IDEC SmartRelay

FL1F Access Tool Online Help

Security information

IDEC SmartRelay provides products and solutions with industrial security functions that support the secure operation of plants, systems, machines and networks.

In order to protect plants, systems, machines and networks against cyber threats, it is necessary to implement – and continuously maintain – a holistic, state-of-the-art industrial security concept.

Customers are responsible for preventing unauthorized access to their plants, systems, machines and networks. Such systems, machines and components should only be connected to an enterprise network or the internet if and to the extent such a connection is necessary and only when appropriate security measures (e.g. firewalls and/or network segmentation) are in place.

IDEC SmartRelay's products and solutions undergo continuous development to make them more secure. IDEC strongly recommends that product updates are applied as soon as they are available and that the latest product versions are used. Use of product versions that are no longer supported, and failure to apply the latest updates may increase customers' exposure to cyber threats.

General introduction

FL1F Access Tool is an add-in for Excel. It connects to IDEC SmartRelay Base Module through HTTP.

FL1F Access Tool provides the following features:

- Set data synchronization period
- Show history data
- Start or stop the data synchronization
- Get value of IDEC SmartRelay Variables such as I, Q and M
- Record all variables values and save them in log files

Compatibility

FL1F Access Tool supports the following excel versions and IDEC SmartRelay Base Modules:

- Office Excel 2010, 2013 (both 32-bit version, and 64-bit version)
- FL1F, FL1F FS5 and later version

Comparison between BM Version Number and Hardware Type in WindLGC

BM Version Number	WindLGC
FL1F FS4 or earlier version	FL1F
FL1F FS5 or later version	FL1F FS5

Note

BM version number is written on the base module.

Refer to the user’s manual for details.

Document History

The following editions of FL1F Access Tool have been published:

Edition	Version	Comment
02/2019	V2.0.0	First edition

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Operating the FL1F Access Tool

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1.1 Prerequisite

Note

You can only use FL1F Access Tool in Local Network with a firewall.

In current version, FL1F Access Tool only supports one Base Module connection.

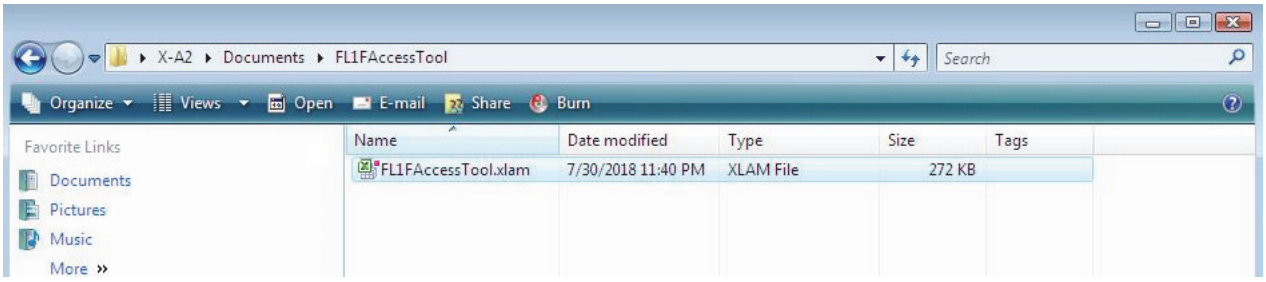
Before using FL1F Access Tool, make sure that you meet the following requirements:

- Install FL1F Access Tool in Microsoft Excel.
- Connect your PC to the target IDEC SmartRelay Base Module.
- Enable the Web server access through WindLGC. On how to enable the Web server access, refer to *WindLGC Online Help.*

