7, Firmware update procedure

This paragraph explains how to update firmware (FPGA data and software). There are following 4 ways to update firmware. Please select one of suitable one.

（1）Normal update

Connect Mainframe and Control Panel, turn Power ON and update firmware from SD memory card. Usually please select this way.

（2）Update Control Panel only

Turn on only Control Panel and update firmware from SD memory card. You can update Control Panel without Mainframe. But please note that Mainframe also must be updated to the same version separately.

（3）Update Mainframe only

Update firmware of Mainframe without Control Panel by using Firmware update Software on PC through LAN port. But please note that Control Panel also must be updated to the same version separately.

（4）Update under Safe Boot mode (Emergency)

Use this way when Mainframe and Control Panel do not boot up correctly. Sometimes, failure may be fixed by updating firmware. Select mode switch of both Mainframe and Control Panel to Safe Boot, and update.

> **Note: When the firmware version of mainframe and Control Panel is not matched, "ALARM ! VER IS DISAGREEMENT PANEL-Ver[XXXXXX] MF-Ver[XXXXXX]" will be displayed on LCD panel. When this massage is appeared, push and hold F1 knob to enable operation temporary.**
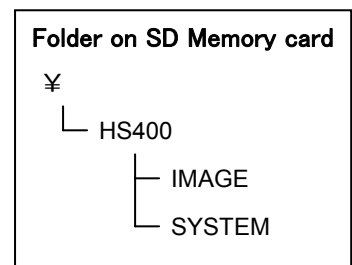
(1) Normal update

① Insert SD memory card into slot on Control Panel and execute format. Then folders are automatically generated as figure.

> **Note: Format must be done on AV-HS450. Data may be damaged when using SD memory card that formatted on other device.**

```
Folder on SD Memory card
¥
 └─ HS400
        ├─ IMAGE
        └─ SYSTEM
```

② Download firmware data on PC, insert this SD memory card into PC and copy firmware data file under SYSTEM folder. Data file (***.45d) is only one file that includes all software and FPGA data for Mainframe, Control Panel and all Option boards.

> **Note: AV-HS450 can recognize up to 5 firmware data. Please do not save more than 5 data into one SD memory card.**

③ Turn Power ON, and select File page (SDCard1) in SDCard menu.

④ Select MODE to [LOAD] by turning F2, and push F2 to enter.
Update file is displayed when push and hold F3. If no update file exists, display does not change. The display returns to normal mode when turning F3.

⑤ Select target file by F4 if more than 2 update files exist.

⑥ Push F5 then update starts.

Note: DO NOT TURN POWER OFF OR TAKE OUT SD memory card from slot during update. It takes few minutes.

⑦ Update starts from Mainframe data;

[MAIN-SOFT Downloading]→[Programing]→[Verify]

[CONTROL-FPGA Downloading]→[Programing]→[Verify]

[INPUT1-FPGA Downloading]→[Programing]→[Verify]

[INPUT2-FPGA Downloading]→[Programing]→[Verify]

[ME-FPGA Downloading]→[Programing]→[Verify]

[OUTPUT-FPGA Downloading]→[Programing]→[Verify]

[SDIIN-FPGA Downloading]→[Programing]→[Verify]

[ANAIN-FPGA Downloading]→[Programing]→[Verify]

[DVIIN-FPGA Downloading]→[Programing]→[Verify]

[CMPSTIN-FPGA Downloading]→[Programing]→[Verify]

[DVIOUT-FPGA Downloading]→[Programing]→[Verify]

[SDIOUT-FPGA Downloading]→[Programing]→[Verify]

[DVIIN2-FPGA Downloading]→[Programing]→[Verify]

After updating Mainframe, update Control Panel;

[PANEL-SOFT Downloading]→[Programing]→[Verify]

[PANEL-FPGA Downloading]→[Programing]→[Verify]

At last, update version file;

[Version Downloading]→[Programing]→[Verify]

[PANEL- Version Downloading]→[Programing]→[Verify]

[Version Up Completed] is displayed on LCD panel when finished updates. When pushing F1, this message will be disappeared.

⑧ Turn off both Mainframe and Control Panel, and turn Power ON again.

Mainframe and Control Panel are boot up with updated firmware.

NOTE: When [Version Up Error] is displayed during update:

When nothing is shown at lower line of LCD, check update file.

When other message is shown at lower line of LCD, update may not be completed.

