Application Note

SKF Multilog On-line System IMx-M 1.X to IMx-M 2.0 Upgrade Procedure

Introduction

This document describes the actions needed to upgrade an SKF Multilog IMx-M protection system from version 1.X.X to version 2.0.0. The information included covers:

- Related hardware and software versions
- Hardware compatibility
- Hardware configuration considerations
- Protection firmware and configuration considerations
- Condition monitoring configuration considerations

Carefully follow all the indications and, in case of any doubt, feel free to contact the application engineers or TSG:

- TSG-AMERICAS@skf.com
- TSG-EMEA@skf.com

Related versions

Hardware versions

The related hardware versions for the SKF Multilog IMx-M 1.X.X and the SKF Multilog IMx-M 2.0.0 are described in **tables 1** and **2**.

Table 1

SKF Multilog IMx-M 1.X.X

Component	Revision
Rack (back plane)	4
CPU Adapter Board	12
CPU Board	1.44
IO Card	23 and 24
Power Supply	3
Relay Board	8
CPU/IO Connector Board	4
Relay Connector Board	3

Table 2

SKF Multilog IMx-M 2.0.0

Component	Revision
Rack (back plane)	4
CPU Adapter Board	12
CPU Board*	1.44 and 1.45
IO Card	25
Power Supply	4
Relay Board	8
CPU/IO Connector Board	4
Relay Connector Board	3

Software versions

The related software versions for the SKF Multilog IMx-M 1.X.X and the SKF Multilog IMx-M 2.0.0 are described in **tables 3** and **4**.

Table 3

SKF Multilog IMx-M 1.X.X

Software	Revision
Protection Firmware	192
CM Firmware	0.972
IMx-M Configurator	1.0.13P26
Multilog IMx Configurator	–
Online Device Configurator	8.5
SKF @ptitude Observer	8.5
SKF @ptitude Analyst	–

Table 4

SKF Multilog IMx-M 2.0.0

Software	Revision
Protection Firmware	214
CM Firmware	1.1
IMx-M Configurator	1.1.13
Multilog IMx Configurator	2012 FR1
Online Device Configurator	9.0
SKF @ptitude Observer	9.0.1
SKF @ptitude Analyst	2012 FR1

Hardware compatibility

Consider three important things related with the power supplies and the IO boards when upgrading an SKF Multilog IMx-M system, as follows:

- Both power supplies in an SKF Multilog IMx-M rack shall be of the same revision. This means both power supplies are revision 03 or both power supplies are revision 04. Power supply revision 04 produces a higher voltage and cannot be combined with power supply revision 03.
- IO boards with a serial number pre-260 cannot be used in combination with power supplies revision 04 or newer. Because of the higher voltage of the revision 04 power supplies, the RTD temperature measurements will be out of specification.
  Note: IO boards of revision 23 and 24 can only be recalibrated at the factory by replacing some components to support power supply revision 04 or newer. For older IO board revisions, contact SKF Condition Monitoring Center Luleå.
- IO boards of revision 25 are compatible with power supplies of revision 03.

F**ig. 1** presents an IO board with serial number 212 and a power supply with revision 04. These two boards shall not be combined.