1.2 Install FL1F Access Tool

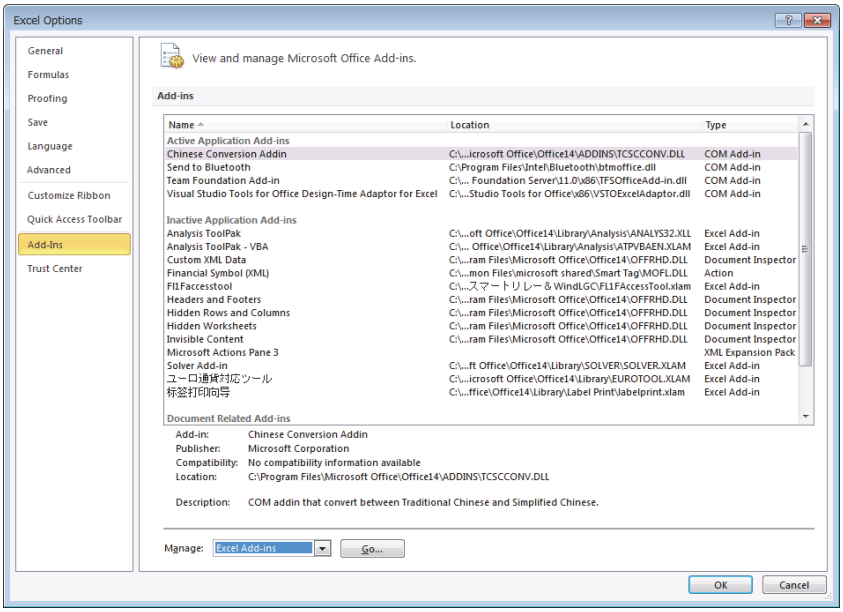
Before starting working with **FL1F Access Tool**, you need to install it first.

1. Copy `FL1FAccessTool.xlam` to your computer.

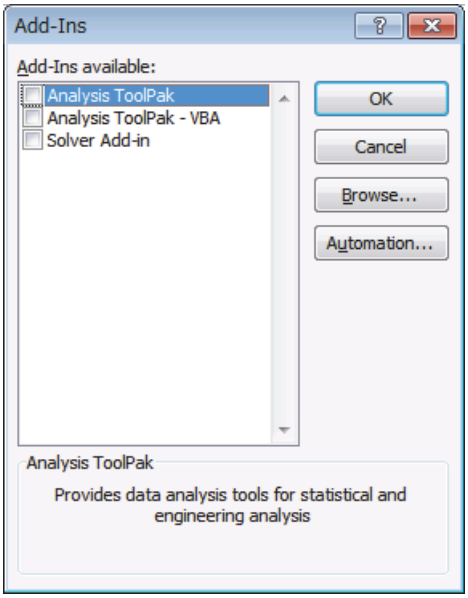


2. Start Excel.
3. On the **File** menu, point to **Options**, and then click **Add-Ins**.

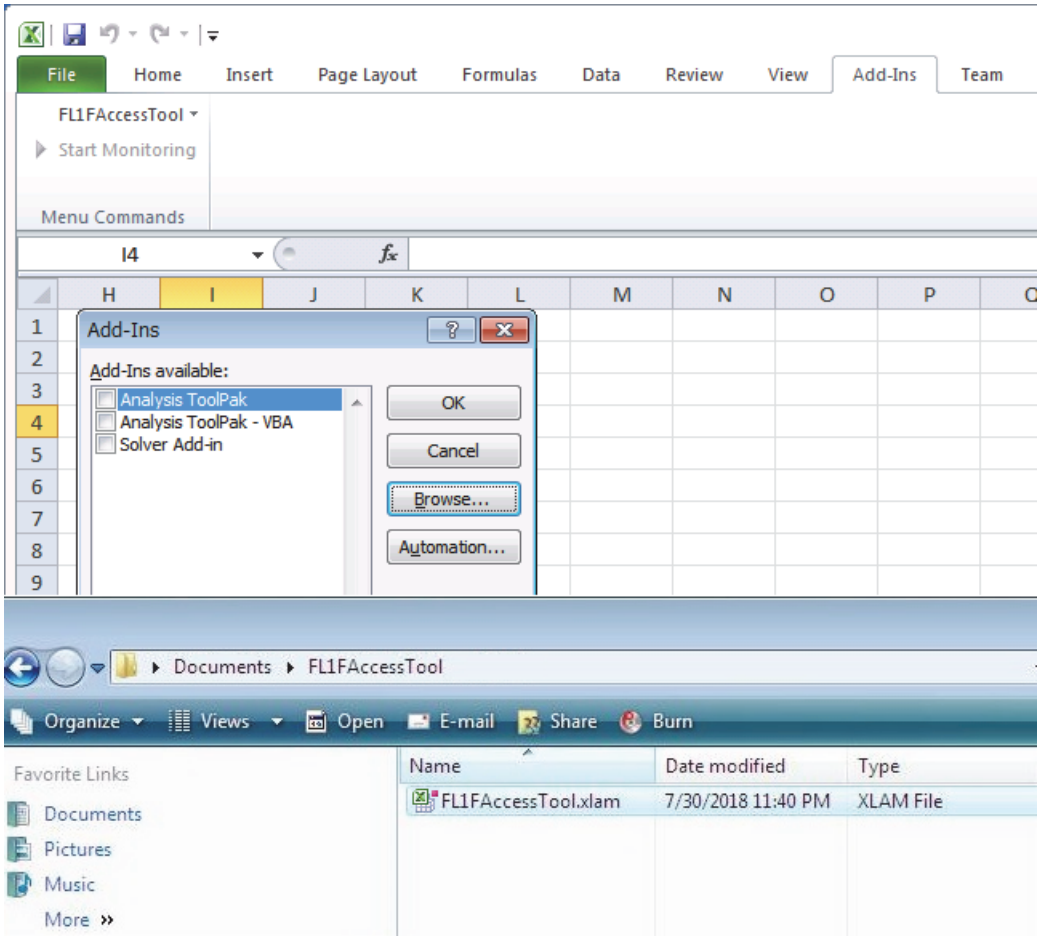
4. In the **Manage** box, select **Excel Add-ins**, and then click **Go**… button.