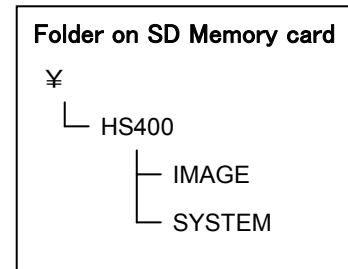**DO NOT TURN Power OFF** and try to update again.

If you turn Power OFF, and AV-HS450 is not booted-up again, try [(4) Update under Safe Boot mode (Emergency)].

(2) Update Control Panel only

When you need to update Control Panel only, please use this way. But please note that **firmware version of Mainframe and Control Panel must be matched**.

① Insert SD memory card into slot on Control Panel and execute format. Then folders are automatically generated as figure.

> **Note: Format must be done on AV-HS450. Data may be damaged when using SD memory card that formatted on other device.**

```
Folder on SD Memory card
 ¥
  └─ HS400
        ├─ IMAGE
        └─ SYSTEM
```

② Download firmware data on PC, insert this SD memory card into PC and copy firmware data file under SYSTEM folder. Data file (***.45d) is only one file that includes all software and FPGA data for Mainframe, Control Panel and all Option boards.

> **Note: AV-HS450 can recognize up to 5 firmware data. Please do not save more than 5 data into one SD memory card.**

③ Insert SD memory card and turn power ON of Control Panel.

"LAN CONNECTING " is displayed on LCD and "ALARM! LAN CONNECTION ERROR" will be displayed after 1 minute.

④ Push and hold F1 knob then SDCard menu is displayed.

⑤ Select MODE to "LOAD" by turning F2. and push F2 to enter.

Update file is displayed when push and hold F3. If no update file exists, display does not change. The display returns to normal mode when turning F3.

⑥ Select target file by F4 if more than 2 update files exist.

⑦ Push F5 then update starts.

> **Note: DO NOT TURN POWER OFF OR TAKE OUT SD memory card from slot during update. It takes few minutes.**

Update starts from Mainframe data;

[MAIN-SOFT Downloading]

[CONTROL-FPGA Downloading]

[INPUT1-FPGA Downloading]

[INPUT2-FPGA Downloading]

[ME-FPGA Downloading]

[OUTPUT-FPGA Downloading]

[SDIIN-FPGA Downloading]

[ANAIN-FPGA Downloading]

[DVIIN-FPGA Downloading]

[CMPSTIN-FPGA Downloading]

[DVIOUT-FPGA Downloading]

[SDIOUT-FPGA Downloading]

[DVIIN2-FPGA Downloading]

> **Note: Because Mainframe is not connected, [Programing], [Verify] are not displayed.**

Next, update starts for Control Panel;

[PANEL-SOFT Downloading]→[Programing]→[Verify]

[PANEL-FPGA Downloading]→[Programing]→[Verify]

At last, update version files:

[Version Downloading]

Note: Because Mainframe is not connected, [Programing], [Verify] are not displayed.

[PANEL- Version Downloading]→[Programing]→[Verify]

[Version Up Completed] is displayed on LCD panel when finished updates. When pushing F1, this message will be disappeared.

⑧ Turn off Control Panel, and turn Power ON again.

Control Panel are boot up with updated firmware.

NOTE: When [Version Up Error] is displayed during update:

When nothing is shown at lower line of LCD, check update file.

When other message is shown at lower line of LCD, update may not be completed.

DO NOT TURN Power OFF and try to update again.

If you turn Power OFF, and AV-HS450 does not boot-up, try [(4) Update under Safe Boot mode (Emergency)].
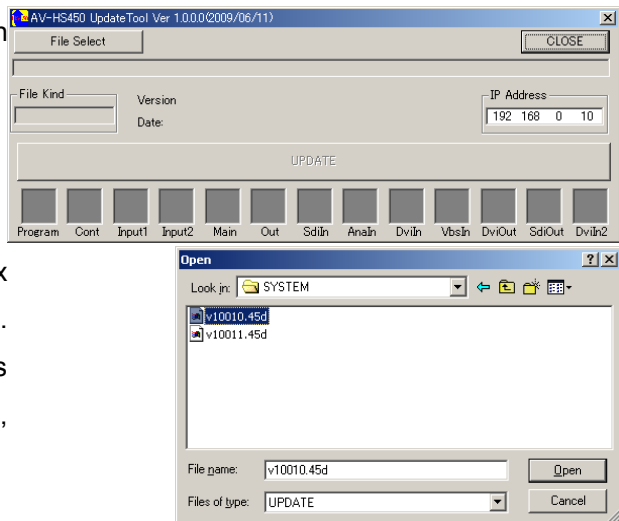
(3) Update Mainframe only

When you need to update Mainframe only, please use this way. But please note that **firmware version of Mainframe and Control Panel must be matched**. Firmware update Software is required. Please get this software from Service site. With this software, it is possible to update software, FPGA data, and Version file of Mainframe without Control Panel from PC through LAN connection.

