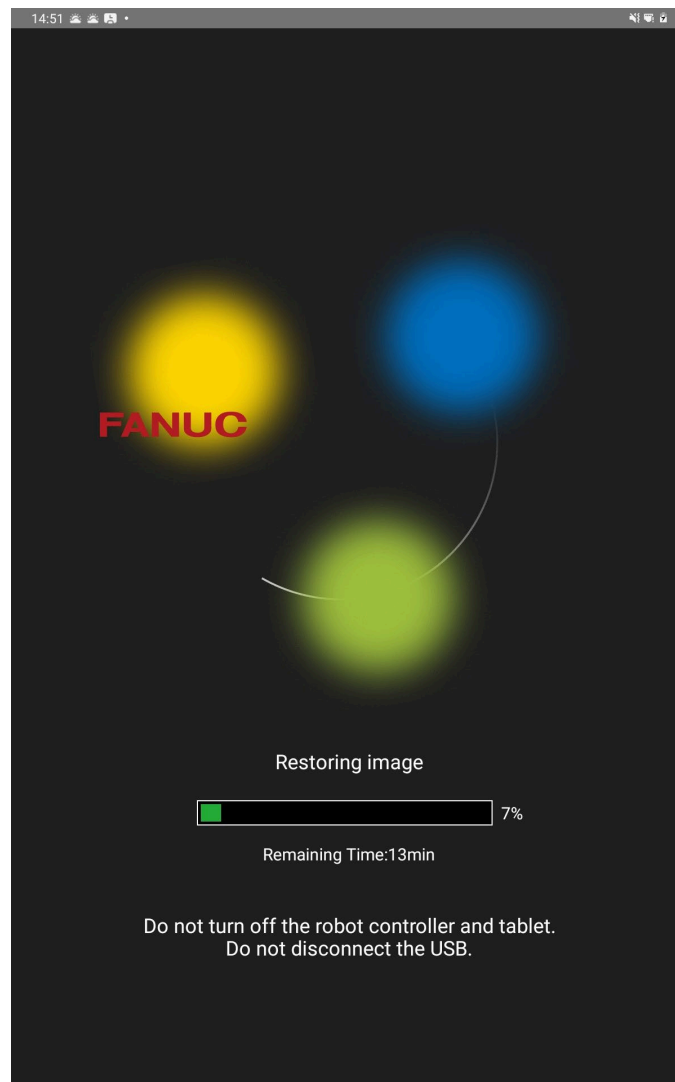


7. The following popup will appear. Press “Yes” in the popup.



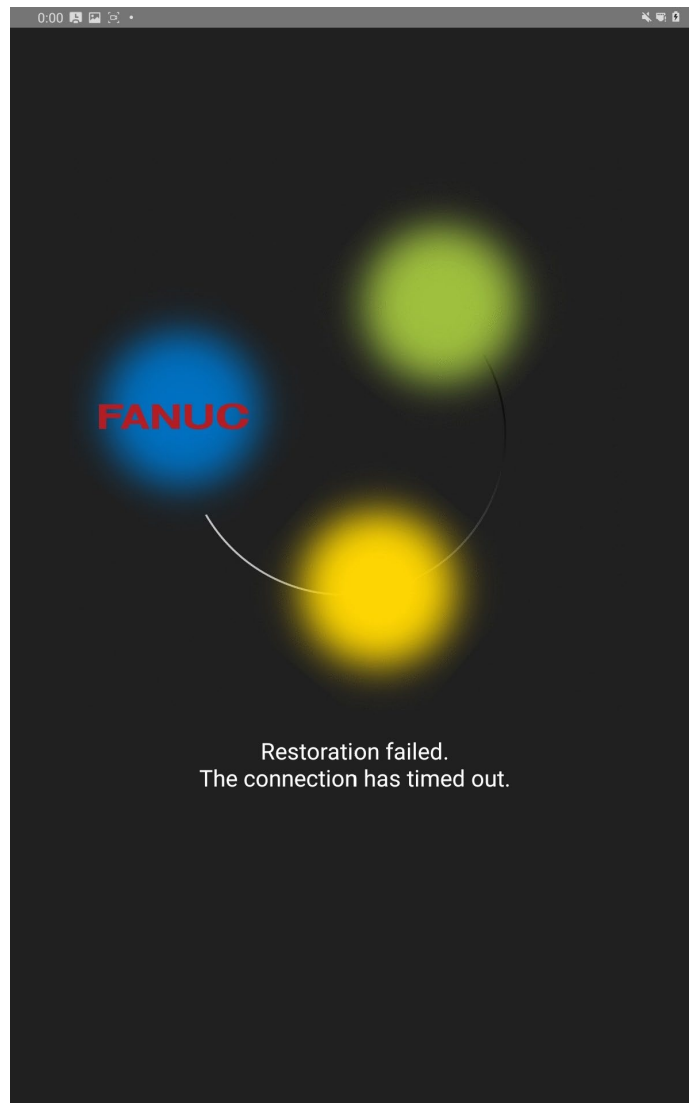
- 8.** Power cycle when the alarm “SYST-213 User power cycle”, “SYST-266 Please cycle power”, or “SYST-361 Controller is cycling power” appears.