5. In the "Add-Ins available" pane, click **Browse**… button.



6. Browse to the folder which you save "FL1F Access Tool" in step one and select the tool.

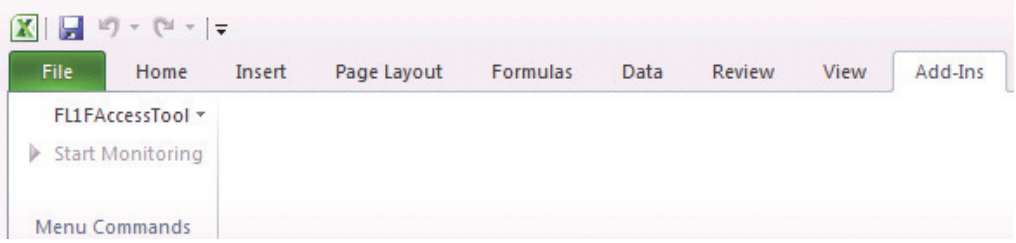


Result: FL1F Access Tool is listed in the "Add-Ins available" pane and its check box is automatically selected.

7. Click OK.

1.3 FL1F Access Tool Menu

After installing FL1F Access Tool successfully, click the toolbar **Add-Ins**, and then FL1F Access Tool menu is displayed as follows.



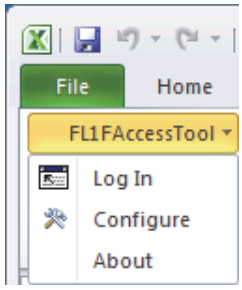
FL1F Access Tool menu consists of two options:

- Start/Stop: you can use it to start or stop data synchronization.
- FL1F Access Tool: click it and a drop-down menu appears. This drop-down menu includes Log In Panel, Configure Panel and About Panel.

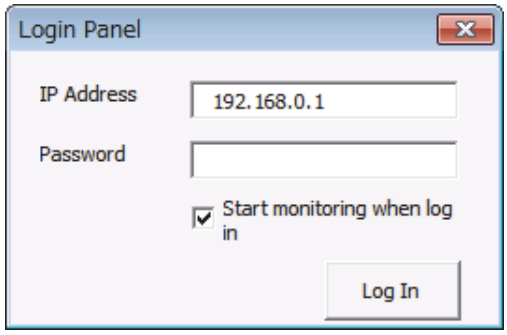
1.3.1 Log In Panel

After installing FL1F Access Tool, log in according to the following steps:

1. Click **Log In** in the drop-down list of FL1F Access Tool menu



2. Enter IP address and password of your IDEC SmartRelay Base Module after a Login panel pops up, and then select the check box **Run when log in**.



Note

FL1F Access Tool shares the same access control with Web server. If you have enabled Web user access without changing the password, you can log in with the default password "IDEC".