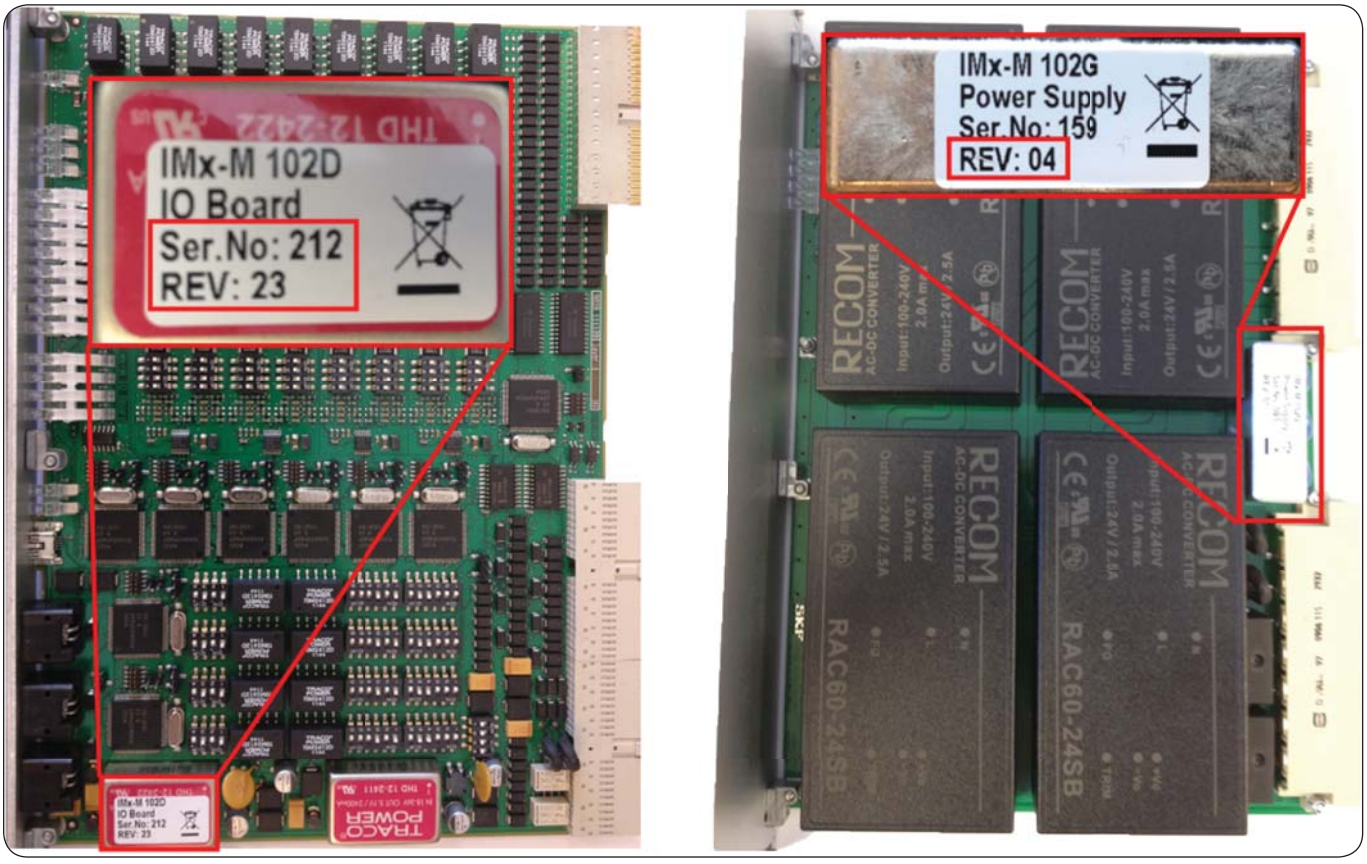


Fig. 1. IO board with a serial number pre-260 cannot be used in combination with power supply revision 04 or newer.

Hardware configuration considerations

If the upgrade of the system implies a change in an IO board that is used with RTD sensors, care must be taken with the dip switches setup depending on the IO boards' (old and new) serial numbers (→ **fig. 2**).

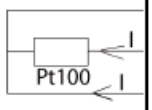
3-wire RTD	 Shield	P A B S	000000 (I/O cards with serial number >= 260)	1101 (I/O cards with serial number >= 260)
			010000 (I/O cards with serial number < 260)	1100 (I/O cards with serial number < 260)

Fig. 2. Dip switch setup for RTD sensors when using IO boards with a serial number lower or higher than 260.

Protection firmware and configuration considerations

The protection configuration in the IO board should be upgraded by using the IMx-M Configurator 1.1.13 due to improved validation of the configuration. For this, get the configuration file from the IO board (recommended) or use the configuration file initially used for your phase 1 system.

It is recommended to upgrade the configuration files before upgrading the firmware, and then download the upgraded configuration files to the IO boards as described in the next procedure.

Procedure

1 Start the **Online device configurator** or the **Multilog IMx Configurator** and click **Get Config** (→ **fig. 3**)..