9. Restoration of image backup files will begin. The following screen will appear to check the progress of the image restoration. Please wait until the progress reaches 100%.



Note 1: This screen will not be displayed when using iOS

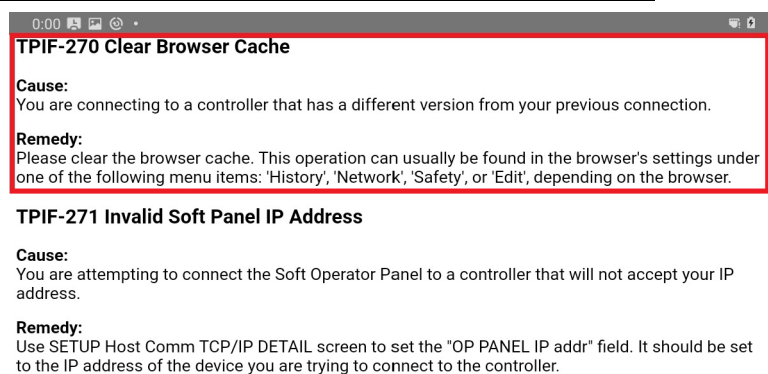
Note 2: Please do not turn off the power of the controller or disconnect the USB while restoring image backup files. If any of these situations occur, or if the following screen appears, follow the procedures in **“B.1.4. Restoration procedure by creating a dedicated XML file”** to restore image backup files.



10. When the progress reaches 100% after step 9, confirm that the screen can be operated.

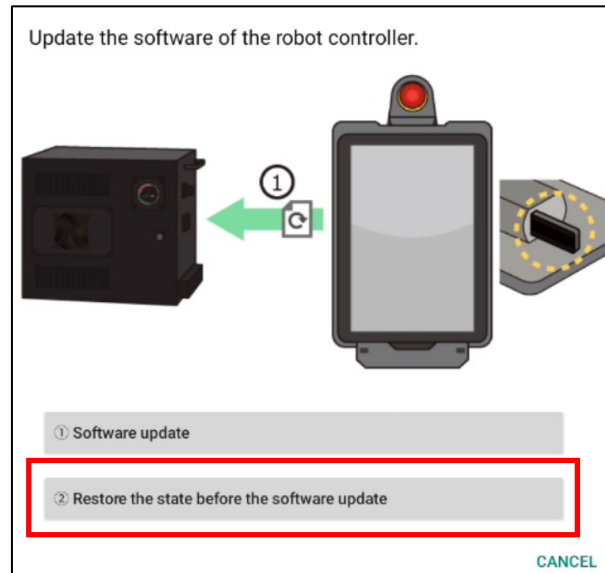
Note: If the following alarm screen with “TPIF-270 Clear Browser Cache” appears when using the Tablet TP, the cache must be cleared. Please go to step 13 and 14 of

“3.2. Procedure (when Using USB on the controller)” and clear the cache.

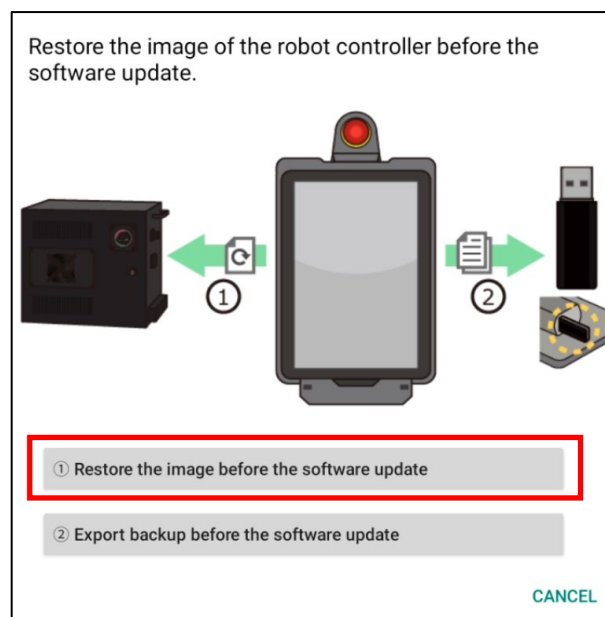


B.1.2. Restore from the menu of the Tablet TP app (Software Update)