3. Click the **Log In** button.

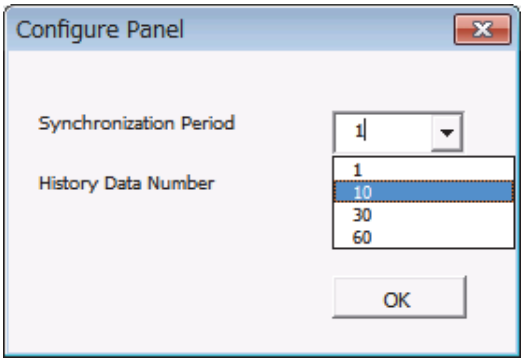
1.3.2 Configure Panel

In the configure panel, you can set data synchronization period and history data number according to the following steps:

1. In the drop-down list of FL1F Access Tool menu, click **Configure**, and then the configure panel is displayed.
2. In the scroll bar of **Synchronization Period**, you can select one number depending on your need.

Note

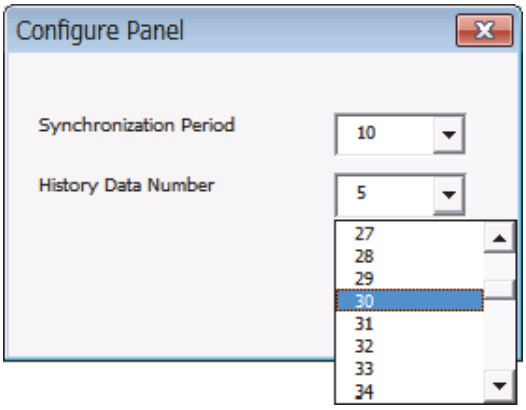
The synchronization period can be configured as the following numbers: 1,10, 30, 60 seconds, and the default is 1 second.



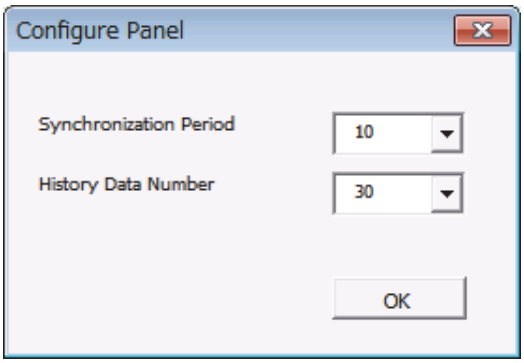
3. In the scroll bar of **History Data Number**, you can drag the scroll box from up to down to select one number for the history data.

Note

The history data number varies from 1 to 100, and the default is 5.

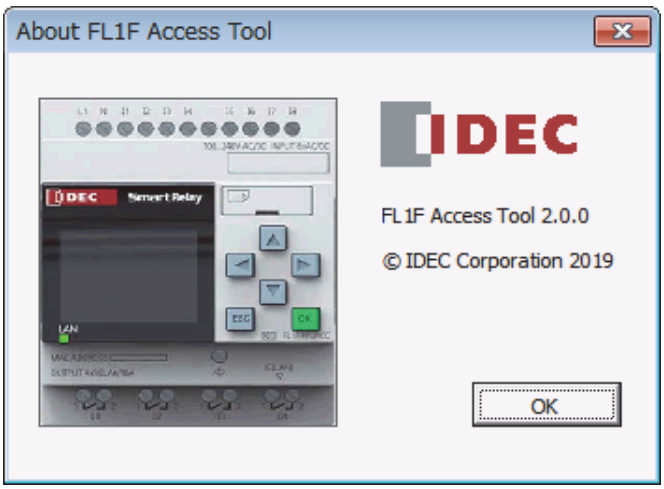


4. After selecting the number for synchronization period and history data number, click button **OK**.



1.3.3 About Panel

About panel shows the version information of FL1F Access Tool.

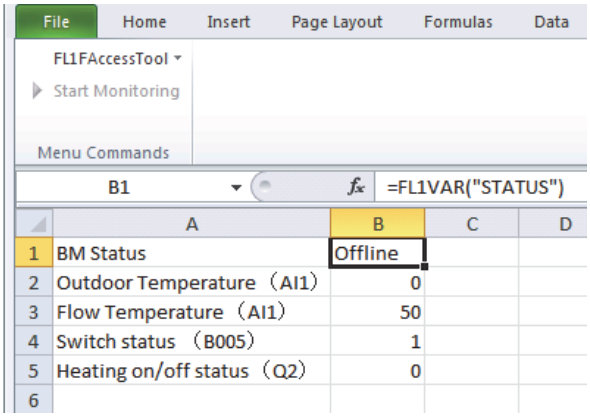


1.4 Get IDEC SmartRelay Variable Value

Note

Make sure that you enable Web server access of the target IDEC SmartRelay Base Module before using the FL1F Access Tool.