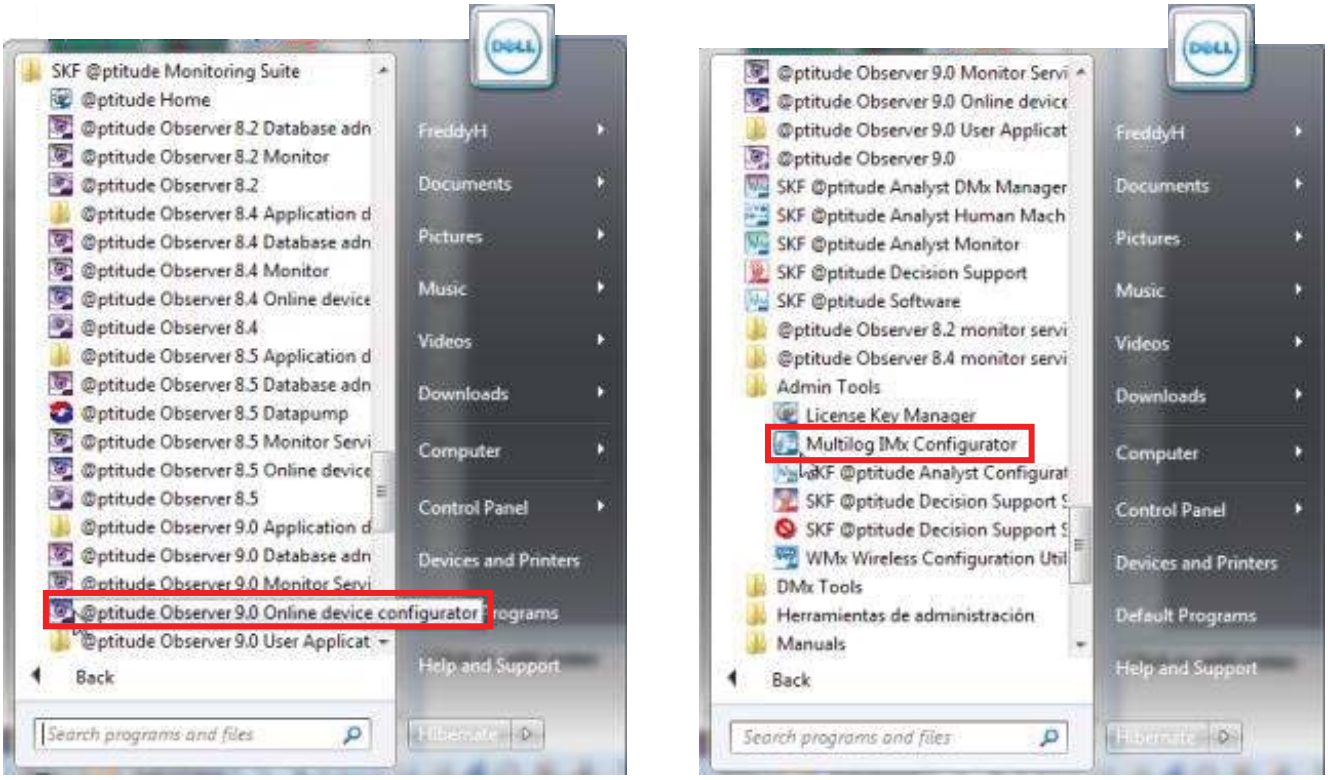


Fig. 3a. Starting the IMx-M Serial Interface.

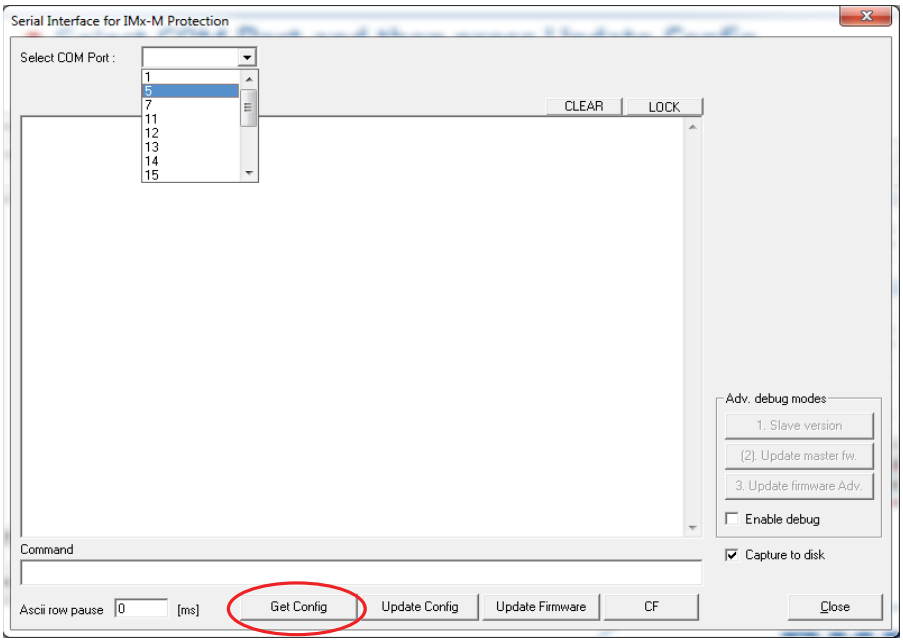


Fig. 3b. Starting the IMx-M Serial Interface.