1. Tap “(2) Restore the state before the software update” of “Software Update” from drawer menu.

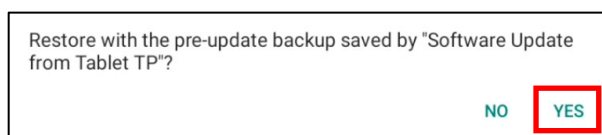


2. On the displayed pop-up, tap “(1) Restore the image before the software update”.

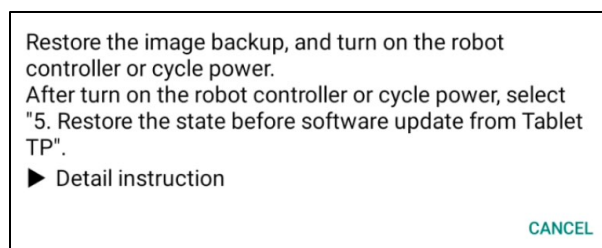


If the message appears, refer to **“2.4. Troubleshooting (when Using the Tablet TP)”**.

3. The following pop-up will be displayed. Tap “YES”.

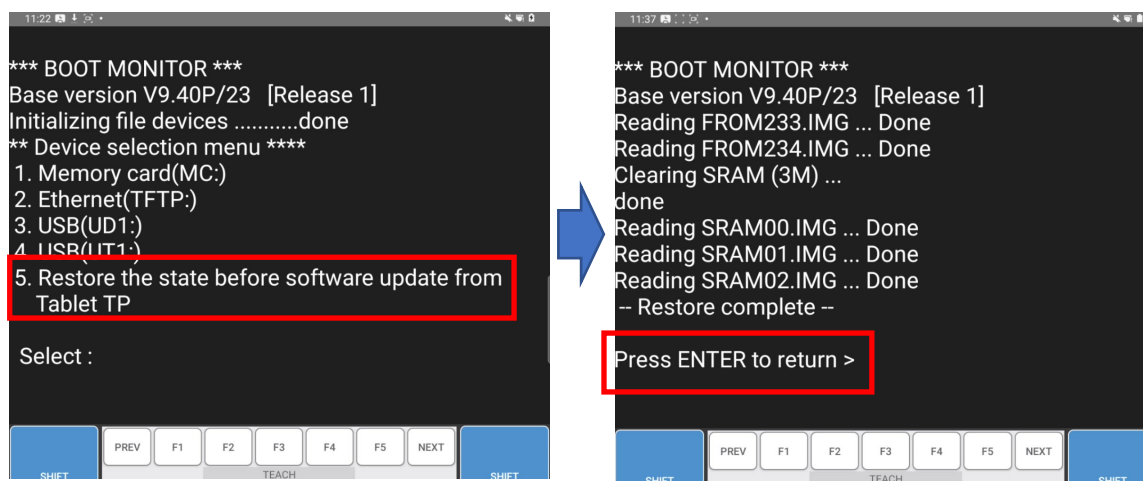


4. The following pop-up will be displayed. Cycle power of the controller.



5. The following Boot screen will be displayed after turning on the robot controller or cycle power.

6. Select “5.Restore the state before software update from Tablet TP”.



After the image restore operation successfully completed, it will be reconnected to iRProgrammer screen.

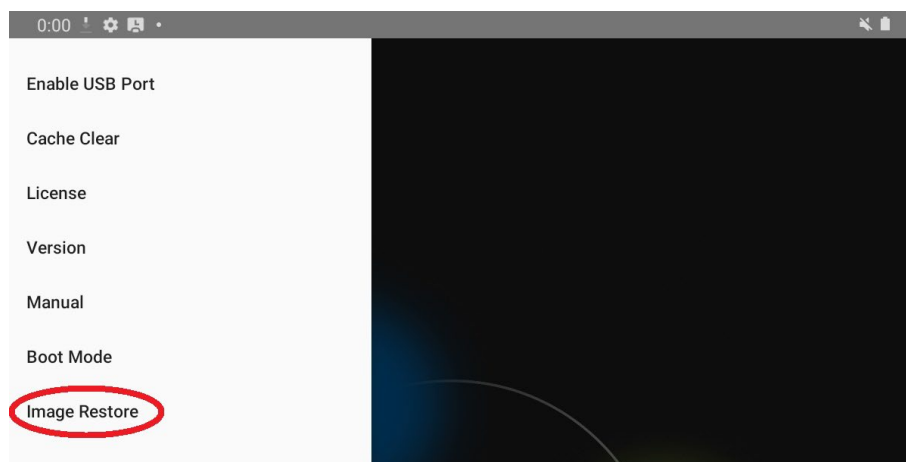
B.1.3. Restoration procedure from the menu of the Tablet TP app (Image Restore)