After logging in (Page 5) FL1F Access Tool successfully, you can get IDEC SmartRelay Variable values by inputting "=FL1VAR("id")" in a cell. Then the real time value of this specific variable is displayed in the cell. The variable value updates according to the data synchronization period you set in the configure panel.



"id" means the identification for IDEC SmartRelay variables. It consists of variable type and valid index. For one dimensional variables, there is only one index, for example: Q1, AI1, VW0. IDEC SmartRelay also supports multiple dimensional variables which have multiple index, for example: SR1.1.

Note

When you input an invalid or unsupported id for IDEC SmartRelay, FL1F Access Tool cannot return data. The following table shows the variables that can be got with FL1F Access Tool.

Variable	Variable Type	Valid Index		Remarks Example	Example
		Min	Max		
BM working status	STATUS	N/A	N/A	Offline Connecting Stop Running Recovering Invalid Status	=FL1VAR("STATUS")
Show the Time	TIME	N/A	N/A	The time format is YYYY-MM-DD hh:mm:ss	=FL1VAR("TIME")
Flag	M	1	64		=FL1VAR("M1")
Analog memory markers	AM	1	64		=FL1VAR("AM1")
Digital Outputs	Q	1	20		=FL1VAR("Q1")
Analog outputs	AQ	1	8		=FL1VAR("AQ1")
Digital Inputs	I	1	24		=FL1VAR("I1")
Cursor keys	Cur	1	4		=FL1VAR("CUR1")
TDE Function keys	F	1	4		=FL1VAR("F1")
Shift register bits	SR	1	4	The first dimension addresses index of SR	=FL1VAR("SR1.1")
		1	8	The second dimension addresses index of SR	=FL1VAR("SR4.8")
Network inputs	NI	1	64		=FL1VAR("NI1")
Analog Inputs	AI	1	8		=FL1VAR("AI1")
Network analog inputs	NAI	1	32		=FL1VAR("NAI1")
Network outputs	NQ	1	64		=FL1VAR("NQ1")
Network analog outputs	NAQ	1	16		=FL1VAR("NAQ1")
Variable Memory (In Bit)	VB	0	850	The first dimension addresses index of VB	=FL1VAR("VB0.0")
(FL1F FS5 and the later version)		0	7	The second dimension address index of VB	=FL1VAR("VB89.7")
Variable Memory (In Byte)	VB	0	850		
Variable Memory (In Words)	VW	0	849	The index is counted by Byte. It will try to reinterpret the byte and its next byte as a big-endian word.	=FL1VAR("VW0")
Variable Memory (In Double Words)	VD	0	847	The index is counted by Byte. It will try to reinterpret the byte and its next 3 bytes as a big -endian double word.	=FL1VAR("VD0")

FL1VAR combinations

You can use the following combinations to set the data format by adding them after the function FL1VAR. For example, input "=FL1VARS("AI")" in a cell, you can get signed value for AI.

Format letter	Description	Data Log letter	Description
S	Show signed value	L	Write the value to data log
U	Show unsigned value		
B	Show binary value		
H	Show hexadecimal value		
	The default is unsigned value		The default is that the value is not writ-ten in data log

You can use combination **L** together with **S**, **H** or **B**. For example, when you input "=FL1VARSL("AI1")", you can get a log file with signed value of AI1.

Whether you input **L** before or after **S/H/B**, you get the same output for "=FL1VARSL("AI1")" and "=FL1VARLS("AI1")".