2 Save the "IMx-M_TsiCfg_Readout.bin" file (**→ fig. 4**)..

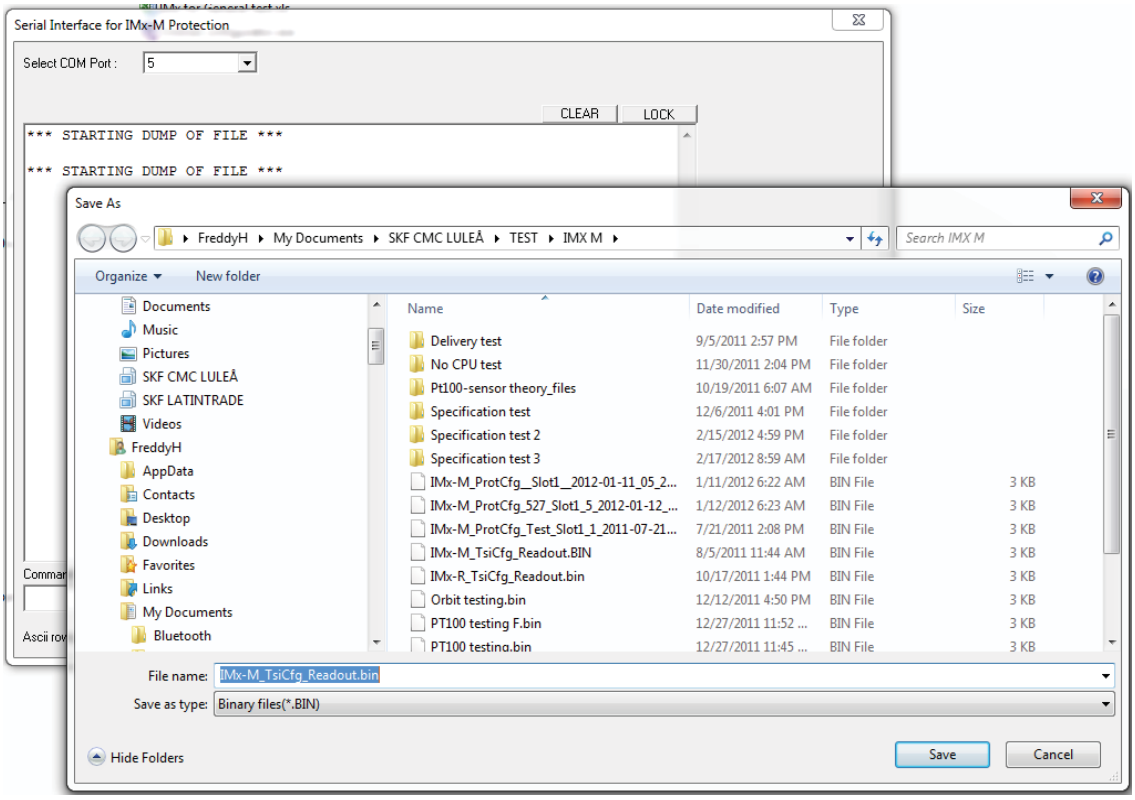


Fig. 4. Readout file stored as "IMx-M_TsiCfg_Readout.bin".

3 Start the IMx-M Configurator application, type the password (secret) and click **Open Configuration** (→ **fig. 5**)..

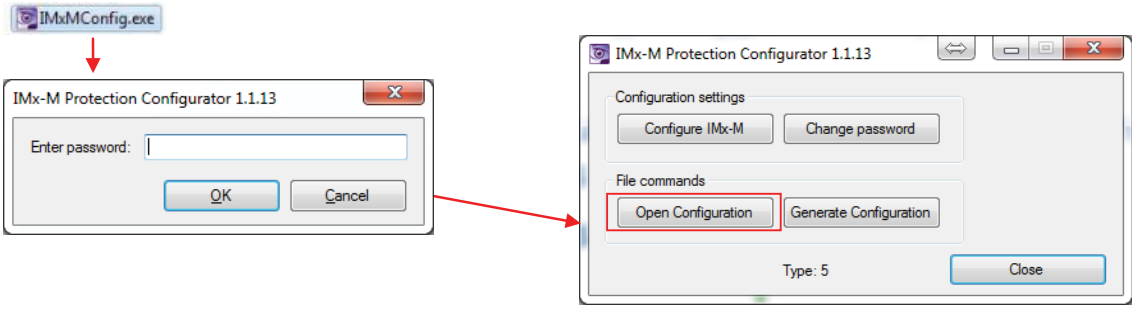


Fig. 5. Starting IMx-M Configurator application.

4 Select the "IMx-M_TsiCfg_Readout.bin" file or a previously stored configuration file and click **Open** (→ **fig. 6**).

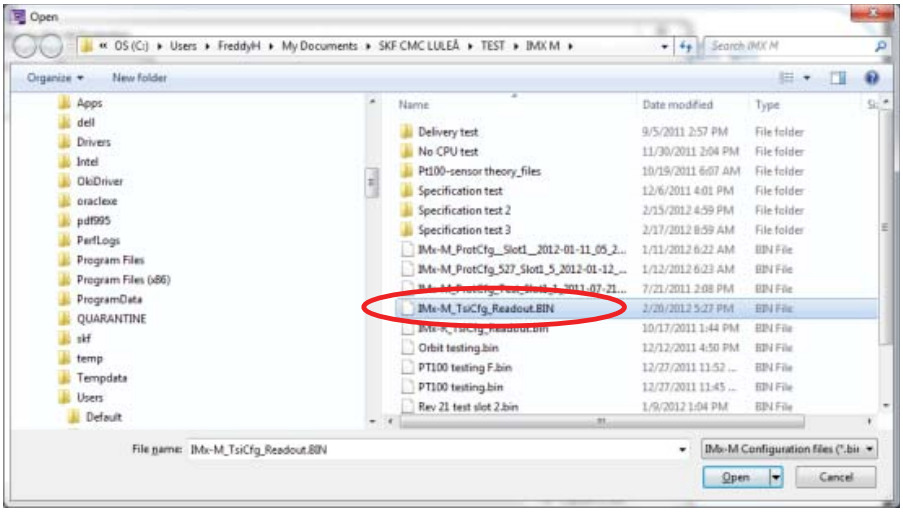


Fig. 6. Readout file selection.