If the controller does not start up normally after turning it on, follow the steps below to restore the image backup files.

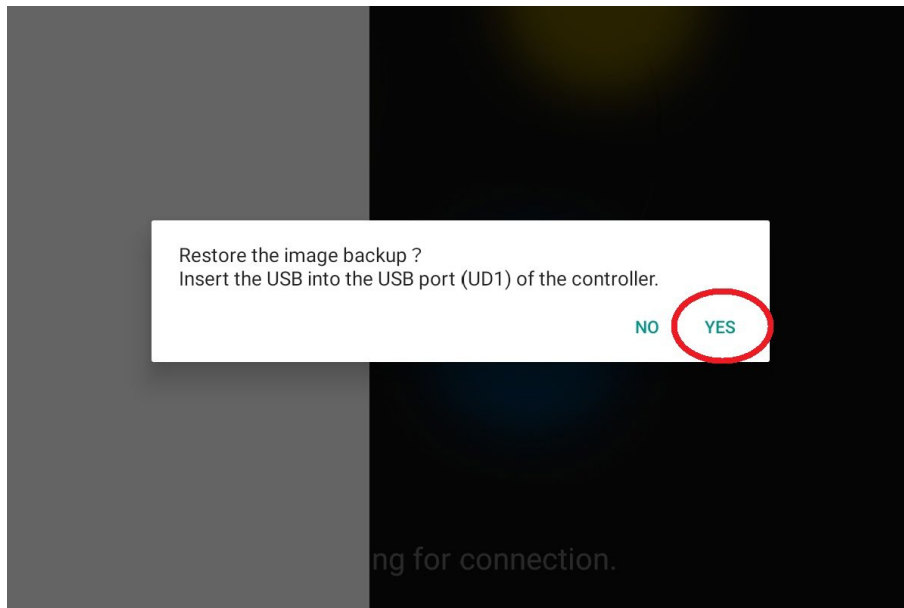
If the following requirements are met, restore the image backup files by following the steps below

- Tablet TP app version is V1.09 or later
- When the software update to V9.40P/17 or later failed

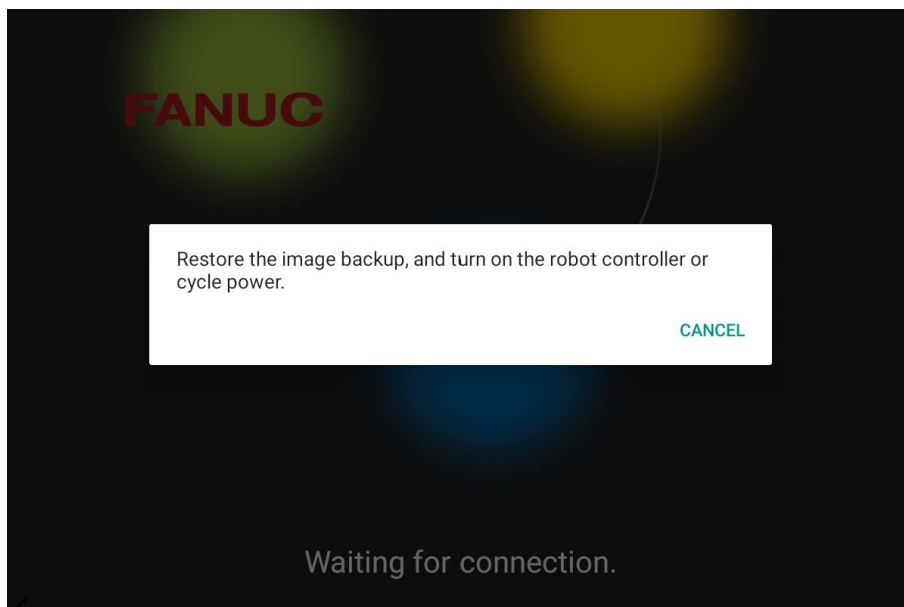
1. After opening the Tablet TP app, slide right from the left side of the screen to open the drawer menu. Select “Image Restore” in the drawer menu.