Trend direction (TR/TD)

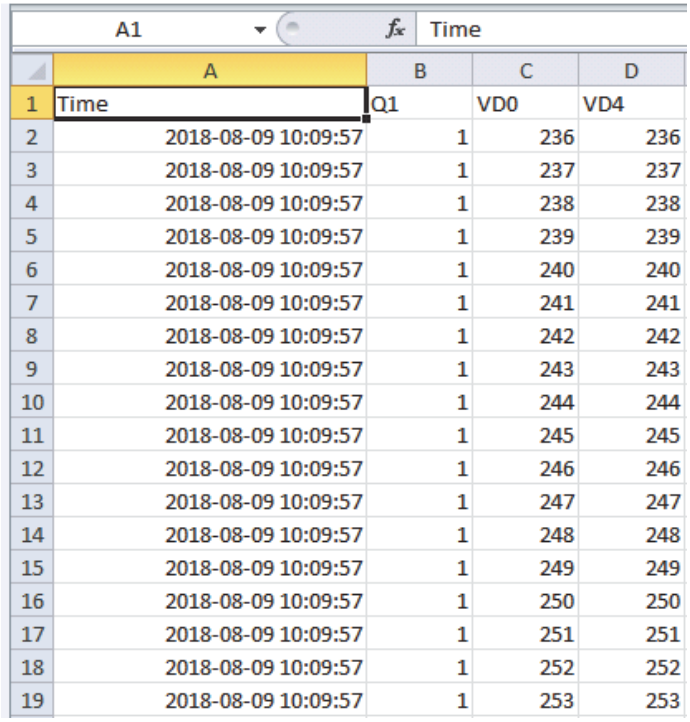
You can add the argument of trend direction after FL1VAR combination and this argument is optional. "TR" means that history data is shown on the right of the cell where the formula "=FL1VAR("id")" is placed. "TD" means the history data is shown on the downside of the cell where the formula is placed. For example, FL1VARS("id", "TR") means the signed value and history data is shown on the right of the cell.

Generate log files with FL1VARL

To generate log files for a variable, input "=FL1VARL("id")" in a cell. The log file updates according to the data synchronization period you set in the configure panel.

- Log files are saved as csv files. The file name is composed of three parts: the excel file name, IP of the connected BM, and the time stamp. For example, Test_192.168.0.1_20160406080001.
- Log files are saved in the parent folder of the working excel. If you haven't save the excel yet or the parent folder cannot be saved, the log files are saved in the My document folder of the Windows active user.

- If you use FL1VARL for multiple variables, their log files are saved in different columns of one csv file. See an example of log file as follows.



A1 | Time

	A	B	C	D
1	Time	Q1	VD0	VD4
2	2018-08-09 10:09:57	1	236	236
3	2018-08-09 10:09:57	1	237	237
4	2018-08-09 10:09:57	1	238	238
5	2018-08-09 10:09:57	1	239	239
6	2018-08-09 10:09:57	1	240	240
7	2018-08-09 10:09:57	1	241	241
8	2018-08-09 10:09:57	1	242	242
9	2018-08-09 10:09:57	1	243	243
10	2018-08-09 10:09:57	1	244	244
11	2018-08-09 10:09:57	1	245	245
12	2018-08-09 10:09:57	1	246	246
13	2018-08-09 10:09:57	1	247	247
14	2018-08-09 10:09:57	1	248	248
15	2018-08-09 10:09:57	1	249	249
16	2018-08-09 10:09:57	1	250	250
17	2018-08-09 10:09:57	1	251	251
18	2018-08-09 10:09:57	1	252	252
19	2018-08-09 10:09:57	1	253	253

- You can add a suffix (@ serial number) to sort your variables in the log files. For example, if you have five variables in your working excel, you input them as FL1VARL("Flag1@1"), FL1VARL("I1@2"), FL1VARL("Q1@3"), FL1VARL("SR2.5@4"), FL1VARL("F5@5"). Then the variables are listed in your log files as Flag1, I1, Q1, SR2.5, F5. The default serial number is 0.

Note

Capacity of FL1F Access Tool

A csv file has a maximum of 20000 lines. FL1F Access Tool will automatically write to a new log file when a log file is full.

You can have up to 500 log files in a folder. When the limitation is reached, your old log files will be removed in chronological order.

FL1F can only synchronize 72 variables for all supported types.

FL1F FS5 and later version can synchronize 75 consecutive VM or 7 discrete VM. FL1F FS5 and later version has no limit for the other variables.

The variables which cannot be synchronized are returned as invalid data.