5 Click **OK** and then click **Configure IMx-M** (→ **fig. 7**).

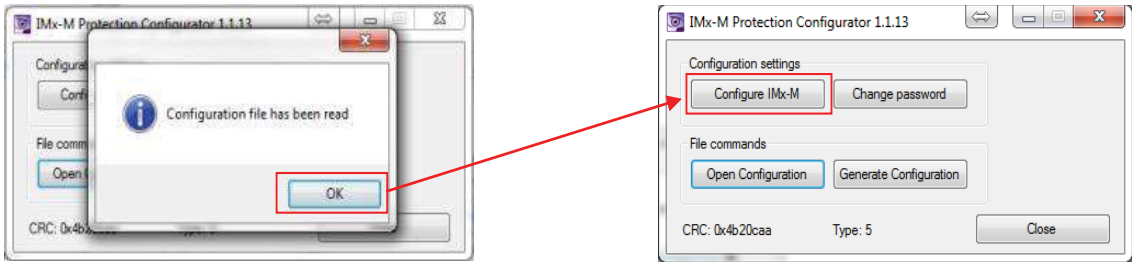


Fig. 7. Opening the configuration file.

6 Check that the configurations for analogue channels, digital channels, relays and modbus are OK (→ **fig. 8**).

Fig. 8. Verify that all the configurations are OK.

7 If using Power Supply Circuit Fault Check, you should verify the ranges according to the type of power supply used (→ **fig. 9**). See **table 5**.

Firmware versions older than 214 have fixed power supply check limits (not user configurable) and hence do not support the new revision 04 power supply with increased voltage level.

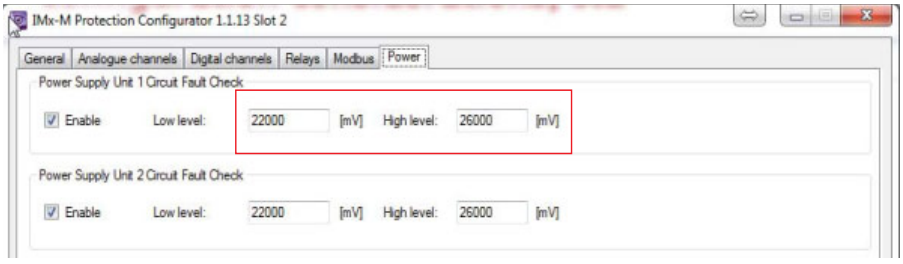


Fig. 9a. Power configuration for power supplies revision 03.

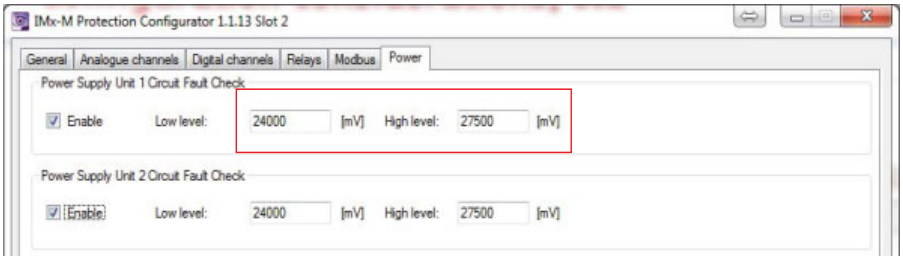


Fig. 9b. Power configuration for power supplies revision 04.

Table 5

Power supply circuit fault check ranges

	Power supply rev 03 (mV)	Power supply rev 04 (mV)
Low level	22000	24000
High level	26000	27500

8 When all the parameters are configured, click **Close** and then generate the configuration file (**→ fig. 10**). The configuration file will be stored in the same folder as where the IMx-M Protection Configurator software is located.

Before downloading the new configuration file to the IO board, proceed with the firmware upgrade.

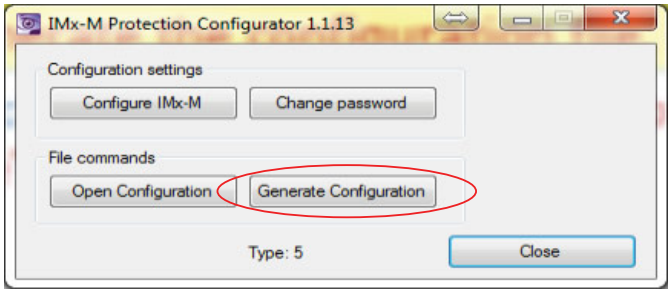


Fig. 10. Generating the new configuration file.