2. The following popup will appear. Directly insert the USB memory device with the image backup files into the USB memory port (UD1:) as in step 1 of **“3.2. Procedure (when Using USB on the controller)”**. Select “Yes” after insertion of USB memory device.



3. The following popup will appear. Turn the controller ON or cycle power while the popup is displayed.



4. The following image restore screen will appear. Enter 3 and press the [ENTER] key to select "3 USB (UD1:)"

```
*** BOOT MONITOR ***          UD
Base version V9.40P/17 [Release 1]
Initializing file devices .....done
** Device selection menu ****
1. Memory card(MC:)
2. Ethernet(TFTP:)
3. USB(UD1:)
4. USB(UT1:)

Select :
```

5. The following screen will appear.

```
*** BOOT MONITOR ***          UD
Base version V9.40P/17 [Release 1]
Current Directory:
UD1:\
1. OK (Current Directory)
2. CORE8
3. CONFIG
4. DOC
5. TOOL
6. PRODUCT
7. 00NONEED
8. 00
Select[0.NEXT,-1.PREV] :
```

6. Follow the steps below to move to the directory where the image backup files are stored and select (enter 1 and press the [ENTER] key) it.
- "1 OK(Current Directory)" indicates the selection of the current directory. Enter 1 and press the [ENTER] key if the image backup files are in the current directory.
 - Items 2 to 8 on the screen show the directories in the current directory. To move to one of these directories, enter one of 2 to 8 and press the [ENTER] key.
 - If the current directory is not the root directory, "2 .. (UP one level)" which indicates to go up one higher directory is displayed on the screen. To go up one higher directory, enter 2 and press the [ENTER] key.
 - If the target directory is not displayed, enter 0 and press the [ENTER] key to display the next directory list.
7. The following screen will appear if all of the image backup files: FROM00.IMG~FROM234.IMG, SRAM00.IMG~SRAM02.IMG are in the selected current directory.
Enter 1 and press the [ENTER] key to start restoring image backup files.



```
*** BOOT MONITOR ***      UD
Base version V9.40P/17 [Release 1]
***** RESTORE Controller Images *****
Current module size:
FROM: 240Mb SRAM: 3Mb

Image files are detected in
UD1:\00\TEMP\
FROM:235files SRAM:3files

Correspond with module size.

Restore image files ? [Y=1/N=else] :
```

Note 1: Do not disconnect the USB memory device while restoring the image backup files.

Note 2: Do not close the Tablet TP app while restoring the image backup files.

Note 3: If you don't see the screen above, please check whether all the image backup files: FROM00.IMG~FROM234.IMG, SRAM00.IMG~SRAM02.IMG are in the selected directory of the USB memory device.

If the following screen appears while restoring the image backup files, enter 1 and press the [ENTER] key. Restoration of the image backup files will continue.

```
*** BOOT MONITOR ***          UD
Base version V9.40P/17 [Release 1]
Yes:All DCS parameters are initialized.
    You must enter code number to apply
    settings if DCS options are used.
No :DCS parameters are kept.
    You must enter code number to apply
    settings if DCS settings in backup
    are different than current settings.
    Parity error will occur if the
    FROM/SRAM module has been changed
    or lost battery power.
(Yes=1, No = [else]):
```

8. The following screen will appear if restoration of image backup files is completed. Cycle power of the controller and check if it starts up.