See also

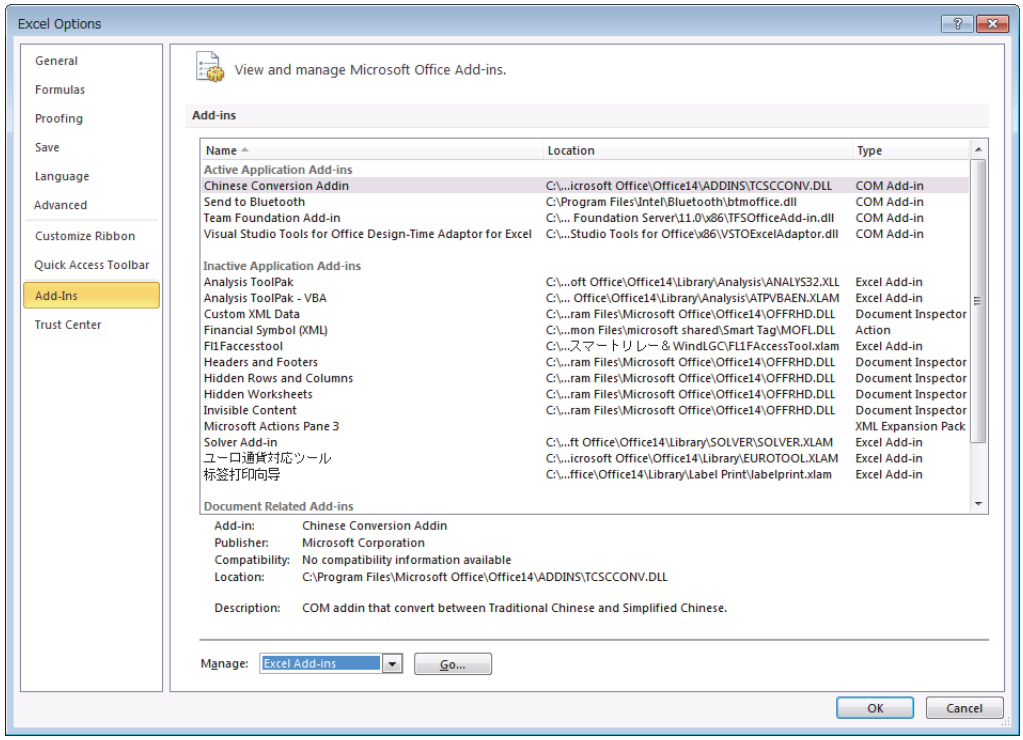
Get IDEC SmartRelay Variable Value (Page 9)

Configure Panel (Page 6)

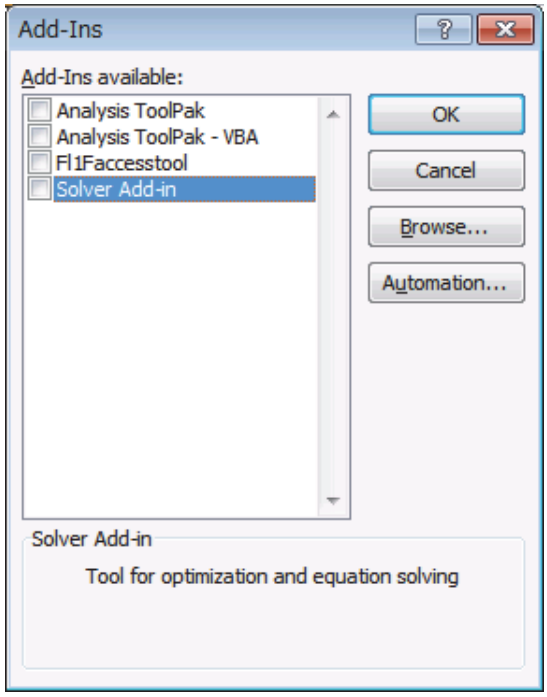
1.5 Uninstall the FL1F Access Tool

Follow the below steps to remove FL1F Access Tool completely from your computer.

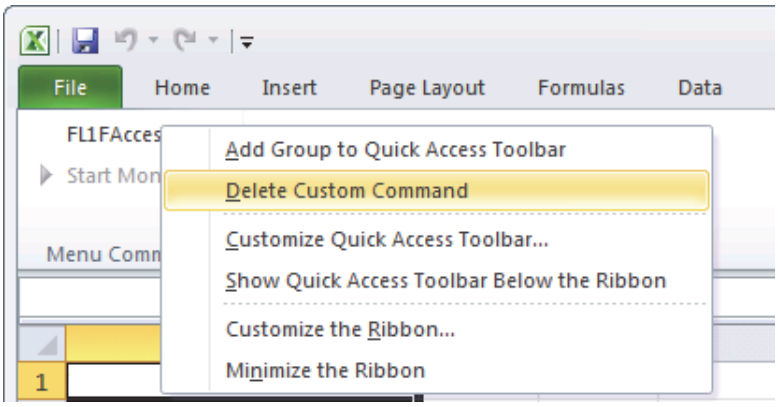
1. Start Excel.
2. On the **File** menu, point to **Options**, and then click **Add-Ins**.
3. In the **Manage** box, select **Excel Add-ins**, and then click **Go...** button.