9 Advanced upgrade procedure must be used when upgrading the protection firmware to version 214. For this, go back to the IMx-M Serial Interface (as in step 1.), select the **Enable debug** option and then click **Update firmware Adv.** (**→ fig. 11**).

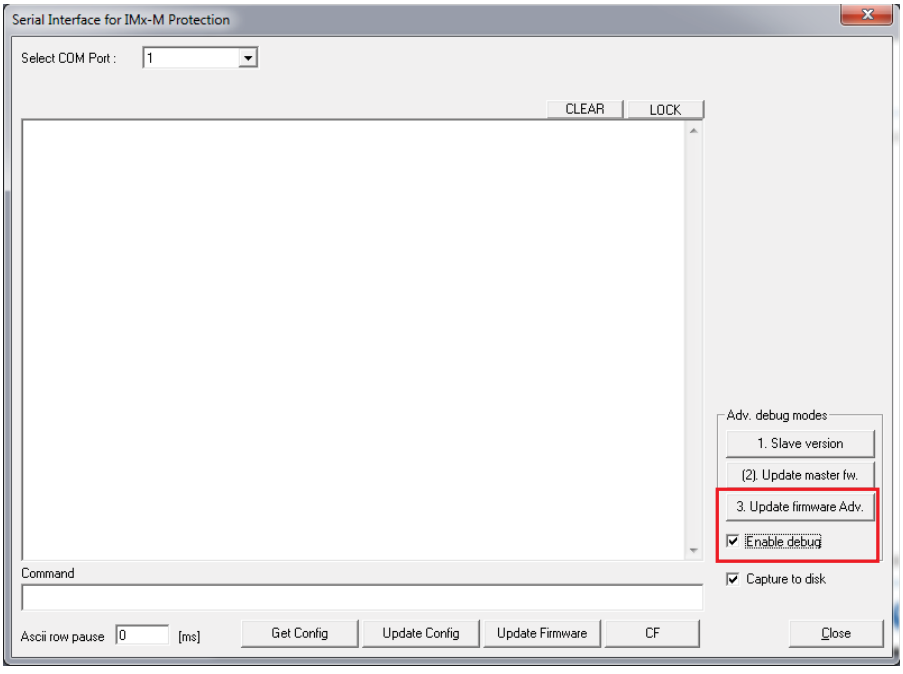


Fig. 11. Update firmware advanced when upgrading to firmware 214.

10 Select firmware **imxm_214.a48** and click **Open** (→ **fig. 12**).

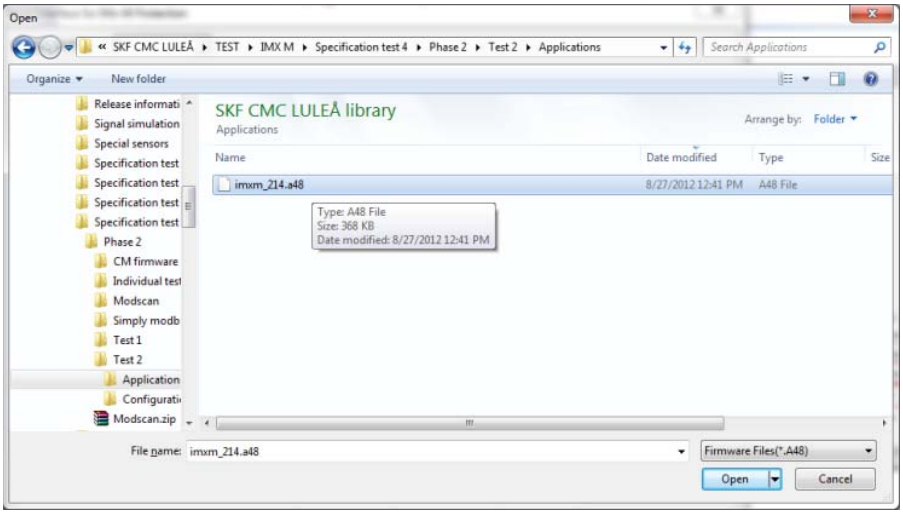


Fig. 12. Select firmware version 214.

11 Type the password (secret) and click **OK** (→ **fig. 13**). It will take a few minutes to send the firmware, and then a pop up window will display when the firmware has successfully been downloaded. The "intd0" command will give you information about the firmware version (→ **fig. 14**).