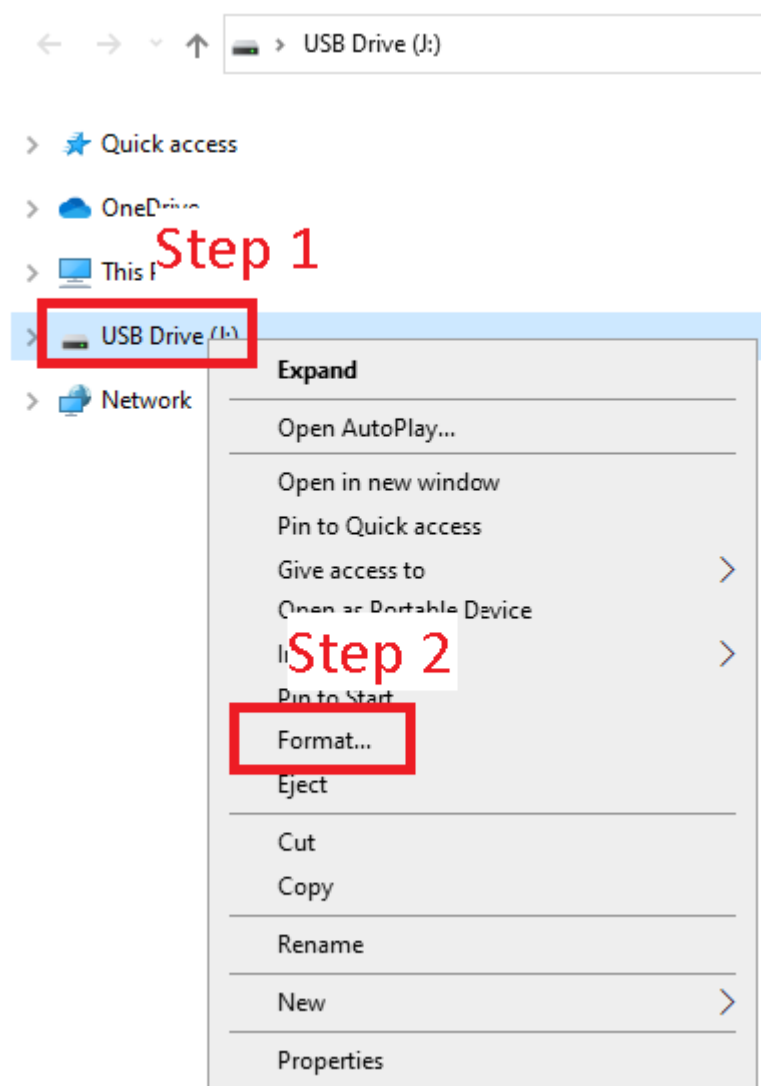
```
*** BOOT MONITOR ***          UD
Base version V9.40P/17 [Release 1]
Reading FROM232.IMG ... Done
Reading FROM233.IMG ... Done
Reading FROM234.IMG ... Done
Clearing SRAM (3M) ...
done
Reading SRAM00.IMG ... Done
Reading SRAM01.IMG ... Done
Reading SRAM02.IMG ... Done
-- Restore complete --

Press ENTER to return >
```


B.1.4. Restoration procedure by creating a dedicated XML file

If the controller does not start up normally after turning it on, follow the steps below to restore the image backup.

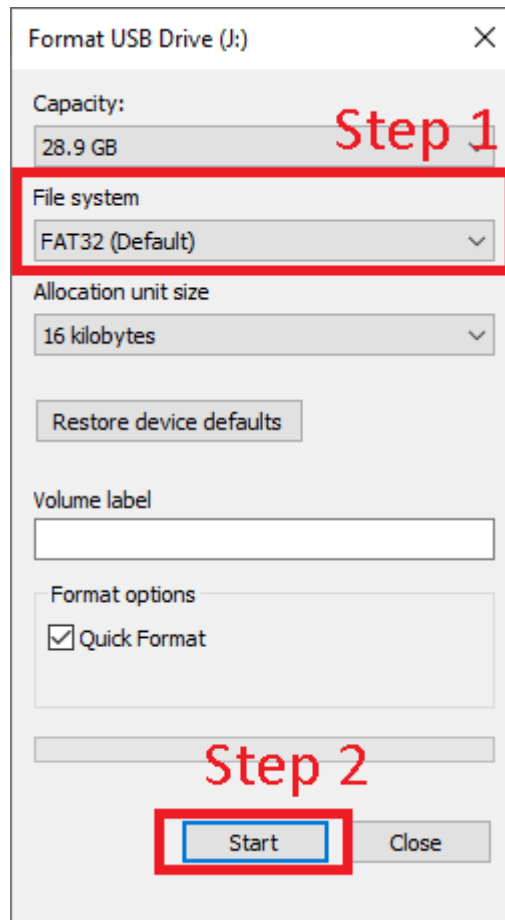
1. Prepare a USB memory device separately from the one used for software update.
2. Insert the USB memory device into a PC and format it in the "FAT32" format.
Move the cursor over the USB memory device and right-click (Step 1), and then select "Format" (Step 2).