① This procedure requires PC and LAN connection between PC and LAN. Connect LAN port of Mainframe and PC with LAN cable, configure network setting on both AV-HS450 and PC. Before updating, check connection first with ping command or other way.
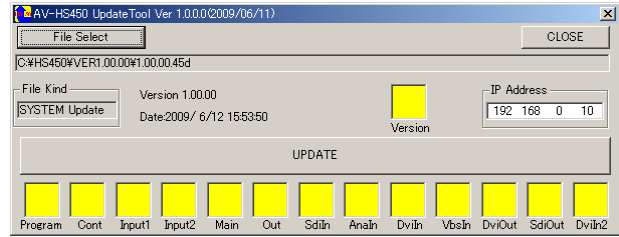
Default setting of AV-HS450 ; IP Address: 192.068.000.010, NETMASK: 255:255:255:000
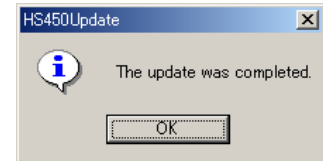
② Open Firmware update Software on PC, then dialog opens.

③ Click File Select button, then dialog box opens. Select target file and click OPEN. Data file (***.45d) is only one file that includes all software and FPGA data for Mainframe, Control Panel and all Option boards.

④ [SYSTEM Update] will be displayed when selected file is correct one. Check Version number and date that the file is correct one.
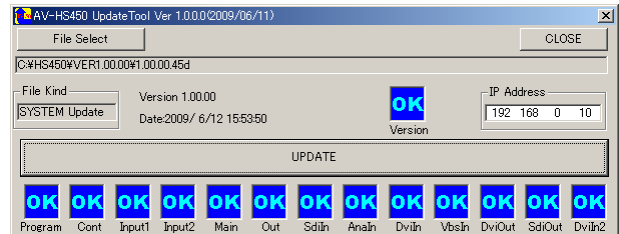
⑤ Check Version number and date that the file is correct one, and set IP address of AV-HS450, then push UPDATE to start update. Update starts and yellow circles will change to OK.

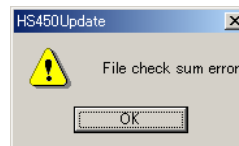⑥ After all updates are done, [The update was complete] dialog box will be appeared. Click [OK] to close dialog box.

⑦ Check that all box shows OK and Click [CLOSE] to finish application.

NOTE: **When [File format error] or [File check sum error] is displayed during update:**
Update file may be damaged. Please check update file and execute update again.

When [Server connect error] is displayed during update;
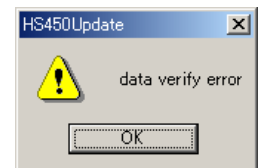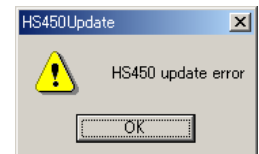LAN connection is something wrong. Check LAN cable, LAN setting, and try again.

When [HS450 update error] or [data verify error] is displayed during update, or some box shows [NG];
This happens when AV-HS450 answers error during update.
DO NOT TURN Power OFF and try to update again.
If you cannot succeed, try in Safe Boot mode.

INF-17

(4) Update under Safe Boot mode (Emergency)

If you cannot update AV-HS450 in Normal mode, try in Safe Boot mode. Sometimes update fixes some failures. AV-HS450 has emergency boot program in addition to normal program area. When updating firmware, normal program area is updated but emergency boot program is stay as factory default. If problem is occurred in normal program area, AV-HS450 can be booted up by set switch to Safe boot and limited function can be operated for emergency. Please follow this direction to update firmware under Safe Boot mode.

① Turn Power OFF both Mainframe and Control Panel. Switch SW7 on MAIN_PROC unit to ON and switch SW1 on PANEL unit to SERVICE.

NOTE: Top cover of Mainframe must be taken off to select SW7. Refer [6, Dip switches and adjust points] to find the place of switches.

② Turn Power ON both Mainframe and Control Panel. Check that AV-HS450 basic function is working, i.e. no ALARM is appeared and menu can be operated.

③ Update software in one of the way from (1), (2) or (3).

④ After update, turn power OFF and change switch setting to Normal position.

Turn Power ON again. AV-HS450 is booted up with updated firmware. Check that no error or ALARM is displayed and works fine.