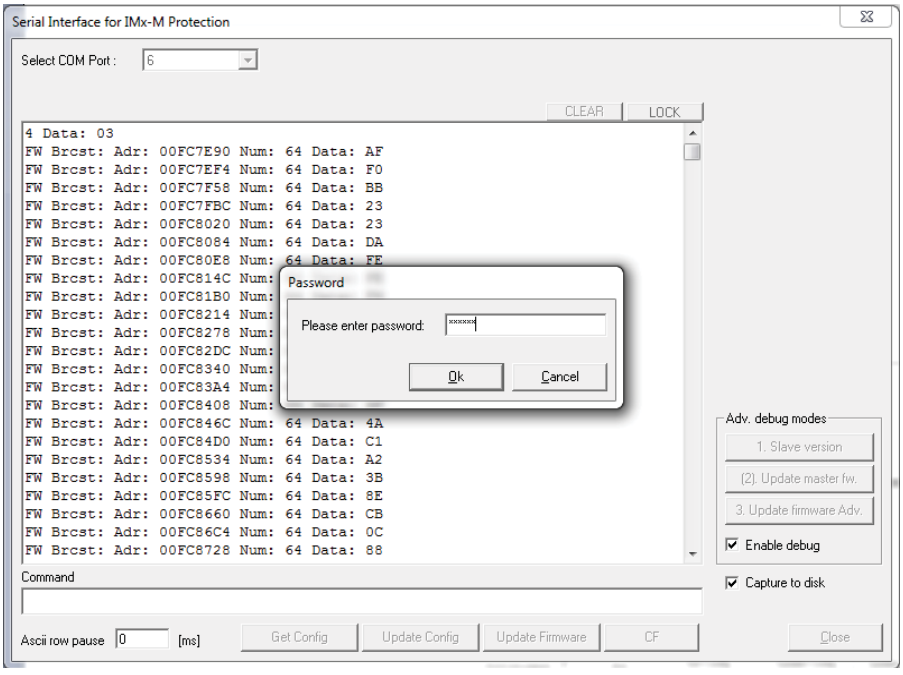


Fig. 13. Initiating firmware download.

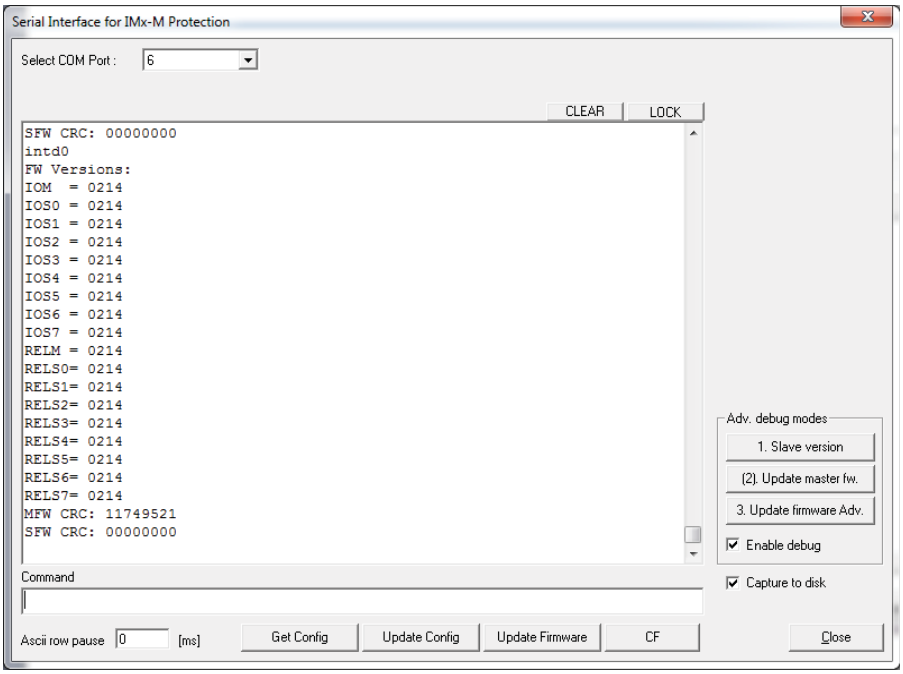


Fig. 14. Printout for the intd0 command.

Firmware 214 can be used on previously released IO boards (revisions 23 and 24).

12 Now it is possible to proceed downloading the upgraded configuration file. Click **Update Config**, select the upgraded configuration file and type the password to download the new configuration to the IO board (**→ fig. 15**).