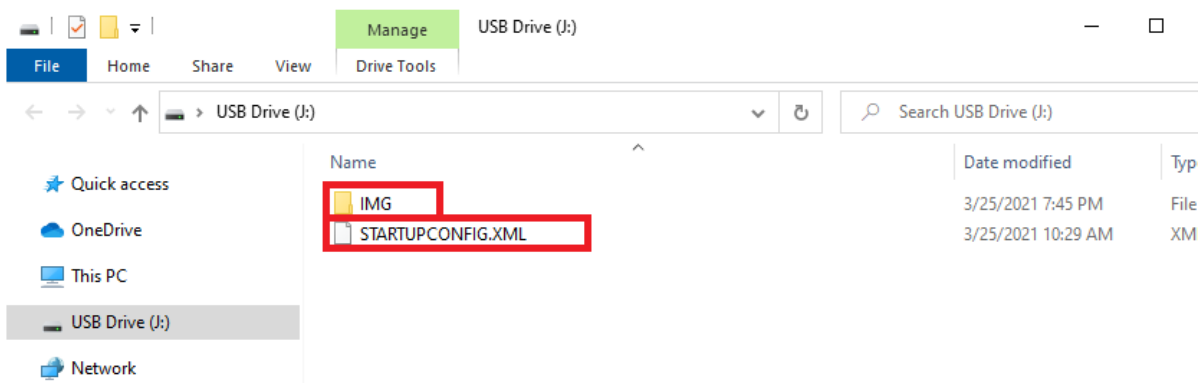
3. Set “File System” to “FAT32” (Step 1) and press the “Start” button (Step 2).

Note: All data in the USB memory device will be lost after the format.

Please check the USB memory device before you format.

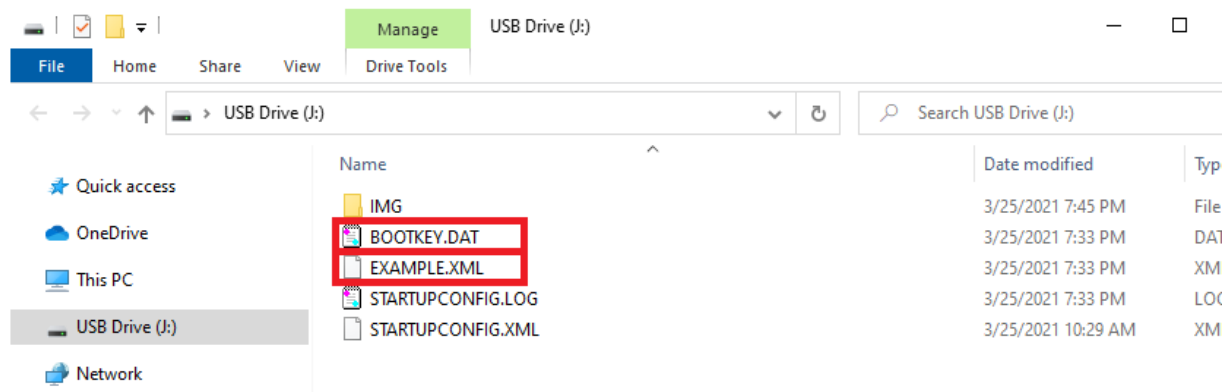


4. Create “STARTCONFIG.XML” and “IMG” folder on the root directory of the USB memory device prepared in step 3.



Note: The content in “STARTUPCONFIG.XML” can be empty. In a text editor such as Memo, execute "Save As", select the root directory of the USB memory device, and save the file as "STARTUPCONFIG.XML".

5. Directly insert the USB memory device prepared in step 4 into the USB memory port (UD1:) of the controller, and turn ON the power of the controller. After about 10 seconds have passed, turn the power OFF.
6. Confirm that "BOOTKEY.DAT" and "EXAMPLE.XML" are created in the root directory of the USB memory device.



7. "BOOTKEY.DAT" and "EXAMPLE.XML" contains a CONTROLLER tag with a key to allow execution of STARTUPCONFIG.XML and the expiration date of the key as shown below.

```
<CONTROLLER expires = "01/01/2021 - 00:00:00" key = "000000aa-0000000b ">
```

Note: The key expires 1 hour after it is generated and is valid only for the controller that generated it.

8. Set the content of "STARTUPCONFIG.XML" as follows. Paste the CONTROLLER tag written in "BOOTKEY.DAT" or "EXAMPLE.XML" generated in Step 5.

Note 1: There is a template in EXAMPLE.XML for the following content.