4. In the "Add-Ins available" pane, uncheck the check box next to "FL1FAccesstool".



5. Click **OK**.
6. On the toolbar **Add-Ins**, right-click **FL1F Access Tool**.
7. Select **Delete Custom Command**.



8. Delete the source file FL1F Access Tool from your computer.

Reinstall the FL1F Access Tool

2

FL1F Access Tool cannot work properly in the following cases.

- You move FL1F Access Tool to another location.
- You update excel to a higher version.
- You use excel workbook in another computer.

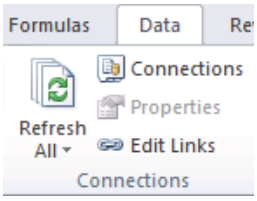
For the existing workbooks can work properly, follow the below steps to update the tool.

1. Reinstall FL1F Access Tool. On how to reload your FL1F Access Tool, refer to Install FL1F Access Tool (Page 1).
2. Edit the links in your workbook.

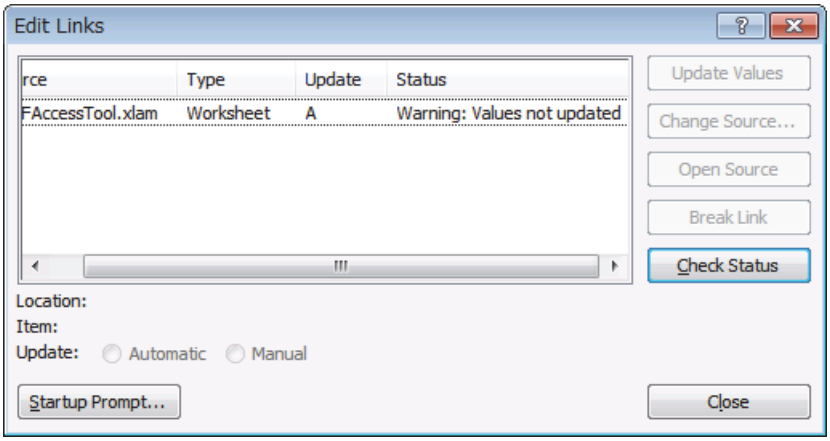
Edit the links in your workbook

Update the link to your FL1F Access Tool according to the following instructions:

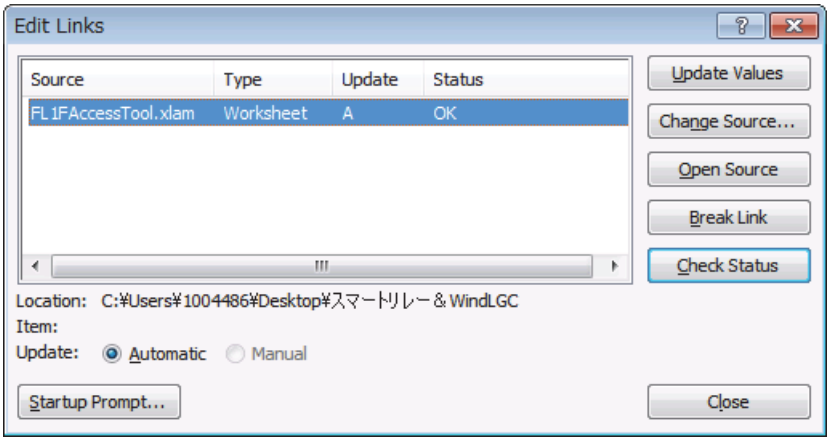
1. On the **Data** tab, in the Connections group, click **Edit Links**.



2. Check the status in the Status column.



3. Click **Change source...** and browse to the folder where FL1F Access Tool stores.
4. Click the FL1F Access Tool to update the links. The status of the source changes to "OK".



5. Click **Close**.

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