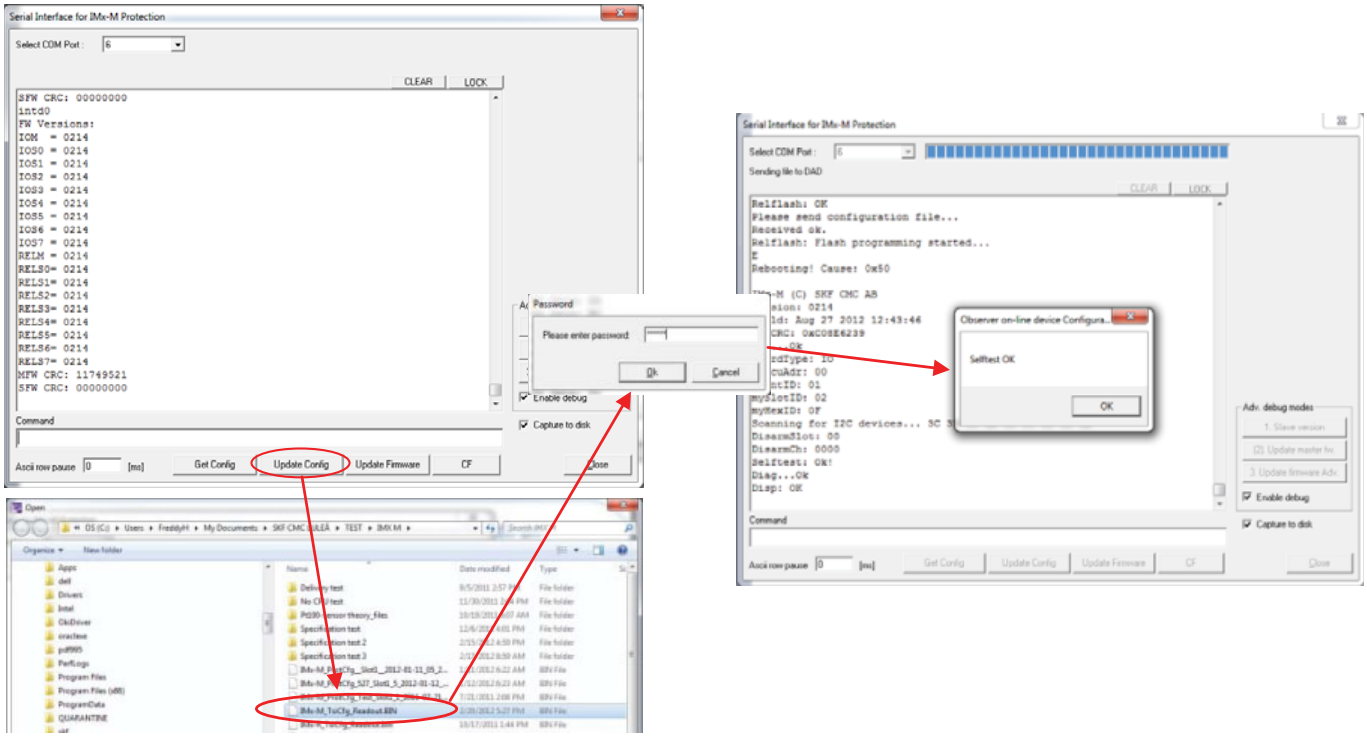


Fig. 15. Download the new configurations to the SKF Multilog IMx-M.

Condition monitoring configuration considerations

The distribution of the virtual channels when using the internal communication between the protection part and the condition monitoring part has changed in SKF @ptitude Observer. Because of this, care must be taken and a review of the virtual channel assignment shall be done according to the following:

1 When using SKF @ptitude Observer 8.5 in combination with CM firmware 0.972, the virtual channels were distributed as in **table 6**:

Table 6

SKF Multilog IMx-M 1.X

Protection analogue channel	Analogue virtual channel	Protection digital channel	Digital virtual channel
ch1	101	ch1	117
ch2	102	ch2	118
ch3	103	ch3	119
ch4	104	ch4	120
ch5	105	ch5	121
ch6	106	ch6	122
ch7	107	ch7	123
ch8	108	ch8	124
ch9	109		
ch10	110		
ch11	111		
ch12	112		
ch13	113		
ch14	114		
ch15	115		
ch16	116		

2 When using SKF @ptitude Observer 9.0.1 in combination with CM firmware 1.1, the virtual channels are now distributed as in **table 7**:

Table 7

SKF Multilog IMx-M 2.0.0

Protection analogue channel	Analogue virtual channel	Protection analogue channel (DC GAP)	Analogue virtual channel (DC GAP	Protection digital channel	Digital virtual channel
ch1	101	ch1	117	ch1	101
ch2	102	ch2	118	ch2	102
ch3	103	ch3	119	ch3	103
ch4	104	ch4	120	ch4	104
ch5	105	ch5	121	ch5	105
ch6	106	ch6	122	ch6	106
ch7	107	ch7	123	ch7	107
ch8	108	ch8	124	ch8	108
ch9	109	ch9	125		
ch10	110	ch10	126		
ch11	111	ch11	127		
ch12	112	ch12	128		
ch13	113	ch13	129		
ch14	114	ch14	130		
ch15	115	ch15	131		
ch16	116	ch16	132		

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