Note 2: Confirm that image in the CONFIG tag is image = "UD1:\IMG\".

```
<?xml version="1.0" encoding="utf-8"?>
<ROOT>
  <CONTROLLER expires = "01/01/2021 - 00:00:00" key = "000000aa-0000000b ">
    <CONFIG image = "UD1:\IMG\" startmod = "restore" dcsparam = "1" />
  </CONTROLLER>
</ROOT>
```

9. Copy the image backup files (FROM00.IMG~FROM234.IMG, SRAM00.IMG~SRAM02.IMG) to the "IMG" folder created in step 4.

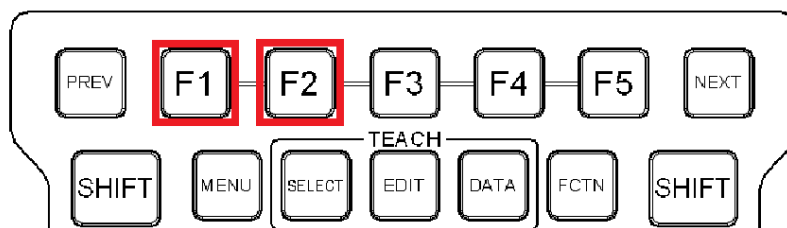
10. Open the Tablet TP app. Directly insert USB memory device prepared in step 9 to the USB memory port (UD1:) of controller and turn ON the power of the controller.

11. Restoring image backup files is executed. Refer to “**B.1.1. Restoration procedure by using the image restore screen of Tablet UI**” step 9 for the following steps.

Note: The DAT file and XML file created are not needed after image backup files are restored. Please delete the files.

B.2. Procedure for iPendant

1. Directly insert the USB memory device with the image backup files into the USB memory port (UD1:) as in step 1 of the “Procedure”.
2. Turn the controller ON while holding down both F1 and F2 keys.



3. The following image restore screen will appear. Enter 3 and press the [ENTER] key to select “3 USB (UD1:)”.

```

*** BOOT MONITOR ***                               UD
Base version V9.40P/01      [Release 1]
Initializing file devices.....done
** Device selection menu ****
 1. Memory card(MC:)
 2. Ethernet(TFTP:)
 3. USB(UD1:)
 4. USB(UT1:)

Select:

```

4. The following screen will appear.

```

*** BOOT MONITOR ***                               UD
Base version V9.40P/01      [Release 1]
Current Directory:
UD1:¥
1.OK (Current Directory)
2.CORE8
3.CONFIG
4.DOC
5.TOOL
6.PRODUCT
7.00NONEED
8.00
Select[0.NEXT.-1.PREV]:

```

5. Follow the steps below to move to the directory where the image backup files are stored and select (enter 1 and press the [ENTER] key) it.

- "1 OK(Current Directory)" indicates the selection of the current directory. Enter 1 and press the [ENTER] key if the image backup files are in the current directory.
- Items 2 to 8 on the screen show the directories in the current directory. To move to one of these directories, enter one of 2 to 8 and press the [ENTER] key.
- If the current directory is not the root directory, "2 .. (UP one level)" which indicates to go up one higher directory is displayed on the screen. To go up one higher directory, enter 2 and press the [ENTER] key.
- If the target directory is not displayed, enter 0 and press the [ENTER] key to display the next directory list.

6. The following screen will appear if all of the image backup files: FROM00.IMG~FROM234.IMG, SRAM00.IMG~SRAM02.IMG are in the selected current directory.

Enter 1 and press the [ENTER] key to start restoring image backup files.

```

*** BOOT MONITOR ***                               UD
Base version V9.40P/01      [Release 1]
***** RESTORE Controller Images *****
Current memory module size:
FROM: 240Mb  SRAM: 3Mb

Image files are detected in
UD1:¥00¥TEMP¥
FROM:235files  SRAM:3files

Correspond with module size.

Restore image files ? [Y=1/N=else]:

```

Note 1: Do not disconnect the USB memory device while restoring the image backup files.

Note 2: If you don't see the screen above, please check whether all the image backup files: FROM00.IMG~FROM234.IMG, SRAM00.IMG~SRAM02.IMG are in the selected directory of the USB memory device.

7. The following screen will appear if restoring image backup files is completed.

Cycle power of the controller and check if it starts up normally.

```
■ *** BOOT MONITOR ***                               UD
Base version V9.40P/01      [Release 1]
Reading FROM231.IMG ... Done
Reading FROM232.IMG ... Done
Reading FROM233.IMG ... Done
Reading FROM234.IMG ... Done
Clearing SRAM (3M) ... done
Reading SRAM00.IMG ... Done
Reading SRAM01.IMG ... Done
Reading SRAM02.IMG ... Done
-- Restore complete --
Press ENTER to return >
```